

THE 2002 OFFICIAL
PATIENT'S SOURCEBOOK

on

GOUT



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AND PHILIP M. PARKER, PH.D., EDITORS

ICON Health Publications
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Dedication

To the healthcare professionals dedicating their time and efforts to the study of gout.

Acknowledgements

The collective knowledge generated from academic and applied research summarized in various references has been critical in the creation of this sourcebook which is best viewed as a comprehensive compilation and collection of information prepared by various official agencies which directly or indirectly are dedicated to gout. All of the *Official Patient's Sourcebooks* draw from various agencies and institutions associated with the United States Department of Health and Human Services, and in particular, the Office of the Secretary of Health and Human Services (OS), the Administration for Children and Families (ACF), the Administration on Aging (AOA), the Agency for Healthcare Research and Quality (AHRQ), the Agency for Toxic Substances and Disease Registry (ATSDR), the Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), the Healthcare Financing Administration (HCFA), the Health Resources and Services Administration (HRSA), the Indian Health Service (IHS), the institutions of the National Institutes of Health (NIH), the Program Support Center (PSC), and the Substance Abuse and Mental Health Services Administration (SAMHSA). In addition to these sources, information gathered from the National Library of Medicine, the United States Patent Office, the European Union, and their related organizations has been invaluable in the creation of this sourcebook. Some of the work represented was financially supported by the Research and Development Committee at INSEAD. This support is gratefully acknowledged. Finally, special thanks are owed to Tiffany LaRochelle for her excellent editorial support.

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INTRODUCTION

Overview

Dr. C. Everett Koop, former U.S. Surgeon General, once said, “The best prescription is knowledge.”¹ The Agency for Healthcare Research and Quality (AHRQ) of the National Institutes of Health (NIH) echoes this view and recommends that every patient incorporate education into the treatment process. According to the AHRQ:

Finding out more about your condition is a good place to start. By contacting groups that support your condition, visiting your local library, and searching on the Internet, you can find good information to help guide your treatment decisions. Some information may be hard to find – especially if you don't know where to look.²

As the AHRQ mentions, finding the right information is not an obvious task. Though many physicians and public officials had thought that the emergence of the Internet would do much to assist patients in obtaining reliable information, in March 2001 the National Institutes of Health issued the following warning:

The number of Web sites offering health-related resources grows every day. Many sites provide valuable information, while others may have information that is unreliable or misleading.³

¹ Quotation from <http://www.drkoop.com>.

² The Agency for Healthcare Research and Quality (AHRQ):
<http://www.ahrq.gov/consumer/diaginfo.htm>.

³ From the NIH, National Cancer Institute (NCI):
<http://cancertrials.nci.nih.gov/beyond/evaluating.html>.

Since the late 1990s, physicians have seen a general increase in patient Internet usage rates. Patients frequently enter their doctor's offices with printed Web pages of home remedies in the guise of latest medical research. This scenario is so common that doctors often spend more time dispelling misleading information than guiding patients through sound therapies. *The 2002 Official Patient's Sourcebook on Gout* has been created for patients who have decided to make education and research an integral part of the treatment process. The pages that follow will tell you where and how to look for information covering virtually all topics related to gout, from the essentials to the most advanced areas of research.

The title of this book includes the word "official." This reflects the fact that the sourcebook draws from public, academic, government, and peer-reviewed research. Selected readings from various agencies are reproduced to give you some of the latest official information available to date on gout.

Given patients' increasing sophistication in using the Internet, abundant references to reliable Internet-based resources are provided throughout this sourcebook. Where possible, guidance is provided on how to obtain free-of-charge, primary research results as well as more detailed information via the Internet. E-book and electronic versions of this sourcebook are fully interactive with each of the Internet sites mentioned (clicking on a hyperlink automatically opens your browser to the site indicated). Hard copy users of this sourcebook can type cited Web addresses directly into their browsers to obtain access to the corresponding sites. Since we are working with ICON Health Publications, hard copy *Sourcebooks* are frequently updated and printed on demand to ensure that the information provided is current.

In addition to extensive references accessible via the Internet, every chapter presents a "Vocabulary Builder." Many health guides offer glossaries of technical or uncommon terms in an appendix. In editing this sourcebook, we have decided to place a smaller glossary within each chapter that covers terms used in that chapter. Given the technical nature of some chapters, you may need to revisit many sections. Building one's vocabulary of medical terms in such a gradual manner has been shown to improve the learning process.

We must emphasize that no sourcebook on gout should affirm that a specific diagnostic procedure or treatment discussed in a research study, patent, or doctoral dissertation is "correct" or your best option. This sourcebook is no exception. Each patient is unique. Deciding on appropriate options is always up to the patient in consultation with their physician and healthcare providers.

Organization

This sourcebook is organized into three parts. Part I explores basic techniques to researching gout (e.g. finding guidelines on diagnosis, treatments, and prognosis), followed by a number of topics, including information on how to get in touch with organizations, associations, or other patient networks dedicated to gout. It also gives you sources of information that can help you find a doctor in your local area specializing in treating gout. Collectively, the material presented in Part I is a complete primer on basic research topics for patients with gout.

Part II moves on to advanced research dedicated to gout. Part II is intended for those willing to invest many hours of hard work and study. It is here that we direct you to the latest scientific and applied research on gout. When possible, contact names, links via the Internet, and summaries are provided. It is in Part II where the vocabulary process becomes important as authors publishing advanced research frequently use highly specialized language. In general, every attempt is made to recommend “free-to-use” options.

Part III provides appendices of useful background reading for all patients with gout or related disorders. The appendices are dedicated to more pragmatic issues faced by many patients with gout. Accessing materials via medical libraries may be the only option for some readers, so a guide is provided for finding local medical libraries which are open to the public. Part III, therefore, focuses on advice that goes beyond the biological and scientific issues facing patients with gout.

Scope

While this sourcebook covers gout, your doctor, research publications, and specialists may refer to your condition using a variety of terms. Therefore, you should understand that gout is often considered a synonym or a condition closely related to the following:

- Acute Gouty Arthritis
- Chronic Gout
- Chronic Gouty Arthritis
- Familial Juvenile Gouty Nephropathy
- Familial Juvenile Hyperuricemic Nephropathy
- Familial Nephropathy Associated with Hyperuricemia
- Gouty Arthritis

- Gouty Nephropathy
- Juvenile Gouty Nephropathy
- Uric Acid Nephrolithiasis

In addition to synonyms and related conditions, physicians may refer to gout using certain coding systems. The International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) is the most commonly used system of classification for the world's illnesses. Your physician may use this coding system as an administrative or tracking tool. The following classification is commonly used for gout:⁴

- 274 gout
- 274.0 gouty arthropathy
- 274.1 gouty nephropathy
- 274.10 gouty nephropathy, unspecified
- 274.11 uric acid nephrolithiasis
- 274.19 other
- 274.8 gout with other specified manifestations
- 274.81 gouty tophi of ear
- 274.82 gouty tophi of other sites
- 274.89 other
- 274.9 gout, unspecified

For the purposes of this sourcebook, we have attempted to be as inclusive as possible, looking for official information for all of the synonyms relevant to gout. You may find it useful to refer to synonyms when accessing databases or interacting with healthcare professionals and medical librarians.

Moving Forward

Since the 1980s, the world has seen a proliferation of healthcare guides covering most illnesses. Some are written by patients or their family members. These generally take a layperson's approach to understanding and

⁴ This list is based on the official version of the World Health Organization's 9th Revision, International Classification of Diseases (ICD-9). According to the National Technical Information Service, "ICD-9CM extensions, interpretations, modifications, addenda, or errata other than those approved by the U.S. Public Health Service and the Health Care Financing Administration are not to be considered official and should not be utilized. Continuous maintenance of the ICD-9-CM is the responsibility of the federal government."

coping with an illness or disorder. They can be uplifting, encouraging, and highly supportive. Other guides are authored by physicians or other healthcare providers who have a more clinical outlook. Each of these two styles of guide has its purpose and can be quite useful.

As editors, we have chosen a third route. We have chosen to expose you to as many sources of official and peer-reviewed information as practical, for the purpose of educating you about basic and advanced knowledge as recognized by medical science today. You can think of this sourcebook as your personal Internet age reference librarian.

Why “Internet age”? All too often, patients diagnosed with gout will log on to the Internet, type words into a search engine, and receive several Web site listings which are mostly irrelevant or redundant. These patients are left to wonder where the relevant information is, and how to obtain it. Since only the smallest fraction of information dealing with gout is even indexed in search engines, a non-systematic approach often leads to frustration and disappointment. With this sourcebook, we hope to direct you to the information you need that you would not likely find using popular Web directories. Beyond Web listings, in many cases we will reproduce brief summaries or abstracts of available reference materials. These abstracts often contain distilled information on topics of discussion.

While we focus on the more scientific aspects of gout, there is, of course, the emotional side to consider. Later in the sourcebook, we provide a chapter dedicated to helping you find peer groups and associations that can provide additional support beyond research produced by medical science. We hope that the choices we have made give you the most options available in moving forward. In this way, we wish you the best in your efforts to incorporate this educational approach into your treatment plan.

The Editors

PART I: THE ESSENTIALS

ABOUT PART I

Part I has been edited to give you access to what we feel are “the essentials” on gout. The essentials of a disease typically include the definition or description of the disease, a discussion of who it affects, the signs or symptoms associated with the disease, tests or diagnostic procedures that might be specific to the disease, and treatments for the disease. Your doctor or healthcare provider may have already explained the essentials of gout to you or even given you a pamphlet or brochure describing gout. Now you are searching for more in-depth information. As editors, we have decided, nevertheless, to include a discussion on where to find essential information that can complement what your doctor has already told you. In this section we recommend a process, not a particular Web site or reference book. The process ensures that, as you search the Web, you gain background information in such a way as to maximize your understanding.

CHAPTER 1. THE ESSENTIALS ON GOUT: GUIDELINES

Overview

Official agencies, as well as federally-funded institutions supported by national grants, frequently publish a variety of guidelines on gout. These are typically called “Fact Sheets” or “Guidelines.” They can take the form of a brochure, information kit, pamphlet, or flyer. Often they are only a few pages in length. The great advantage of guidelines over other sources is that they are often written with the patient in mind. Since new guidelines on gout can appear at any moment and be published by a number of sources, the best approach to finding guidelines is to systematically scan the Internet-based services that post them.

The National Institutes of Health (NIH)⁵

The National Institutes of Health (NIH) is the first place to search for relatively current patient guidelines and fact sheets on gout. Originally founded in 1887, the NIH is one of the world's foremost medical research centers and the federal focal point for medical research in the United States. At any given time, the NIH supports some 35,000 research grants at universities, medical schools, and other research and training institutions, both nationally and internationally. The rosters of those who have conducted research or who have received NIH support over the years include the world's most illustrious scientists and physicians. Among them are 97 scientists who have won the Nobel Prize for achievement in medicine.

⁵ Adapted from the NIH: <http://www.nih.gov/about/NIHoverview.html>.

There is no guarantee that any one Institute will have a guideline on a specific disease, though the National Institutes of Health collectively publish over 600 guidelines for both common and rare diseases. The best way to access NIH guidelines is via the Internet. Although the NIH is organized into many different Institutes and Offices, the following is a list of key Web sites where you are most likely to find NIH clinical guidelines and publications dealing with gout and associated conditions:

- Office of the Director (OD); guidelines consolidated across agencies available at <http://www.nih.gov/health/consumer/conkey.htm>
- National Library of Medicine (NLM); extensive encyclopedia (A.D.A.M., Inc.) with guidelines available at <http://www.nlm.nih.gov/medlineplus/healthtopics.html>
- National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS); fact sheets and guidelines at <http://www.nih.gov/niams/healthinfo/>

Among those listed above, the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) is especially noteworthy. The mission of NIAMS, a part of the National Institutes of Health (NIH), is to support research into the causes, treatment, and prevention of arthritis and musculoskeletal and skin diseases, the training of basic and clinical scientists to carry out this research, and the dissemination of information on research progress in these diseases. The National Institute of Arthritis and Musculoskeletal and Skin Diseases Information Clearinghouse is a public service sponsored by the NIAMS that provides health information and information sources. The NIAMS provides the following guideline concerning gout.⁶

What Is Gout?⁷

Gout is one of the most painful rheumatic diseases. It results from deposits of needle-like crystals of uric acid in the connective tissue, joint spaces, or both. These deposits lead to inflammatory arthritis, which causes swelling, redness, heat, pain, and stiffness in the joints. Arthritis is a term that is often

⁶ This and other passages are adapted from the NIH and NIAMS (<http://www.niams.nih.gov/hi/index.htm>). “Adapted” signifies that the text is reproduced with attribution, with some or no editorial adjustments.

⁷ Adapted from The National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS): <http://www.niams.nih.gov/hi/topics/gout/gout.htm>.

used to refer to the more than 100 different rheumatic diseases that affect the joints, muscles, and bones, and may also affect other connective tissues. Gout accounts for about 5 percent of all cases of arthritis. Pseudogout, also a crystal-induced arthritis, is a condition with similar symptoms that results from deposits of calcium pyrophosphate dihydrate crystals in the joints. It is sometimes called calcium pyrophosphate deposition disease, crystal deposition disease, or chondrocalcinosis.

Uric acid is a substance that results from the breakdown of purines or waste products in the body. Normally, uric acid is dissolved in the blood and passes through the kidneys into the urine, where it is eliminated. If the body increases its production of uric acid or if the kidneys do not eliminate enough uric acid from the body, levels build up (a condition called hyperuricemia). Hyperuricemia may also result when a person eats too many high-purine foods, such as liver, dried beans and peas, anchovies, and gravies. Hyperuricemia is not a disease and by itself is not dangerous. However, if excess uric acid crystals form as a result of hyperuricemia, gout can develop. The excess crystals build up in the joint spaces, causing inflammation. Deposits of uric acid, called tophi, can appear as lumps under the skin around the joints and at the rim of the ear. In addition, uric acid crystals can also collect in the kidneys and cause kidney stones.

For many people, gout initially affects the joints in the big toe, a condition called podagra. Sometime during the course of the disease, gout will affect the big toe in about 75 percent of patients. Gout can also affect the instep, ankles, heels, knees, wrists, fingers, and elbows. The disease can progress through four stages:

- Asymptomatic (without symptoms) hyperuricemia
- Acute gout or acute gouty arthritis
- Interval or intercritical gout
- Chronic tophaceous gout

Asymptomatic (without Symptoms) Hyperuricemia

In this stage, a person has elevated levels of uric acid in the blood but no other symptoms. The tendency to develop gout, however, is present. A person in this stage does not usually require treatment.

Acute Gout or Acute Gouty Arthritis

In this stage, hyperuricemia has caused the deposit of uric acid crystals in joint spaces. This leads to a sudden onset of intense pain and swelling in the joints, which may also be warm and very tender. An acute attack commonly occurs at night and can be triggered by stressful events, alcohol or drugs, or another acute illness. Early attacks usually subside within 3 to 10 days, even without treatment, and the next attack may not occur for months or even years. Over time, however, attacks can last longer and occur more frequently.

Interval or Intercritical Gout

This is the period between acute attacks. In this stage, a person does not have any symptoms and has normal joint function.

Chronic Tophaceous Gout

This is the most disabling stage of gout and usually develops over a long period, such as 10 years. In this stage, the disease has caused permanent damage to the affected joints and sometimes to the kidneys. With proper treatment, most people with gout do not progress to this advanced stage.

What Causes Gout?

A number of risk factors are related to the development of hyperuricemia and gout:

- Genetics may play a role in determining a person's risk, since 6 to 18 percent of people with gout have a family history of the disease.
- Being overweight increases the risk of developing hyperuricemia and gout because excessive food intake increases the body's production of uric acid.
- Excessive use of alcohol can lead to hyperuricemia because it interferes with the removal of uric acid from the body.
- Eating too many foods that are rich in purines can cause or aggravate gout.

- An enzyme defect that interferes with the way the body breaks down purines causes gout in a small number of people.
- Exposure to lead in the environment can cause gout.

Some people are at risk for high levels of uric acid in body fluids because of certain medicines they take or other conditions they may have. For example, the following types of medicines can lead to hyperuricemia because they reduce the body's ability to remove uric acid:

- Diuretics, which decrease the amount of uric acid passed in the urine. Many people take diuretics for hypertension, edema, or cardiovascular disease.
- Salicylates, or medicines made from salicylic acid, such as aspirin.
- The vitamin niacin, also called nicotinic acid.
- Cyclosporine, a medicine used to control the body's rejection of transplanted organs.
- Levodopa, a medicine used to treat Parkinson's disease.

Who Is Likely to Develop Gout?

Gout occurs in approximately 275 out of every 100,000 people. Men are more likely to develop gout than women, and men aged 40 to 50 are most commonly affected. Women rarely develop gout before menopause. The disease affects men and women differently: Men tend to develop gout at an earlier age than women, and alcohol is more often associated with the development of the disease in men. Gout is rare in children and young adults.

Signs and symptoms of gout:

- Hyperuricemia
- Presence of uric acid crystals in joint fluid
- More than one attack of acute arthritis
- Arthritis that develops in 1 day
- Attack of arthritis in only one joint, usually the toe, ankle, or knee
- A painful joint that is swollen, red, and warm

How Is Gout Diagnosed?

Gout may be difficult for doctors to diagnose because the symptoms may be vague and often mimic other conditions. Although most people with gout have hyperuricemia at some time during the course of their disease, it may not be present during an acute attack. In addition, hyperuricemia alone does not mean that a person has gout. In fact, most people with hyperuricemia do not develop the disease.

To confirm a diagnosis of gout, doctors typically test the fluid in the joint, called synovial fluid, by using a needle to draw a sample of fluid from a person's inflamed joint. The doctor places some of the fluid on a slide and looks for monosodium urate crystals under a microscope. If the person has gout, the doctor will almost always see crystals. Their absence, however, does not completely rule out the diagnosis. Doctors may also find it helpful to examine joint or tophi deposits to diagnose gout. A doctor who suspects a joint infection may check for the presence of bacteria.

How Is Gout Treated?

With proper treatment, most people with gout are able to control their symptoms and live normal lives. Gout can be treated with one or a combination of therapies. Treatment goals are to ease the pain associated with acute attacks, prevent future attacks, and avoid the formation of new tophi and kidney stones.

The most common treatments for an acute attack of gout are high doses of nonsteroidal anti-inflammatory drugs (NSAID's) and injections of corticosteroid drugs into the affected joint. NSAID's reduce the inflammation caused by deposits of uric acid crystals. The NSAID's most commonly prescribed for gout are indomethacin (Indocin⁸) and naproxen (Anaprox, Naprosyn), which are taken by mouth (orally) every day. Patients usually begin to improve within a few hours of treatment, and the attack goes away completely within a few days.

When NSAID's do not control symptoms, the doctor may consider using colchicine. This drug is most effective when taken within the first 12 hours of

⁸ Brand names included in this fact sheet are provided as examples only, and their inclusion does not mean that these products are endorsed by the National Institutes of Health or any other Government agency. Also, if a particular brand name is not mentioned, this does not mean that the product is unsatisfactory.

an acute attack. Doctors can give colchicine by mouth (usually every hour until symptoms go away), or they can inject it directly into a vein (intravenously). When taken by mouth, colchicine frequently causes diarrhea.

For some people, the doctor may prescribe either NSAID's or oral colchicine in small daily doses to prevent future attacks. If attacks continue and tophi develop, however, the doctor may prescribe medicine to treat hyperuricemia, most commonly allopurinol (Zyloprim) and probenecid (Benemid).

What Can People with Gout Do to Stay Healthy?

- To help prevent future attacks, take the medicines your doctor prescribes. Carefully follow instructions about how much medicine to take and when to take it. Acute gout is best treated when symptoms first occur.
- Tell your doctor about all the medicines and vitamins you take. He or she can tell you if any of them increase your risk of hyperuricemia.
- Plan followup visits with your doctor to evaluate your progress.
- Maintain a healthy, balanced diet; avoid foods that are high in purines; and drink plenty of fluids, especially water. Fluids help remove uric acid from the body.
- Exercise regularly and maintain a healthy body weight. Lose weight if you are overweight.

What Research Is Being Conducted to Help People with Gout?

Scientists are studying whether other NSAID's are effective in treating gout and are analyzing new compounds to develop safe, effective medicines to treat gout and other rheumatic diseases. For example, researchers are testing to determine whether fish oil supplements reduce the risk of gout. They are also studying the structure of the enzymes that break down purines in the body, in hopes of achieving a better understanding of the enzyme defects that can cause gout.

Where Can I Find More Information about Gout?

Arthritis Foundation

1330 West Peachtree Street

Atlanta, GA 30309

404/872-7100

800/283-7800, or call your local chapter (listed in the telephone directory)

<http://www.arthritis.org/>

This is the main voluntary organization devoted to arthritis. The foundation publishes free pamphlets on many types of arthritis and a monthly magazine for members that provides up-to-date information on arthritis. The foundation also provides physician and clinic referrals.

National Arthritis and Musculoskeletal and Skin Diseases Information Clearinghouse (NAMSI)

National Institutes of Health

1 AMS Circle

Bethesda, MD 20892-3675

301/495-4484

TTY: 301/565-2966

Fax: 301/718-6366

<http://www.niams.nih.gov/>

This clearinghouse, a public service sponsored by the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), provides information about various forms of arthritis and rheumatic diseases. The clearinghouse distributes patient and professional education materials and also refers people to other sources of information.

More Guideline Sources

The guideline above on gout is only one example of the kind of material that you can find online and free of charge. The remainder of this chapter will direct you to other sources which either publish or can help you find additional guidelines on topics related to gout. Many of the guidelines listed below address topics that may be of particular relevance to your specific situation or of special interest to only some patients with gout. Due to space limitations these sources are listed in a concise manner. Do not hesitate to consult the following sources by either using the Internet hyperlink provided, or, in cases where the contact information is provided, contacting the publisher or author directly.

Topic Pages: MEDLINEplus

For patients wishing to go beyond guidelines published by specific Institutes of the NIH, the National Library of Medicine has created a vast and patient-oriented healthcare information portal called MEDLINEplus. Within this Internet-based system are “health topic pages.” You can think of a health topic page as a guide to patient guides. To access this system, log on to <http://www.nlm.nih.gov/medlineplus/healthtopics.html>. From there you can either search using the alphabetical index or browse by broad topic areas. Recently, MEDLINEplus listed the following as being relevant to gout:

- Guides On gout
 - Gout and Pseudogout**
<http://www.nlm.nih.gov/medlineplus/goutandpseudogout.html>
 - Gout**
<http://www.nlm.nih.gov/medlineplus/tutorials/goutloader.html>

- Other Guides
 - Acute gouty arthritis**
<http://www.nlm.nih.gov/medlineplus/ency/article/000422.htm>
 - Chronic gouty arthritis**
<http://www.nlm.nih.gov/medlineplus/ency/article/000424.htm>
 - Arthritis**
<http://www.nlm.nih.gov/medlineplus/ency/article/001243.htm>
 - Von Gierke disease**
<http://www.nlm.nih.gov/medlineplus/ency/article/000338.htm>

Within the health topic page dedicated to gout, the following was recently recommended to patients:

- General/Overviews
 - Calcium Pyrophosphate Dihydrate Crystal Deposition Disease (CPPD) (Pseudo Gout)**
Source: Arthritis Foundation
<http://www.arthritis.org/conditions/DiseaseCenter/cppd.asp>

Gout

<http://www.nlm.nih.gov/medlineplus/tutorials/goutloader.html>

What is Gout?

Source: Mayo Foundation for Medical Education and Research

<http://www.mayoclinic.com/invoked.cfm?id=DS00090>

- Treatment

2002 Drug Guide

Source: Arthritis Foundation

<http://www.arthritis.org/conditions/DrugGuide/default.asp>

Joint Injection/Aspiration

Source: American College of Rheumatology

<http://www.rheumatology.org/patients/factsheet/injection.html>

- Specific Conditions/Aspects

Gout and Your Feet

Source: American College of Foot and Ankle Surgeons

<http://www.acfas.org/brgoutft.html>

- From the National Institutes of Health

Questions and Answers about Gout

Source: National Institute of Arthritis and Musculoskeletal and Skin Diseases

<http://www.niams.nih.gov/hi/topics/gout/gout.htm>

- Latest News

Gout Drug May Help Heart Failure Patients

Source: 06/17/2002, Reuters Health

http://www.nlm.nih.gov/medlineplus/news/fullstory_8113.html

- Organizations

Arthritis Foundation

<http://www.arthritis.org/>

National Institute of Arthritis and Musculoskeletal and Skin Diseases

<http://www.niams.nih.gov/>

- Prevention/Screening

- **Uric Acid Test**

- Source: American Association for Clinical Chemistry

- http://www.labtestsonline.org/understanding/analytes/uric_acid/glance.html

If you do not find topics of interest when browsing health topic pages, then you can choose to use the advanced search utility of MEDLINEplus at <http://www.nlm.nih.gov/medlineplus/advancedsearch.html>. This utility is similar to the NIH Search Utility, with the exception that it only includes material linked within the MEDLINEplus system (mostly patient-oriented information). It also has the disadvantage of generating unstructured results. We recommend, therefore, that you use this method only if you have a very targeted search.

The Combined Health Information Database (CHID)

CHID Online is a reference tool that maintains a database directory of thousands of journal articles and patient education guidelines on gout and related conditions. One of the advantages of CHID over other sources is that it offers summaries that describe the guidelines available, including contact information and pricing. CHID's general Web site is <http://chid.nih.gov/>. To search this database, go to <http://chid.nih.gov/detail/detail.html>. In particular, you can use the advanced search options to look up pamphlets, reports, brochures, and information kits. The following was recently posted in this archive:

- **Gout and Your Feet**

- Source: Park Ridge, IL: American College of Foot and Ankle Surgeons. 1998. 6 p.

- Contact: Available from American College of Foot and Ankle Surgeons. 515 Busse Highway, Park Ridge, IL 60068. (800) 421-2237 or (847) 292-2237. Fax (800) 382-8270 or (847) 292-2022. E-mail: mail@acfas.org.

- Website: www.acfas.org. Price: Package of 50 for members \$18.50 plus shipping; for nonmembers \$27.50 plus shipping.

- Summary: This illustrated brochure provides people who have gout with information on the symptoms, diagnosis, treatment, and prevention of this form of arthritis. Gout occurs as a result of the buildup of uric acid in the body and the joint fluid. This accumulation of uric acid usually occurs when the body has difficulty processing proteins known as purines. Symptoms include sudden, intense pain in one or more joints

accompanied by redness, swelling, and warmth over the joint. Although symptoms commonly occur in the big toe, any joint may be affected. Diagnosis is based on a personal and family history, a physical examination, and laboratory tests. Treatment involves the use of oral antiinflammatory medications. If medical treatment is ineffective, surgery may be needed. Prevention involves avoiding foods high in purines, evaluating current medications, and drinking six to eight glasses of water per day. 3 figures.

- **Gout**

Source: Atlanta, GA: Arthritis Foundation. 1997. 12 p.

Contact: Available from Arthritis Foundation. P.O. Box 1616, Alpharetta, GA 30009-1616. (800) 207-8633. Fax (credit card orders only) (770) 442-9742. <http://www.arthritis.org>. Price: Single copy free from local Arthritis Foundation chapter (call 800-283-7800 for closest local chapter); bulk orders may be purchased from address above.

Summary: This brochure for people with gout uses a question and answer format to provide information on the causes, diagnosis, and treatment of this disease. Gout causes sudden, severe episodes of pain, tenderness, redness, warmth, and swelling as uric acid crystals are deposited in the joints. The brochure explains what happens in acute episodes of gout, and it discusses the development of large uric acid crystal deposits known as tophi, as well as other problems. Further, the brochure identifies the causes of gout and the risk factors. It explains how gout is diagnosed, and describes medications used to treat it. The brochure also provides suggestions on taking medications such as allopurinol, probenecid, and sulfipyrazone; explains the relationship between diet and gout; and comments on treating it with surgery. In addition, it provides information on the Arthritis Foundation and its services.

- **Managing Gout: Limiting Painful Attacks**

Source: San Bruno, CA: StayWell Company. 1997. 6 p.

Contact: Available from StayWell Company. 1100 Grundy Lane, San Bruno, CA 94066-3030. (800) 333-3032. Website: www.staywell.com. Price: Call or write for current pricing on single and bulk orders.

Summary: This brochure provides people who have gout with information on managing this joint disease. Gout is caused by too much uric acid in the blood. The excess uric acid causes crystals to form in the joints and soft tissues, resulting in severe joint inflammation. Attacks may occur weeks or months apart. If left untreated, attacks become more

frequent or last longer. Gout can be controlled by avoiding triggers and taking the proper medications. Triggers include too much alcohol, obesity, foods high in purines, a sudden illness or infection, surgery, and diuretics. Medications may be used to reduce the amount of uric acid made by the body or to increase the amount of uric acid passed in the urine. The brochure offers tips on taking medications and reducing joint swelling.

The National Guideline Clearinghouse™

The National Guideline Clearinghouse™ offers hundreds of evidence-based clinical practice guidelines published in the United States and other countries. You can search their site located at <http://www.guideline.gov> by using the keyword “gout” or synonyms. The following was recently posted:

- **(1) Prevention and treatment of tuberculosis among patients with infected human immunodeficiency virus: Principles of therapy and revised recommendations.
(2) Notice to readers: updated guidelines for the use of rifabutin or rifampin for the treatment and prevention of tuberculosis among HIV-infected patients taking protease inhibitors or nonnucleoside reverse transcriptase inhibitors.**

Source: Centers for Disease Control and Prevention.; 1998 October 30 (updated 2000 Mar); 59 pages

http://www.guideline.gov/FRAMESETS/guideline_fs.asp?guideline=001383&sSearch_string=gout

- **(1) Targeted tuberculin testing and treatment of latent tuberculosis infection.(2) Update: fatal and severe liver injuries associated with rifampin and pyrazinamide for latent tuberculosis infection, and revisions in American Thoracic Society/CDC recommendations - United States, 2001.**

Source: Centers for Disease Control and Prevention.; 2000 June 9; 54 pages

http://www.guideline.gov/FRAMESETS/guideline_fs.asp?guideline=001528&sSearch_string=gout

- **ACR Appropriateness Criteria™ for chronic foot pain.**
Source: American College of Radiology.; 1998; 7 pages
http://www.guideline.gov/FRAMESETS/guideline_fs.asp?guideline=001656&sSearch_string=gout
- **Central metatarsalgia.**
Source: American College of Foot and Ankle Surgeons.; 1998; 37 pages
http://www.guideline.gov/FRAMESETS/guideline_fs.asp?guideline=000848&sSearch_string=gout
- **Clinical guideline on knee pain.**
Source: American Academy of Orthopaedic Surgeons/American Association of Neurological Surgeons/American College of Physical Medicine and Rehabilitation/American College of Rheumatology.; 1996; 12 pages
http://www.guideline.gov/FRAMESETS/guideline_fs.asp?guideline=000933&sSearch_string=gout
- **Diagnosis and management of hypertension in the primary care setting.**
Source: Department of Defense/Veterans Health Administration.; 1999 May; Various pagings
http://www.guideline.gov/FRAMESETS/guideline_fs.asp?guideline=001805&sSearch_string=gout
- **Heel spur syndrome.**
Source: Academy of Ambulatory Foot and Ankle Surgery.; 2000; 12 pages
http://www.guideline.gov/FRAMESETS/guideline_fs.asp?guideline=001568&sSearch_string=gout
- **Hypertension in older people. A national clinical guideline.**
Source: Scottish Intercollegiate Guidelines Network.; 2001 January; 49 pages
http://www.guideline.gov/FRAMESETS/guideline_fs.asp?guideline=002141&sSearch_string=gout

- **Hypertension.**

Source: National Committee on Cardiac Care (Singapore)/National Medical Research Council (Singapore Ministry of Health)/Singapore Cardiac Society/Singapore Ministry of Health.; 2000 December; 42 pages

http://www.guideline.gov/FRAMESETS/guideline_fs.asp?guideline=002063&sSearch_string=gout

- **Intravenous immunoglobulin preparations.**

Source: University HealthSystem Consortium.; 1999 March; 216 pages

http://www.guideline.gov/FRAMESETS/guideline_fs.asp?guideline=001202&sSearch_string=gout

Healthfinder™

Healthfinder™ is an additional source sponsored by the U.S. Department of Health and Human Services which offers links to hundreds of other sites that contain healthcare information. This Web site is located at <http://www.healthfinder.gov>. Again, keyword searches can be used to find guidelines. The following was recently found in this database:

- **Gout Fact Sheet**

Summary: This online fact sheet provides basic information for consumers about gout -- a painful musculoskeletal condition caused by excessive amounts of uric acid crystals settling in the joints or other

Source: Arthritis Foundation

<http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=2216>

The NIH Search Utility

After browsing the references listed at the beginning of this chapter, you may want to explore the NIH Search Utility. This allows you to search for documents on over 100 selected Web sites that comprise the NIH-WEB-SPACE. Each of these servers is "crawled" and indexed on an ongoing basis. Your search will produce a list of various documents, all of which will relate in some way to gout. The drawbacks of this approach are that the information is not organized by theme and that the references are often a

mix of information for professionals and patients. Nevertheless, a large number of the listed Web sites provide useful background information. We can only recommend this route, therefore, for relatively rare or specific disorders, or when using highly targeted searches. To use the NIH search utility, visit the following Web page: <http://search.nih.gov/index.html>.

Additional Web Sources

A number of Web sites that often link to government sites are available to the public. These can also point you in the direction of essential information. The following is a representative sample:

- AOL: <http://search.aol.com/cat.adp?id=168&layer=&from=subcats>
- drkoop.com[®]: <http://www.drkoop.com/conditions/ency/index.html>
- Family Village: <http://www.familyvillage.wisc.edu/specific.htm>
- Google:
http://directory.google.com/Top/Health/Conditions_and_Diseases/
- Med Help International: <http://www.medhelp.org/HealthTopics/A.html>
- Open Directory Project:
http://dmoz.org/Health/Conditions_and_Diseases/
- Yahoo.com: http://dir.yahoo.com/Health/Diseases_and_Conditions/
- WebMD[®]Health: http://my.webmd.com/health_topics

Vocabulary Builder

The material in this chapter may have contained a number of unfamiliar words. The following Vocabulary Builder introduces you to terms used in this chapter that have not been covered in the previous chapter:

Allopurinol: A xanthine oxidase inhibitor that decreases uric acid production. [NIH]

Asymptomatic: Showing or causing no symptoms. [EU]

Bacteria: Unicellular prokaryotic microorganisms which generally possess rigid cell walls, multiply by cell division, and exhibit three principal forms: round or coccial, rodlike or bacillary, and spiral or spirochetal. [NIH]

Diarrhea: Passage of excessively liquid or excessively frequent stools. [NIH]

Edema: Excessive amount of watery fluid accumulated in the intercellular

spaces, most commonly present in subcutaneous tissue. [NIH]

Enzyme: A protein molecule that catalyses chemical reactions of other substances without itself being destroyed or altered upon completion of the reactions. Enzymes are classified according to the recommendations of the Nomenclature Committee of the International Union of Biochemistry. Each enzyme is assigned a recommended name and an Enzyme Commission (EC) number. They are divided into six main groups; oxidoreductases, transferases, hydrolases, lyases, isomerases, and ligases. [EU]

Fatal: Causing death, deadly; mortal; lethal. [EU]

Gout: Hereditary metabolic disorder characterized by recurrent acute arthritis, hyperuricemia and deposition of sodium urate in and around the joints, sometimes with formation of uric acid calculi. [NIH]

Hypertension: Persistently high arterial blood pressure. Various criteria for its threshold have been suggested, ranging from 140 mm. Hg systolic and 90 mm. Hg diastolic to as high as 200 mm. Hg systolic and 110 mm. Hg diastolic. Hypertension may have no known cause (essential or idiopathic h.) or be associated with other primary diseases (secondary h.). [EU]

Inflammation: A pathological process characterized by injury or destruction of tissues caused by a variety of cytologic and chemical reactions. It is usually manifested by typical signs of pain, heat, redness, swelling, and loss of function. [NIH]

Levodopa: The naturally occurring form of dopa and the immediate precursor of dopamine. Unlike dopamine itself, it can be taken orally and crosses the blood-brain barrier. It is rapidly taken up by dopaminergic neurons and converted to dopamine. It is used for the treatment of parkinsonism and is usually given with agents that inhibit its conversion to dopamine outside of the central nervous system. [NIH]

Menopause: Cessation of menstruation in the human female, occurring usually around the age of 50. [EU]

Naproxen: An anti-inflammatory agent with analgesic and antipyretic properties. Both the acid and its sodium salt are used in the treatment of rheumatoid arthritis and other rheumatic or musculoskeletal disorders, dysmenorrhea, and acute gout. [NIH]

Niacin: Water-soluble vitamin of the B complex occurring in various animal and plant tissues. Required by the body for the formation of coenzymes NAD and NADP. Has pellagra-curative, vasodilating, and antilipemic properties. [NIH]

Orthopaedic: Pertaining to the correction of deformities of the musculoskeletal system; pertaining to orthopaedics. [EU]

Probenecid: The prototypical uricosuric agent. It inhibits the renal excretion

of organic anions and reduces tubular reabsorption of urate. Probenecid has also been used to treat patients with renal impairment, and, because it reduces the renal tubular excretion of other drugs, has been used as an adjunct to antibacterial therapy. [NIH]

Protease: Proteinase (= any enzyme that catalyses the splitting of interior peptide bonds in a protein). [EU]

Proteins: Polymers of amino acids linked by peptide bonds. The specific sequence of amino acids determines the shape and function of the protein. [NIH]

Purines: A series of heterocyclic compounds that are variously substituted in nature and are known also as purine bases. They include adenine and guanine, constituents of nucleic acids, as well as many alkaloids such as caffeine and theophylline. Uric acid is the metabolic end product of purine metabolism. [NIH]

Pyrazinamide: A pyrazine that is used therapeutically as an antitubercular agent. [NIH]

Radiology: A specialty concerned with the use of x-ray and other forms of radiant energy in the diagnosis and treatment of disease. [NIH]

Rheumatology: A subspecialty of internal medicine concerned with the study of inflammatory or degenerative processes and metabolic derangement of connective tissue structures which pertain to a variety of musculoskeletal disorders, such as arthritis. [NIH]

Rifabutin: A broad-spectrum antibiotic that is being used as prophylaxis against disseminated Mycobacterium avium complex infection in HIV-positive patients. [NIH]

Salicylates: The salts, esters of salicylic acids, or salicylate esters of an organic acid. Some of these have analgesic, antipyretic, and anti-inflammatory activities by inhibiting prostaglandin synthesis. [NIH]

Sulfinpyrazone: A uricosuric drug that is used to reduce the serum urate levels in gout therapy. It lacks anti-inflammatory, analgesic, and diuretic properties. [NIH]

Synovial: Of pertaining to, or secreting synovia. [EU]

Thoracic: Pertaining to or affecting the chest. [EU]

Tuberculosis: Any of the infectious diseases of man and other animals caused by species of mycobacterium. [NIH]

CHAPTER 2. SEEKING GUIDANCE

Overview

Some patients are comforted by the knowledge that a number of organizations dedicate their resources to helping people with gout. These associations can become invaluable sources of information and advice. Many associations offer aftercare support, financial assistance, and other important services. Furthermore, healthcare research has shown that support groups often help people to better cope with their conditions.⁹ In addition to support groups, your physician can be a valuable source of guidance and support. Therefore, finding a physician that can work with your unique situation is a very important aspect of your care.

In this chapter, we direct you to resources that can help you find patient organizations and medical specialists. We begin by describing how to find associations and peer groups that can help you better understand and cope with gout. The chapter ends with a discussion on how to find a doctor that is right for you.

Associations and Gout

As mentioned by the Agency for Healthcare Research and Quality, sometimes the emotional side of an illness can be as taxing as the physical side.¹⁰ You may have fears or feel overwhelmed by your situation. Everyone has different ways of dealing with disease or physical injury. Your attitude, your expectations, and how well you cope with your condition can all

⁹ Churches, synagogues, and other houses of worship might also have groups that can offer you the social support you need.

¹⁰ This section has been adapted from <http://www.ahrq.gov/consumer/diaginf5.htm>.

influence your well-being. This is true for both minor conditions and serious illnesses. For example, a study on female breast cancer survivors revealed that women who participated in support groups lived longer and experienced better quality of life when compared with women who did not participate. In the support group, women learned coping skills and had the opportunity to share their feelings with other women in the same situation.

In addition to associations or groups that your doctor might recommend, we suggest that you consider the following list (if there is a fee for an association, you may want to check with your insurance provider to find out if the cost will be covered):

- **Arthritis Foundation of Australia**

Address: Arthritis Foundation of Australia 33 Bligh Street, Suite 902A, Sydney, New South Wales, 2000, Australia

Telephone: 02 221 2456

Fax: 02 232 2538

Web Site: <http://www.span.com.au/arthritis>

Background: The Arthritis Foundation of Australia is a not-for-profit organization that is committed to providing care, education, and research for people affected by arthritis and other musculoskeletal disorders. The term arthritis, meaning inflammation of the joints, may encompass several conditions or disease states, such as osteoarthritis, rheumatoid arthritis, ankylosing spondylitis, gout, and others. The Arthritis Foundation of Australia, which was founded in 1949, is dedicated to promoting research into the causes, control, and cure of arthritis; supporting the professional education and training of physicians and allied health professionals; and enhancing community awareness of the needs of those affected by arthritis. The Foundation's additional objectives include representing people with arthritis nationally and internationally, serving as national secretariat of affiliated state and territory foundations, and assisting affiliated foundations in promoting self-management programs for people with arthritis. The Arthritis Foundation of Australia currently consists of eight state and territory affiliates. These affiliated foundations offer a wide range of services to their members and represent their interests to their own state and territory governments. Each affiliated foundation may also provide the addresses of a wide network of branches and self-help groups in each state.

Relevant area(s) of interest: Gout, Osteoarthritis, Reiter's Syndrome

- **Purine Metabolic Patients' Association**

Address: Purine Metabolic Patients' Association 71 Newcomen Street,
London, SE1 1YT, United Kingdom

Telephone: 0171 378 6079

Email: derekyardley@compuserve.com

Web Site: <http://ourworld.compuserve.com/homepages/derekyardle>

Background: The Purine Metabolic Patients' Association (PUMPA) is an international not-for-profit support organization in the United Kingdom for individuals with purine metabolic disorders and their families. Founded in 1992 by a small group of affected families and friends, the Association is dedicated to advancing knowledge of purine metabolic disorders among the medical profession and the general public in its aim to improve the care and increase the support received by affected individuals. Inborn errors in the metabolism of purines, which are compounds found in many foods, medications, and other substances, result in several different disorders. There are currently over 20 known inherited disorders of purine metabolism, causing a wide range of associated symptoms and findings. Depending upon the specific disorder, affected individuals may experience such symptoms as gout, anemia, autism, episodes of uncontrolled electrical disturbances in the brain (seizures), delayed development, deafness, kidney stones and/or renal failure, impaired immunity, self-destructive behaviors such as biting or head-banging, and/or other abnormalities. The Purine Metabolic Patients' Association is committed to providing networking services to affected individuals and families, enabling them to exchange mutual support, information, and resources. The Association also promotes and supports research currently being conducted by the Purine Research Laboratory at Guy's Hospital, London. In addition, the Purine Metabolic Patients' Association offers a variety of educational materials including pamphlets, booklets providing understandable information on specific purine metabolic disorders, and a regular newsletter. The Association also has a web site on the Internet that provides a description of the organization's goals and services, information on purine metabolic disorders, networking opportunities including a guestbook and a forum area, and dynamic linkage to additional sources of information and support on the Internet.

Relevant area(s) of interest: Gout

- **Purine Research Society**

Address: Purine Research Society 5424 Beech Avenue, Bethesda, MD
20814-1730

Telephone: (301) 530-0354

Fax: (301) 564-9597 E-

Web Site: <http://www2.dgsys.com/~purine>

Background: The Purine Research Society, previously known as Purine 24, is a national nonprofit charitable organization dedicated to funding research and treatments for purine-related metabolic diseases. Errors in the metabolism of purines (compounds commonly found in food) can lead to a variety of disorders. Established in 1986 by parents of children with purine autism (autistic children who excrete too much uric acid in their urine), the Society serves people with purine metabolic disorders and their families, health care professionals, and the general public. The Society has contributed a significant amount of money to fund M.D./Ph.D. researchers to find out why their children with autism were excreting excess uric acid, the end product of purines, and is now very close to beginning a treatment protocol. The Purine Research Society provides appropriate referrals to affected individuals and offers educational pamphlets and brochures, as well as a purine restricted diet.

Relevant area(s) of interest: Gout

Finding More Associations

There are a number of directories that list additional medical associations that you may find useful. While not all of these directories will provide different information than what is listed above, by consulting all of them, you will have nearly exhausted all sources for patient associations.

The National Health Information Center (NHIC)

The National Health Information Center (NHIC) offers a free referral service to help people find organizations that provide information about gout. For more information, see the NHIC's Web site at <http://www.health.gov/NHIC/> or contact an information specialist by calling 1-800-336-4797.

DIRLINE

A comprehensive source of information on associations is the DIRLINE database maintained by the National Library of Medicine. The database comprises some 10,000 records of organizations, research centers, and government institutes and associations which primarily focus on health and

biomedicine. DIRLINE is available via the Internet at the following Web site: <http://dirline.nlm.nih.gov/>. Simply type in “gout” (or a synonym) or the name of a topic, and the site will list information contained in the database on all relevant organizations.

The Combined Health Information Database

Another comprehensive source of information on healthcare associations is the Combined Health Information Database. Using the “Detailed Search” option, you will need to limit your search to “Organizations” and “gout”. Type the following hyperlink into your Web browser: <http://chid.nih.gov/detail/detail.html>. To find associations, use the drop boxes at the bottom of the search page where “You may refine your search by.” For publication date, select “All Years.” Then, select your preferred language and the format option “Organization Resource Sheet.” By making these selections and typing in “gout” (or synonyms) into the “For these words:” box, you will only receive results on organizations dealing with gout. You should check back periodically with this database since it is updated every 3 months.

The National Organization for Rare Disorders, Inc.

The National Organization for Rare Disorders, Inc. has prepared a Web site that provides, at no charge, lists of associations organized by specific diseases. You can access this database at the following Web site: <http://www.rarediseases.org/cgi-bin/nord/searchpage>. Select the option called “Organizational Database (ODB)” and type “gout” (or a synonym) in the search box.

Online Support Groups

In addition to support groups, commercial Internet service providers offer forums and chat rooms for people with different illnesses and conditions. WebMD[®], for example, offers such a service at their Web site: <http://boards.webmd.com/roundtable>. These online self-help communities can help you connect with a network of people whose concerns are similar to yours. Online support groups are places where people can talk informally. If you read about a novel approach, consult with your doctor or other healthcare providers, as the treatments or discoveries you hear about may

not be scientifically proven to be safe and effective. The following Internet sites may be of particular interest:

- **Arthritis Foundation**
<http://www.arthritis.org/conditions/DiseaseCenter/gout.asp>
- **Arthritis Forum**
arthritis.about.com/cs/support/

Finding Doctors

One of the most important aspects of your treatment will be the relationship between you and your doctor or specialist. All patients with gout must go through the process of selecting a physician. While this process will vary from person to person, the Agency for Healthcare Research and Quality makes a number of suggestions, including the following:¹¹

- If you are in a managed care plan, check the plan's list of doctors first.
- Ask doctors or other health professionals who work with doctors, such as hospital nurses, for referrals.
- Call a hospital's doctor referral service, but keep in mind that these services usually refer you to doctors on staff at that particular hospital. The services do not have information on the quality of care that these doctors provide.
- Some local medical societies offer lists of member doctors. Again, these lists do not have information on the quality of care that these doctors provide.

Additional steps you can take to locate doctors include the following:

- Check with the associations listed earlier in this chapter.
- Information on doctors in some states is available on the Internet at <http://www.docboard.org>. This Web site is run by "Administrators in Medicine," a group of state medical board directors.
- The American Board of Medical Specialties can tell you if your doctor is board certified. "Certified" means that the doctor has completed a training program in a specialty and has passed an exam, or "board," to assess his or her knowledge, skills, and experience to provide quality

¹¹ This section has been adapted from the AHRQ:
<http://www.ahrq.gov/consumer/qntascii/qntdr.htm>.

patient care in that specialty. Primary care doctors may also be certified as specialists. The AMBS Web site is located at <http://www.abms.org/newsearch.asp>.¹² You can also contact the ABMS by phone at 1-866-ASK-ABMS.

- You can call the American Medical Association (AMA) at 800-665-2882 for information on training, specialties, and board certification for many licensed doctors in the United States. This information also can be found in “Physician Select” at the AMA's Web site: <http://www.ama-assn.org/aps/amahg.htm>.

If the previous sources did not meet your needs, you may want to log on to the Web site of the National Organization for Rare Disorders (NORD) at <http://www.rarediseases.org/>. NORD maintains a database of doctors with expertise in various rare diseases. The Metabolic Information Network (MIN), 800-945-2188, also maintains a database of physicians with expertise in various metabolic diseases.

Finding a Rheumatologist

The American College of Rheumatology (ACR) maintains a geographic directory of member physicians called “Find a Rheumatologist.” To access this database, log on to <http://www.rheumatology.org/directory/geo.asp>. You will be given the option to search for a rheumatologist by name, by U.S. State, or by country. To contact the ACR, you can use the following information:

American College of Rheumatology
 1800 Century Place, Suite 250
 Atlanta, GA 30345
 Phone: (404) 633-3777
 Fax: (404) 633-1870
 E-mail: acr@rheumatology.org

¹² While board certification is a good measure of a doctor's knowledge, it is possible to receive quality care from doctors who are not board certified.

Selecting Your Doctor¹³

When you have compiled a list of prospective doctors, call each of their offices. First, ask if the doctor accepts your health insurance plan and if he or she is taking new patients. If the doctor is not covered by your plan, ask yourself if you are prepared to pay the extra costs. The next step is to schedule a visit with your chosen physician. During the first visit you will have the opportunity to evaluate your doctor and to find out if you feel comfortable with him or her. Ask yourself, did the doctor:

- Give me a chance to ask questions about gout?
- Really listen to my questions?
- Answer in terms I understood?
- Show respect for me?
- Ask me questions?
- Make me feel comfortable?
- Address the health problem(s) I came with?
- Ask me my preferences about different kinds of treatments for gout?
- Spend enough time with me?

Trust your instincts when deciding if the doctor is right for you. But remember, it might take time for the relationship to develop. It takes more than one visit for you and your doctor to get to know each other.

Working with Your Doctor¹⁴

Research has shown that patients who have good relationships with their doctors tend to be more satisfied with their care and have better results. Here are some tips to help you and your doctor become partners:

- You know important things about your symptoms and your health history. Tell your doctor what you think he or she needs to know.
- It is important to tell your doctor personal information, even if it makes you feel embarrassed or uncomfortable.

¹³ This section has been adapted from the AHRQ:
www.ahrq.gov/consumer/qntascii/qntdr.htm.

¹⁴ This section has been adapted from the AHRQ:
www.ahrq.gov/consumer/qntascii/qntdr.htm.

- Bring a “health history” list with you (and keep it up to date).
- Always bring any medications you are currently taking with you to the appointment, or you can bring a list of your medications including dosage and frequency information. Talk about any allergies or reactions you have had to your medications.
- Tell your doctor about any natural or alternative medicines you are taking.
- Bring other medical information, such as x-ray films, test results, and medical records.
- Ask questions. If you don't, your doctor will assume that you understood everything that was said.
- Write down your questions before your visit. List the most important ones first to make sure that they are addressed.
- Consider bringing a friend with you to the appointment to help you ask questions. This person can also help you understand and/or remember the answers.
- Ask your doctor to draw pictures if you think that this would help you understand.
- Take notes. Some doctors do not mind if you bring a tape recorder to help you remember things, but always ask first.
- Let your doctor know if you need more time. If there is not time that day, perhaps you can speak to a nurse or physician assistant on staff or schedule a telephone appointment.
- Take information home. Ask for written instructions. Your doctor may also have brochures and audio and videotapes that can help you.
- After leaving the doctor's office, take responsibility for your care. If you have questions, call. If your symptoms get worse or if you have problems with your medication, call. If you had tests and do not hear from your doctor, call for your test results. If your doctor recommended that you have certain tests, schedule an appointment to get them done. If your doctor said you should see an additional specialist, make an appointment.

By following these steps, you will enhance the relationship you will have with your physician.

Broader Health-Related Resources

In addition to the references above, the NIH has set up guidance Web sites that can help patients find healthcare professionals. These include:¹⁵

- Caregivers:
<http://www.nlm.nih.gov/medlineplus/caregivers.html>
- Choosing a Doctor or Healthcare Service:
<http://www.nlm.nih.gov/medlineplus/choosingadoctororhealthcareservice.html>
- Hospitals and Health Facilities:
<http://www.nlm.nih.gov/medlineplus/healthfacilities.html>

Vocabulary Builder

The following vocabulary builder provides definitions of words used in this chapter that have not been defined in previous chapters:

Immunity: The condition of being immune; the protection against infectious disease conferred either by the immune response generated by immunization or previous infection or by other nonimmunologic factors (innate i.). [EU]

Osteoarthritis: Noninflammatory degenerative joint disease occurring chiefly in older persons, characterized by degeneration of the articular cartilage, hypertrophy of bone at the margins, and changes in the synovial membrane. It is accompanied by pain and stiffness, particularly after prolonged activity. [EU]

Rheumatoid: Resembling rheumatism. [EU]

Seizures: Clinical or subclinical disturbances of cortical function due to a sudden, abnormal, excessive, and disorganized discharge of brain cells. Clinical manifestations include abnormal motor, sensory and psychic phenomena. Recurrent seizures are usually referred to as epilepsy or "seizure disorder." [NIH]

Spondylitis: Inflammation of the vertebrae. [EU]

¹⁵ You can access this information at:

<http://www.nlm.nih.gov/medlineplus/healthsystem.html>.

CHAPTER 3. CLINICAL TRIALS AND GOUT

Overview

Very few medical conditions have a single treatment. The basic treatment guidelines that your physician has discussed with you, or those that you have found using the techniques discussed in Chapter 1, may provide you with all that you will require. For some patients, current treatments can be enhanced with new or innovative techniques currently under investigation. In this chapter, we will describe how clinical trials work and show you how to keep informed of trials concerning gout.

What Is a Clinical Trial?¹⁶

Clinical trials involve the participation of people in medical research. Most medical research begins with studies in test tubes and on animals. Treatments that show promise in these early studies may then be tried with people. The only sure way to find out whether a new treatment is safe, effective, and better than other treatments for gout is to try it on patients in a clinical trial.

¹⁶ The discussion in this chapter has been adapted from the NIH and the NEI: www.nei.nih.gov/netrials/ctivr.htm.

What Kinds of Clinical Trials Are There?

Clinical trials are carried out in three phases:

- **Phase I.** Researchers first conduct Phase I trials with small numbers of patients and healthy volunteers. If the new treatment is a medication, researchers also try to determine how much of it can be given safely.
- **Phase II.** Researchers conduct Phase II trials in small numbers of patients to find out the effect of a new treatment on gout.
- **Phase III.** Finally, researchers conduct Phase III trials to find out how new treatments for gout compare with standard treatments already being used. Phase III trials also help to determine if new treatments have any side effects. These trials--which may involve hundreds, perhaps thousands, of people--can also compare new treatments with no treatment.

How Is a Clinical Trial Conducted?

Various organizations support clinical trials at medical centers, hospitals, universities, and doctors' offices across the United States. The "principal investigator" is the researcher in charge of the study at each facility participating in the clinical trial. Most clinical trial researchers are medical doctors, academic researchers, and specialists. The "clinic coordinator" knows all about how the study works and makes all the arrangements for your visits.

All doctors and researchers who take part in the study on gout carefully follow a detailed treatment plan called a protocol. This plan fully explains how the doctors will treat you in the study. The "protocol" ensures that all patients are treated in the same way, no matter where they receive care.

Clinical trials are controlled. This means that researchers compare the effects of the new treatment with those of the standard treatment. In some cases, when no standard treatment exists, the new treatment is compared with no treatment. Patients who receive the new treatment are in the treatment group. Patients who receive a standard treatment or no treatment are in the "control" group. In some clinical trials, patients in the treatment group get a new medication while those in the control group get a placebo. A placebo is a harmless substance, a "dummy" pill, that has no effect on gout. In other clinical trials, where a new surgery or device (not a medicine) is being tested, patients in the control group may receive a "sham treatment." This treatment, like a placebo, has no effect on gout and does not harm patients.

Researchers assign patients “randomly” to the treatment or control group. This is like flipping a coin to decide which patients are in each group. If you choose to participate in a clinical trial, you will not know which group you will be appointed to. The chance of any patient getting the new treatment is about 50 percent. You cannot request to receive the new treatment instead of the placebo or sham treatment. Often, you will not know until the study is over whether you have been in the treatment group or the control group. This is called a “masked” study. In some trials, neither doctors nor patients know who is getting which treatment. This is called a “double masked” study. These types of trials help to ensure that the perceptions of the patients or doctors will not affect the study results.

Natural History Studies

Unlike clinical trials in which patient volunteers may receive new treatments, natural history studies provide important information to researchers on how gout develops over time. A natural history study follows patient volunteers to see how factors such as age, sex, race, or family history might make some people more or less at risk for gout. A natural history study may also tell researchers if diet, lifestyle, or occupation affects how a disease or disorder develops and progresses. Results from these studies provide information that helps answer questions such as: How fast will a disease or disorder usually progress? How bad will the condition become? Will treatment be needed?

What Is Expected of Patients in a Clinical Trial?

Not everyone can take part in a clinical trial for a specific disease or disorder. Each study enrolls patients with certain features or eligibility criteria. These criteria may include the type and stage of disease or disorder, as well as, the age and previous treatment history of the patient. You or your doctor can contact the sponsoring organization to find out more about specific clinical trials and their eligibility criteria. If you are interested in joining a clinical trial, your doctor must contact one of the trial's investigators and provide details about your diagnosis and medical history.

If you participate in a clinical trial, you may be required to have a number of medical tests. You may also need to take medications and/or undergo surgery. Depending upon the treatment and the examination procedure, you may be required to receive inpatient hospital care. Or, you may have to return to the medical facility for follow-up examinations. These exams help

find out how well the treatment is working. Follow-up studies can take months or years. However, the success of the clinical trial often depends on learning what happens to patients over a long period of time. Only patients who continue to return for follow-up examinations can provide this important long-term information.

Recent Trials on Gout

The National Institutes of Health and other organizations sponsor trials on various diseases and disorders. Because funding for research goes to the medical areas that show promising research opportunities, it is not possible for the NIH or others to sponsor clinical trials for every disease and disorder at all times. The following lists recent trials dedicated to gout.¹⁷ If the trial listed by the NIH is still recruiting, you may be eligible. If it is no longer recruiting or has been completed, then you can contact the sponsors to learn more about the study and, if published, the results. Further information on the trial is available at the Web site indicated. Please note that some trials may no longer be recruiting patients or are otherwise closed. Before contacting sponsors of a clinical trial, consult with your physician who can help you determine if you might benefit from participation.

- **Familial Mediterranean Fever and Related Disorders: Genetics and Disease Characteristics**

Condition(s): Periodic Disease

Study Status: This study is currently recruiting patients.

Sponsor(s): National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)

Purpose - Excerpt: This study is designed to explore the genetics involved in diseases of intermittent fever, including familial Mediterranean fever, TRAPS, hyper-IgD syndrome, and related diseases. The following individuals may be eligible for this study: 1) patients 5 years of age and older with known or suspected familial Mediterranean fever, TRAPS, hyper-IgD syndrome or related disorders; 2) relatives of these patients; 3) healthy, normal volunteers 18 years of age or older; and 4) healthy patients with gout 18 years of age or older who are taking colchicine. Patients will undergo a medical and family history, physical examination, blood and urine tests. Additional tests and procedures may include the following: 1. X-rays 2. Consultations with specialists 3. DNA sample collection (blood sample or cells obtained from a brushing of the inside of the cheek) for genetic studies, if this has not already been done. 4.

¹⁷ These are listed at www.ClinicalTrials.gov.

Additional blood samples-a maximum of 1 pint (450 ml) during a 6-week period-for studies of white cell adhesion (stickiness) 5. Leukapheresis for collecting larger amounts of white cells for study. For this procedure, whole blood is collected through a needle in an arm vein. The blood flows through a machine that separates it into its components. The white cells are removed and the rest of the blood is returned to the body through another needle in the other arm. 6. Bone marrow aspiration to study white cells early in their development. This procedure will be requested of only a few patients. An area of skin on the back is numbed, a needle is inserted into a pelvic bone, and a small amount of bone marrow is withdrawn. Patients will be followed approximately every 6 months to monitor symptoms, adjust medicine levels, and undergo routine blood and urine tests. They will receive genetic counseling on the risk of having affected children and be advised of treatment options. Participating relatives will undergo a medical and family history, possibly with a review of medical records, physical examination, blood and urine tests. Additional procedures may include a 24-hour urine collection, X-rays, and consultations with medical specialists. A DNA sample (blood or cheek swabbing) will also be collected for genetic studies. Additional blood samples of no more than 1 pint during a 6-week period may be requested for studies of white cell adhesion (stickiness). Relatives who have familial Mediterranean fever, TRAPS, or hyper-IgD syndrome will receive the same follow-up and counseling as described for patients above. Normal volunteers and patients with gout will have a brief health interview and check of vital signs (blood pressure and pulse) and will provide a blood sample (up to 90 ml, or 6 tablespoons). Additional blood samples of no more than 1 pint over a 6-week period may be requested in the future.

Study Type: Observational

Contact(s): Maryland; National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), 9000 Rockville Pike Bethesda, Maryland, 20892, United States; Recruiting; Patient Recruitment and Public Liaison Office 1-800-411-1222 prpl@mail.cc.nih.gov; TTY 1-866-411-1010

Web Site: <http://clinicaltrials.gov/ct/gui/show/NCT00001373>

Benefits and Risks¹⁸

What Are the Benefits of Participating in a Clinical Trial?

If you are interested in a clinical trial, it is important to realize that your participation can bring many benefits to you and society at large:

- A new treatment could be more effective than the current treatment for gout. Although only half of the participants in a clinical trial receive the experimental treatment, if the new treatment is proved to be more effective and safer than the current treatment, then those patients who did not receive the new treatment during the clinical trial may be among the first to benefit from it when the study is over.
- If the treatment is effective, then it may improve health or prevent diseases or disorders.
- Clinical trial patients receive the highest quality of medical care. Experts watch them closely during the study and may continue to follow them after the study is over.
- People who take part in trials contribute to scientific discoveries that may help other people with gout. In cases where certain diseases or disorders run in families, your participation may lead to better care or prevention for your family members.

The Informed Consent

Once you agree to take part in a clinical trial, you will be asked to sign an “informed consent.” This document explains a clinical trial's risks and benefits, the researcher’s expectations of you, and your rights as a patient.

What Are the Risks?

Clinical trials may involve risks as well as benefits. Whether or not a new treatment will work cannot be known ahead of time. There is always a chance that a new treatment may not work better than a standard treatment. There is also the possibility that it may be harmful. The treatment you

¹⁸ This section has been adapted from ClinicalTrials.gov, a service of the National Institutes of Health:
http://www.clinicaltrials.gov/ct/gui/c/a1r/info/whatis?JServSessionIdzone_ct=9jmun6f291.

receive may cause side effects that are serious enough to require medical attention.

How Is Patient Safety Protected?

Clinical trials can raise fears of the unknown. Understanding the safeguards that protect patients can ease some of these fears. Before a clinical trial begins, researchers must get approval from their hospital's Institutional Review Board (IRB), an advisory group that makes sure a clinical trial is designed to protect patient safety. During a clinical trial, doctors will closely watch you to see if the treatment is working and if you are experiencing any side effects. All the results are carefully recorded and reviewed. In many cases, experts from the Data and Safety Monitoring Committee carefully monitor each clinical trial and can recommend that a study be stopped at any time. You will only be asked to take part in a clinical trial as a volunteer giving informed consent.

What Are a Patient's Rights in a Clinical Trial?

If you are eligible for a clinical trial, you will be given information to help you decide whether or not you want to participate. As a patient, you have the right to:

- Information on all known risks and benefits of the treatments in the study.
- Know how the researchers plan to carry out the study, for how long, and where.
- Know what is expected of you.
- Know any costs involved for you or your insurance provider.
- Know before any of your medical or personal information is shared with other researchers involved in the clinical trial.
- Talk openly with doctors and ask any questions.

After you join a clinical trial, you have the right to:

- Leave the study at any time. Participation is strictly voluntary. However, you should not enroll if you do not plan to complete the study.
- Receive any new information about the new treatment.
- Continue to ask questions and get answers.

- Maintain your privacy. Your name will not appear in any reports based on the study.
- Know whether you participated in the treatment group or the control group (once the study has been completed).

What about Costs?

In some clinical trials, the research facility pays for treatment costs and other associated expenses. You or your insurance provider may have to pay for costs that are considered standard care. These things may include inpatient hospital care, laboratory and other tests, and medical procedures. You also may need to pay for travel between your home and the clinic. You should find out about costs before committing to participation in the trial. If you have health insurance, find out exactly what it will cover. If you don't have health insurance, or if your insurance company will not cover your costs, talk to the clinic staff about other options for covering the cost of your care.

What Should You Ask before Deciding to Join a Clinical Trial?

Questions you should ask when thinking about joining a clinical trial include the following:

- What is the purpose of the clinical trial?
- What are the standard treatments for gout? Why do researchers think the new treatment may be better? What is likely to happen to me with or without the new treatment?
- What tests and treatments will I need? Will I need surgery? Medication? Hospitalization?
- How long will the treatment last? How often will I have to come back for follow-up exams?
- What are the treatment's possible benefits to my condition? What are the short- and long-term risks? What are the possible side effects?
- Will the treatment be uncomfortable? Will it make me feel sick? If so, for how long?
- How will my health be monitored?
- Where will I need to go for the clinical trial? How will I get there?
- How much will it cost to be in the study? What costs are covered by the study? How much will my health insurance cover?

- Will I be able to see my own doctor? Who will be in charge of my care?
- Will taking part in the study affect my daily life? Do I have time to participate?
- How do I feel about taking part in a clinical trial? Are there family members or friends who may benefit from my contributions to new medical knowledge?

Keeping Current on Clinical Trials

Various government agencies maintain databases on trials. The U.S. National Institutes of Health, through the National Library of Medicine, has developed ClinicalTrials.gov to provide patients, family members, and physicians with current information about clinical research across the broadest number of diseases and conditions.

The site was launched in February 2000 and currently contains approximately 5,700 clinical studies in over 59,000 locations worldwide, with most studies being conducted in the United States. ClinicalTrials.gov receives about 2 million hits per month and hosts approximately 5,400 visitors daily. To access this database, simply go to their Web site (www.clinicaltrials.gov) and search by “gout” (or synonyms).

While ClinicalTrials.gov is the most comprehensive listing of NIH-supported clinical trials available, not all trials are in the database. The database is updated regularly, so clinical trials are continually being added. The following is a list of specialty databases affiliated with the National Institutes of Health that offer additional information on trials:

- For clinical studies at the Warren Grant Magnuson Clinical Center located in Bethesda, Maryland, visit their Web site:
<http://clinicalstudies.info.nih.gov/>
- For clinical studies conducted at the Bayview Campus in Baltimore, Maryland, visit their Web site:
<http://www.jhbmc.jhu.edu/studies/index.html>
- For trials on arthritis, musculoskeletal and skin diseases, visit newly revised site of the National Institute of Arthritis and Musculoskeletal and Skin Diseases of the National Institutes of Health:
<http://www.niams.nih.gov/hi/studies/index.htm>

General References

The following references describe clinical trials and experimental medical research. They have been selected to ensure that they are likely to be available from your local or online bookseller or university medical library. These references are usually written for healthcare professionals, so you may consider consulting with a librarian or bookseller who might recommend a particular reference. The following includes some of the most readily available references (sorted alphabetically by title; hyperlinks provide rankings, information and reviews at Amazon.com):

- **A Guide to Patient Recruitment : Today's Best Practices & Proven Strategies** by Diana L. Anderson; Paperback - 350 pages (2001), CenterWatch, Inc.; ISBN: 1930624115;
<http://www.amazon.com/exec/obidos/ASIN/1930624115/icongroupinterna>
- **A Step-By-Step Guide to Clinical Trials** by Marilyn Mulay, R.N., M.S., OCN; Spiral-bound - 143 pages Spiral edition (2001), Jones & Bartlett Pub; ISBN: 0763715697;
<http://www.amazon.com/exec/obidos/ASIN/0763715697/icongroupinterna>
- **The CenterWatch Directory of Drugs in Clinical Trials** by CenterWatch; Paperback - 656 pages (2000), CenterWatch, Inc.; ISBN: 0967302935;
<http://www.amazon.com/exec/obidos/ASIN/0967302935/icongroupinterna>
- **The Complete Guide to Informed Consent in Clinical Trials** by Terry Hartnett (Editor); Paperback - 164 pages (2000), PharmSource Information Services, Inc.; ISBN: 0970153309;
<http://www.amazon.com/exec/obidos/ASIN/0970153309/icongroupinterna>
- **Dictionary for Clinical Trials** by Simon Day; Paperback - 228 pages (1999), John Wiley & Sons; ISBN: 0471985961;
<http://www.amazon.com/exec/obidos/ASIN/0471985961/icongroupinterna>
- **Extending Medicare Reimbursement in Clinical Trials** by Institute of Medicine Staff (Editor), et al; Paperback 1st edition (2000), National Academy Press; ISBN: 0309068886;
<http://www.amazon.com/exec/obidos/ASIN/0309068886/icongroupinterna>
- **Handbook of Clinical Trials** by Marcus Flather (Editor); Paperback (2001), Remedica Pub Ltd; ISBN: 1901346293;
<http://www.amazon.com/exec/obidos/ASIN/1901346293/icongroupinterna>

Vocabulary Builder

The following vocabulary builder gives definitions of words used in this chapter that have not been defined in previous chapters:

Intermittent: Occurring at separated intervals; having periods of cessation of activity. [EU]

Leukapheresis: The preparation of leukocyte concentrates with the return of red cells and leukocyte-poor plasma to the donor. [NIH]

Pulse: The rhythmical expansion and contraction of an artery produced by waves of pressure caused by the ejection of blood from the left ventricle of the heart as it contracts. [NIH]

PART II: ADDITIONAL RESOURCES AND ADVANCED MATERIAL

ABOUT PART II

In Part II, we introduce you to additional resources and advanced research on gout. All too often, patients who conduct their own research are overwhelmed by the difficulty in finding and organizing information. The purpose of the following chapters is to provide you an organized and structured format to help you find additional information resources on gout. In Part II, as in Part I, our objective is not to interpret the latest advances on gout or render an opinion. Rather, our goal is to give you access to original research and to increase your awareness of sources you may not have already considered. In this way, you will come across the advanced materials often referred to in pamphlets, books, or other general works. Once again, some of this material is technical in nature, so consultation with a professional familiar with gout is suggested.

CHAPTER 4. STUDIES ON GOUT

Overview

Every year, academic studies are published on gout or related conditions. Broadly speaking, there are two types of studies. The first are peer reviewed. Generally, the content of these studies has been reviewed by scientists or physicians. Peer-reviewed studies are typically published in scientific journals and are usually available at medical libraries. The second type of studies is non-peer reviewed. These works include summary articles that do not use or report scientific results. These often appear in the popular press, newsletters, or similar periodicals.

In this chapter, we will show you how to locate peer-reviewed references and studies on gout. We will begin by discussing research that has been summarized and is free to view by the public via the Internet. We then show you how to generate a bibliography on gout and teach you how to keep current on new studies as they are published or undertaken by the scientific community.

The Combined Health Information Database

The Combined Health Information Database summarizes studies across numerous federal agencies. To limit your investigation to research studies and gout, you will need to use the advanced search options. First, go to <http://chid.nih.gov/index.html>. From there, select the “Detailed Search” option (or go directly to that page with the following hyperlink: <http://chid.nih.gov/detail/detail.html>). The trick in extracting studies is found in the drop boxes at the bottom of the search page where “You may refine your search by.” Select the dates and language you prefer, and the

format option "Journal Article." At the top of the search form, select the number of records you would like to see (we recommend 100) and check the box to display "whole records." We recommend that you type in "gout" (or synonyms) into the "For these words:" box. Consider using the option "anywhere in record" to make your search as broad as possible. If you want to limit the search to only a particular field, such as the title of the journal, then select this option in the "Search in these fields" drop box. The following is a sample of what you can expect from this type of search:

- **Intricacies in the Diagnosis and Treatment of Gout**

Source: Patient Care. 35(13): 33-36,38,43,47. July 15, 2001.

Summary: This journal article provides health professionals with information on the pathogenesis, diagnosis, and treatment of gout. Gout results from the deposit of urate crystals in a joint, which causes an acute inflammatory response. The risk of gout increases with the degree and duration of hyperuricemia. Gout usually affects men older than 25 and women after menopause. The initial presentation is typically a painful attack of monarthritis, followed by recurrent flares and, if untreated, chronic polyarticular gout. Factors that may trigger a gout attack include trauma, alcohol consumption, surgery, dietary imbalances, infection, radiation therapy, and drugs. The probable clinical stages of gout are acute, intercritical, and chronic. Many conditions cause symptoms similar to gout, including pseudogout, osteoarthritis, rheumatoid arthritis, hydroxyapatite induced arthritis, and other diseases. The diagnosis of gout is established by finding monosodium urate monohydrate crystals in the aspiration fluid of a joint or tophus. Radiographic findings in the early stage of gout are normal except for acute soft tissue swelling. As the disease progresses, the typical radiographic finding is a punched out erosion away from the joint surface with overhanging margins of bone. Treatment depends on the stage of the disease. Acute attacks may be treated with high dose nonsteroidal antiinflammatory drugs, colchicine, and systemic or intraarticular corticosteroids. Although lifestyle changes, including dietary modifications and exercise, can reduce serum urate levels, the practicality of this approach is questionable. Purine diet restriction combined with exercise may lower the serum urate level just below the threshold for gout attacks. Drugs that are currently used for lowering serum urate are uricosuric agents and xanthine oxidase inhibitors. Uricosuric agents such as probenecid and sulfinpyrazone are typically used for patients with low urate clearance, and xanthine oxidase inhibitors such as allopurinol are used for patients with increased urate production. Gout and hyperuricemia are common complications among solid organ transplant recipients. Management of these conditions

involves achieving a low serum urate level while maintaining adequate immunosuppression to avoid allograft rejection. 4 figures, 2 tables, and 7 references.

- **Gout, and What To Do About It**

Source: American Family Physician. 59(7): 1810. April 1, 1999.

Contact: American Academy of Family Physicians. 11400 Tomahawk Creek Parkway, Leawood, KS 66211-2672. (800) 274-2237 or (913) 906-6000. E-mail: fp@aafp.org. Website: www.aafp.org.

Summary: This journal article uses a question and answer format to provide people who have gout with information on this type of arthritis, which is caused by too much uric acid in the joints. Risk factors for gout include eating foods that are rich in purines, being overweight, drinking alcohol, having high cholesterol, or using certain medications. A gout attack usually starts at night and often affects the big toe. The joint becomes red, feels hot, and hurts, especially when touched. Medication, bed rest, and application of heat and cold should end the attack in a few days. Without treatment, a gout attack can last for days or weeks. Untreated attacks can lead to the development of tophi, which are soft tissue swellings caused by uric acid crystals. Medications that wash the uric acid from the joints can be used to prevent future attacks. Other preventive measures include losing weight; reducing blood pressure or cholesterol level; following a low salt, low fat diet; avoiding alcohol and foods that are high in purines; and drinking a lot of water.

- **Rheumatic Disease: Which Diagnostic Tests Are Useful?**

Source: Patient Care. 33(5): 83-84,87,91-92,94,99-102. March 15, 1999.

Summary: This journal article provides health professionals with information on laboratory tests that enhance the process of diagnosing suspected rheumatic disease. The article addresses issues about test selection that apply mainly to common rheumatologic diseases in adults, including osteoarthritis (OA), rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), Sjogren's syndrome, psoriatic arthritis, reactive arthritis, and gout. Plain x-ray films typically suffice for a diagnosis of OA, and no blood or other laboratory tests are available to diagnose it. However, patients with RA frequently have a blood count that indicates the anemia of chronic disease and an acute-phase response indicator. Rheumatoid factor is often present at relatively high levels. X-rays of the involved joints may be useful for suspected RA, and a parvovirus titer may be worthwhile in some patients. Assessing the antinuclear antibody (ANA) titer has become the standard approach for diagnosing suspected

SLE, Sjogren's syndrome, mixed connective tissue disease, and other connective tissue diseases. However, a positive test is not specific for these disorders, so ANA test results are most relevant when considered within the context of the patient's history and physical examination. The standard ANA test in the United States is the fluorescent antinuclear antibody test. Follow-up with a specific ANA test may be worthwhile in patients with a positive ANA test whose history and physical examination suggest SLE. Specific tests include the anti-Smith, anti-ribonucleoprotein, anti-SS-A/Ro, and anti-SS-B/La antibody tests. Complement testing may be useful if SLE is suspected. In addition, anticardiolipin antibodies are especially prevalent in patients with SLE. Although identification of the HLA-B27 allele is thought of as a diagnostic test for the spondyloarthropathies, it is not the most reliable source of information for diagnosis. A blood uric acid test is often used when gout is suspected, but it has disadvantages. A more reliable indicator of gout is the identification of urate crystals in a sample of fluid withdrawn from the affected joint or from tophi around the elbow or ear. Although the erythrocyte sedimentation rate test is commonly used as a test for inflammation, some experts question its value in patients with rheumatic disease. However, it is useful for diagnosing polymyalgia rheumatica and giant cell arteritis. 1 figure and 3 tables.

- **Arthritis 101: Gout**

Source: *Arthritis Today*. 13(1): 26-27. January-February 1999.

Summary: This journal article provides people who have gout with information on this painful form of arthritis. Gout, which is caused by the deposition of uric acid crystals in the joint, usually appears suddenly. If allowed to progress, the pain and inflammation of gout can resemble that of rheumatoid arthritis. The article explains why uric acid may accumulate in bodily tissues and who is most susceptible to getting gout. It also lists factors that can aggravate gout: use of diuretic medications, obesity, use of alcohol, kidney failure, and a diet rich in purines. Other topics are how gout is diagnosed using a patient's medical history, a physical examination, and laboratory tests; what joints are affected by gout; and how it is treated, namely, with anti-inflammatory medications, nonsteroidal anti-inflammatory drugs, and glucocorticoid medications. 5 figures.

- **Practical Approach to Gout**

Source: *Postgraduate Medicine*. 106(4): 115-116,119-123. October 1, 1999.

Summary: This journal article provides health professionals with information on the diagnosis, management, and prevention of gout, a

clinical syndrome that is caused by a group of heterogeneous disorders and mainly affects men between 40 and 60 years old. The first metatarsophalangeal joint, the ankle, and the soft tissue of the midfoot are most commonly affected. Gout is characterized by deposition of monosodium urate monohydrate crystals, leading to neutrophil activation and synovial inflammation. Mechanisms of hyperuricemia include uric acid overproduction and impaired renal clearance of uric acid. Two X-linked enzyme disorders cause increased rates of uric acid production. Diagnosis involves aspirating the joint and identifying the characteristic needle shaped, negatively birefringent monosodium urate crystals under compensated polarized light microscopy. Gram's stain and culture of the aspirated fluid are often performed concomitantly. The goals of therapy are resolving inflammation, preventing recurrent attacks, and reversing complications arising from deposition of urate crystals in joints, kidneys, and tophi. Therapy involves treating the acute attack, preventing future attacks, and lowering uric acid levels. Conservative therapeutic measures include advising patients to lose weight, moderate their use of alcohol, avoid dehydration and repetitive trauma, and control hypertension and hyperlipidemia. Current pharmacologic options for reducing inflammation and pain include nonsteroidal anti-inflammatory drugs (NSAIDs), colchicine, glucocorticoids, and corticotropin. Low doses of either colchicine or an NSAID may be effective in preventing acute attacks of gout. When attacks occur despite conservative measures, treatment with urate lowering agents is indicated. The classes of medications available for reducing serum urate levels are uricosuric agents and xanthine oxidase inhibitors. Common uricosuric agents are probenecid and sulfinpyrazone. Xanthine oxidase inhibitors include allopurinol. Most patients who have gout need long term treatment with either uricosuric agents or xanthine oxidase inhibitors. 3 tables and 13 references.

- **Epidemiology of the Rheumatic Diseases**

Source: *Current Opinion in Rheumatology*. 11(2): 91-97. March 1999.

Summary: This journal article provides health professionals with information on the epidemiology of rheumatic diseases. Epidemiologic studies of rheumatic diseases can be broadly divided into those that describe the occurrence of specific disorders, those that attempt to quantify the role of putative risk factors for disease occurrence, and those that define associated outcomes and factors. Studies in these areas have tended to consist of hypothesis testing rather than new etiologic or related hypotheses. In contrast to many previously published studies, more recent work has been both substantive in size and focused more on

true community based studies with the consequence that estimates of occurrence in risk obtained are likely to reflect more accurately the true nature of any associations observed. Various studies have tried to ascertain the prevalence of rheumatoid arthritis (RA). The relative contribution of genetic and environmental risk factors to RA still has to be determined. Traditionally, most epidemiologic studies of osteoarthritis (OA) have attempted to separate out the epidemiology by disease site with a specific emphasis on investigating the epidemiology of hip and knee disease separately. Debate still continues among epidemiologists as to how radiographs should be scored for the classification of OA. Various studies have also investigated the epidemiology of scleroderma, systemic lupus erythematosus, Sjogren's syndrome, gout, juvenile chronic arthritis, polymyalgia rheumatica, temporal arteritis, and the spondyloarthropathies. 45 references. (AA-M).

- **Gout: Applying Current Knowledge**

Source: Patient Care. 32(10): 125-131, 135-136, 139. May 30, 1998.

Summary: This journal article for health professionals focuses on the diagnosis and treatment of gout. Although gout has a long history, there are still significant clinical unknowns. It is characterized by acute pain and swelling in the first metatarsophalangeal joint. Peripheral joints are most commonly involved, while joints in the hand are frequently affected as well. Diagnosis is based on the medical history, a physical examination, evaluation of the serum uric acid level, and aspiration and examination of synovial fluid. Radiographs may also be used to detect intraosseous tophi. There are risks to both overdiagnosing and underdiagnosing this disease. Management depends on the stage of the disease. Acute attacks should be treated with antiinflammatory agents, but long-term treatment may involve the using allopurinol, probenecid, or sulfipyrazone to reduce the concentrations of serum uric acid. Although diet therapy is not usually totally effective, patients should try to avoid alcohol and foods high in purine and should be followed carefully to ensure their compliance with treatment. 5 figures, 1 table, and 4 references.

- **Gout: Diagnosis and Treatment**

Source: Cortlandt Forum. 219-225. August 1996.

Summary: This journal article for physicians examines the diagnosis and treatment of gout, including tests useful in diagnosis, the best treatment for an acute attack, management of chronic recurrent gout, medication considerations, and the management options for patients with asymptomatic hyperuricemia. Tables list the diagnostic clues to gout,

options for the treatment of acute gout, urate-lowering strategies, and the causes of hyperuricemia. The article suggests that, among all the diagnostic clues that may appear, the critical laboratory finding is phagocytosed urate crystals in polymorphonuclear leukocytes in synovial fluid. Of the agents best to reduce serum urate, allopurinol is the most effective with rarely occurring serious side effects. While urate-lowering drugs can be eventually discontinued, there is no clinically available method to determine when, therefore, in actual practice, medication is maintained for life. While patients with asymptomatic hyperuricemia require no treatment, it is recommended that they be observed on follow-up examinations. For such patients, an alteration in lifestyle would be required that may involve dietary modification, reduction in weight and alcohol consumption, and avoidance of diuretics. 5 tables.

- **Arthrocentesis To Diagnose and Treat Acute Gouty Arthritis in the Great Toe**

Source: JAAPA: Official Journal of the American Academy of Physician Assistants. 13(10): 93-94,96. October 2000.

Summary: This journal article provides health professionals with information on the use of arthrocentesis to diagnose and treat acute gouty arthritis. Although a high level of uric acid in the blood suggests gout, it can be confirmed only by identification of urate crystals in fluid aspirated from the joint. Arthrocentesis with fluid aspiration may relieve the pain of acute gouty arthritis, but the clinician may find it necessary to inject a corticosteroid directly into the joint space before removing the aspiration needle. The article explains how arthrocentesis is performed, presents postoperative instructions the physician should give the patient, and identifies contraindications and complications. 1 figure, 2 tables, and 5 references.

- **Acute Gouty Arthritis: Diagnosis and Treatment**

Source: Physician Assistant. 23(11): 32-42. November 1999.

Summary: This journal article, which is part of the continuing medical education (CME) series, provides health professionals with information on the pathology, clinical presentation, signs and symptoms, diagnosis, and treatment of acute gouty arthritis. Gout is the most common cause of inflammatory arthritis in men older than 30. It is a disorder of purine metabolism resulting in the deposition of monosodium urate crystals in various tissues. The first metatarsophalangeal (MTP) joint is most commonly involved; however, gout can occur almost anywhere. The onset is acute, typically nocturnal, and usually monoarticular. Most

patients who have gout are hyperuricemic, although only a few patients with hyperuricemia develop gout. In 90 percent of the cases, underexcretion of uric acid is the cause of hyperuricemia. The remaining 10 percent of cases are caused by overproduction or a combination of both. The four phases of gout are asymptomatic hyperuricemia, acute gouty arthritis, intercritical gout, and chronic tophaceous gout. The diagnosis of acute gouty arthritis may be suspected from the presence of urate crystals, clinical findings, hyperuricemia, and rapid resolution after colchicine treatment. Medications used to treat acute gout attacks include nonsteroidal anti-inflammatory drugs, colchicine, corticosteroids and adrenocorticotrophic hormones, and narcotic analgesics. Between attacks, the patient should follow a low purine and high flavonoid diet, consume a lot of fluids, take high potency vitamin and mineral supplements, and use colchicine and indomethacin as prophylactic agents. Antihyperuricemic medications, such as allopurinol and the uricosuric agents probenecid and sulfinpyrazone, are better suited for people who suffer frequent, acute gouty arthritis not controlled by colchicine prophylaxis or those who have tophaceous deposits or renal impairment. The article includes a case study, a study guide, and a CME test. 1 figure, 2 tables, and 8 references. (AA-M).

- **Gouty Arthritis**

Source: Physician Assistant. 23(11): 45-46. November 1999.

Summary: This information sheet uses a question and answer format to provide people who have gouty arthritis with information on this disease, which produces swelling in one or more joints as a result of deposits of uric acid. Gouty arthritis, which is commonly called gout, occurs in 2 to 2.6 per 1,000 people in the United States. In the first phase of gout, known as asymptomatic hyperuricemia, the blood has high levels of uric acid but the person has no symptoms. In the next phase, gout causes pain, stiffness, and swelling in the affected joint. The third phase, known as intercritical gout, is the phase between attacks. In the final phase, accumulations of hard crystals of uric acid, called tophi, are deposited in various areas of the body. Diagnosis is based on a physical examination, blood tests, and x rays. Acute attacks of gout may be treated with nonsteroidal anti-inflammatory drugs, colchicine, corticosteroids, and adrenocorticotrophic hormones. Nonpharmacologic methods of treating acute attacks include bedrest, hot or cold compresses, and elevation of the affected joint. Preventing future attacks involves following a diet low in purine; increasing fluid intake to 3 liters per day; losing weight; and taking medications such as colchicine, indomethacin, probenecid, sulfinpyrazone, and allopurinol. 1 figure.

- **Gout: Effective Strategies for Acute and Long-Term Control**

Source: Journal of Musculoskeletal Medicine. 15(8): 45-53. August 1998.

Summary: This journal article provides health professionals with information on the clinical features, diagnosis, and treatment of gout. The incidence of gout increases with advancing age and elevations in serum urate levels. Although gout is most common in men, its incidence appears to be increasing in postmenopausal women. The prevalence of tophaceous gout is declining. The natural history of gout follows a transition through the stages of asymptomatic hyperuricemia, acute gouty arthritis with intercritical periods, and chronic tophaceous gout. The initial attack begins suddenly and is typically monarticular. Exquisite pain and inflammation are characteristic. Response to colchicine supports the presumptive clinical diagnosis, but confirmation of the diagnosis depends on identification of urate crystals in tophaceous material. Adequate control of blood pressure is essential in patients who have gout and hypertension and is probably the most important intervention in preventing progression of renal disease. Prompt therapy with colchicine, nonsteroidal anti-inflammatory drugs, or corticosteroids is the cornerstone of acute care. Once the acute attack has resolved, colchicine, allopurinol, or a uricosuric agent such as probenecid or sulfinpyrazone should be prescribed to prevent recurrent attacks. Serum urate levels need not be lowered unless symptoms occur. Compliance with lifelong therapy is necessary to avoid recurrence. Weight reduction and alcohol restriction are also helpful. 4 figures, 3 tables, and 15 references. (AA-M).

- **Radiologic Features of Gout**

Source: American Family Physician. 54(4):1232-1238. September 15, 1996.

Contact: American Academy of Family Physicians. 11400 Tomahawk Creek Parkway, Leawood, KS 66211-2672. (800) 274-2237 or (913) 906-6000. E-mail: fp@aafp.org. Website: www.aafp.org.

Summary: This journal article for health professionals describes the phases and radiologic features of gout, a common rheumatologic disease characterized by the deposition of monosodium urate crystals in tissue from supersaturated extracellular fluid. The deposition of crystals in the joints and periarticular soft tissue can lead to arthritis and bone destruction. Four phases can occur in the evolution of gout: asymptomatic hyperuricemia, acute gouty arthritis, intercritical gout, and chronic tophaceous gout. The radiologic features include swelling of soft tissues, tophi, normal mineralization, preservation of joint space until the later stages of disease, punched-out erosions with overhanging edge of cortex and sclerotic borders, and an asymmetric polyarticular

distribution. The lower extremity joints are most often affected, but the small joints of the hands, wrists, and elbows may also be involved. Gout rarely occurs in the shoulders, hips, sacroiliac joints, or spine. The article also discusses the use of radiographs in the differential diagnosis of gout. 17 references, 10 figures, and 2 tables. (AA-M).

- **Diagnosis and Management of Gout**

Source: American Family Physician. 59(7): 1799-1806. April 1, 1999.

Contact: American Academy of Family Physicians. 11400 Tomahawk Creek Parkway, Leawood, KS 66211-2672. (800) 274-2237 or (913) 906-6000. E-mail: fp@aafp.org. Website: www.aafp.org.

Summary: This journal article provides health professionals with information on diagnosing and managing gout. This disease, which results from the deposition of urate crystals in synovial fluid and other tissues or the formation of uric acid stones in the kidneys, typically occurs during middle age. Gout is often, but not always, associated with elevated serum uric acid levels. Clinical manifestations include acute or chronic arthritis, tophi, interstitial renal disease, and uric acid nephrolithiasis. Diagnosis is based on the identification of uric acid crystals in joints, tissues, or body fluids. Treatment goals include terminating the acute attack, preventing recurrent attacks, and preventing the complications associated with the deposition of urate crystals in tissues. Pharmacologic management remains the mainstay of treatment. Acute attacks may be terminated by using nonsteroidal anti-inflammatory agents, colchicine, or intra-articular injections of corticosteroids. Probenecid, sulfapyrazone, and allopurinol can be used to prevent recurrent attacks. Potentially exacerbating factors such as obesity, alcohol intake, and certain foods and medications can contribute to hyperuricemia. These should be identified and modified. 6 figures, 2 tables, and 24 references. (AA-M).

Federally-Funded Research on Gout

The U.S. Government supports a variety of research studies relating to gout and associated conditions. These studies are tracked by the Office of Extramural Research at the National Institutes of Health.¹⁹ CRISP

¹⁹ Healthcare projects are funded by the National Institutes of Health (NIH), Substance Abuse and Mental Health Services (SAMHSA), Health Resources and Services Administration (HRSA), Food and Drug Administration (FDA), Centers for Disease Control

(Computerized Retrieval of Information on Scientific Projects) is a searchable database of federally-funded biomedical research projects conducted at universities, hospitals, and other institutions. Visit the CRISP Web site at http://commons.cit.nih.gov/crisp3/CRISP.Generate_Ticket. You can perform targeted searches by various criteria including geography, date, as well as topics related to gout and related conditions.

For most of the studies, the agencies reporting into CRISP provide summaries or abstracts. As opposed to clinical trial research using patients, many federally-funded studies use animals or simulated models to explore gout and related conditions. In some cases, therefore, it may be difficult to understand how some basic or fundamental research could eventually translate into medical practice. The following sample is typical of the type of information found when searching the CRISP database for gout:

- **Project Title: Effects of K Mg Citrate on Insulin Sensitivity in Gouty Diathesis**

Principal Investigator & Institution: Abate, Nicola; ; University of Texas Sw Med Ctr/Dallas Southwestern Medical Ctr/Dallas Dallas, Tx 75390

Timing: Fiscal Year 2000

Summary: The overall aim of this project is to evaluate the efficacy of oral administration of K-Mg-Citrate in improving insulin sensitivity in subjects with gouty diathesis. Gouty diathesis is a metabolic disturbance characterized by excessive urinary acidity that predisposes one to the development of uric acid and calcium renal stones. The hypothesis tested in this study is that therapy with K-Mg-Citrate increases both insulin-mediated glucose disposal and urinary pH in patients with gouty diathesis.

Website: http://commons.cit.nih.gov/crisp3/CRISP.Generate_Ticket

- **Project Title: Gouty Diathesis--Pathophysiology and Molecular Genetic Basis**

Principal Investigator & Institution: Sakhaee, Khashayar; ; University of Texas Sw Med Ctr/Dallas Southwestern Medical Ctr/Dallas Dallas, Tx 75390

Timing: Fiscal Year 2000

Summary: (Taken directly from the application) A disturbance in urate metabolism has been shown to lead to the development of both uric acid and calcium stones. In addition, primary gout is frequently observed

with uric acid lithiasis, where undue urinary pH from defective ammonium production is believed to promote uric acid crystallization. We have used the term gouty diathesis to describe stone formation associated with primary gout, and that it is comprised of acquired and primary (genetic) variants. This hypothesis will be tested by (1) assessing whether defective ammonium production in gouty diathesis is evident by controlling acid intake and imposing phosphate restriction and that, in the acquired form of the disease, insulin resistance is responsible for undue acidity and other biochemical features of this disease, and (2) identifying the molecular defect in the "primary" genetic form of the disease. These studies will help elucidate the pathophysiology of gouty diathesis and may lead to improvements in the diagnosis and treatment of this form of urolithiasis.

Website: http://commons.cit.nih.gov/crisp3/CRISP.Generate_Ticket

- **Project Title: General Clinical Research Center**

Principal Investigator & Institution: Pak, Charles Y.; Professor of Internal Medicine; Internal Medicine; University of Texas Sw Med Ctr/Dallas Southwestern Medical Ctr/Dallas Dallas, Tx 75390

Timing: Fiscal Year 2000; Project Start 1-DEC-1978; Project End 0-NOV-2003

Summary: The overall goal of the General Clinical Research Center (GCRC) at Dallas is to provide an optimal environment for patient-oriented investigation which leads to an improved understanding of the disease process, allows better methods of diagnosis and treatment, foster interdisciplinary collaboration, and offers training in clinical investigation. Major activities of the GCRC include; to study efficacy and safety of adding a bisphosphonate to sustained-release sodium fluoride (Neosten) and to evaluate a new formulation of sustained-release sodium fluoride combined with calcium citrate (Caflor) for postmenopausal osteoporosis; to utilize newer techniques for assessment of bone quality in osteoporosis such as nuclear magnetic resonance (NMR) microscopy, critical angle reflection ultrasound and strut analysis; determination of the pathophysiology, particularly relate to insulin resistance in gouty diathesis (renal stone formation associated with gout), its molecular genetic basis and the effects of improving insulin sensitivity in reversing the biochemical defects; elucidation of the genetic basis of low levels of high density lipoprotein (HDL) as related to the polymorphisms in hepatic lipase gene; characterization of phenotype and metabolic abnormalities, and elucidation of genetic defects in patients with congenital generalized and familial partial lipodystrophies; to study efficacy and safety of adding methotrexate therapy to ursodeoxycholic

acid for therapy of primary biliary cirrhosis in a randomized, blinded, placebo-controlled trial; comparison of innovative and conventional treatments for management of or develop surrogate biologic markers predicting predisposition to specific skin diseases and response to therapy; to study neural mechanisms of obesity-related hypertension in African-Americans utilizing microelectrode recordings of postganglionic sympathetic nerve activity; and development of new and reliable techniques to assess renal functions and to perform safety and dose-ranging studies of alpha-melanocyte stimulating hormone (MSH) for subsequent clinical trials of alpha-MSH to treat or prevent acute renal failure.

Website: http://commons.cit.nih.gov/crisp3/CRISP.Generate_Ticket

- **Project Title: Regulation of Purine Nucleotide Synthesis in Humans**

Principal Investigator & Institution: Becker, Michael A.; Professor; Medicine; University of Chicago 5801 S Ellis Ave Chicago, IL 60637

Timing: Fiscal Year 2000; Project Start 1-SEP-1980; Project End 0-NOV-2001

Summary: The long-term objective of this research is to understand the biochemical and genetic mechanisms regulating human purine nucleotide synthesis. Studies of inherited enzyme defects underlying excessive purine nucleotide and uric acid production in some families with gout have contributed to concepts of the control of rates of purine synthesis *de novo*. One such defect is superactivity of phosphoribosylpyrophosphate (PRPP) synthetase (PRS), the enzyme catalyzing synthesis of the regulatory substrate PRPP. The proposed investigations focus on expression of two X chromosome-linked human (h) genes, hPRPS1 and hPRPS2, which encode highly homologous PRS isoforms, hPRS1 and hPRS2, respectively. The specific aims are: 1) to delineate the structural and regulatory determinants of normal hPRPS1 and hPRPS2 gene expression; and 2) to define the precise genetic defects and resulting aberrant molecular mechanisms underlying X-linked catalytic superactivity of hPRS. In order to pursue these specific aims, molecular genetic, protein chemical, and enzyme analytical methods will be employed. The structure of hPRPS1 and hPRPS2 promoter and adjacent 5' flanking sequences will be defined by sequencing of cloned PRPS genomic DNA. hPRPS promoter function and cis-acting regulatory elements in the 5' flanking DNAs will be studied in murine and human cell lines transfected with hPRPS promoter region reporter gene plasmid constructs. Pertinent DNA sequences will be tested for nuclear protein and specific transcription factor binding by gel mobility shift assays and, where appropriate, DNA footprinting and site-directed mutation will be

utilized to define and delimit key protein-binding sequences in the DNA. PRPS gene promoter activities will be correlated with PRS transcript levels, PRS isoform contents and activities, and PRPP and purine nucleotide synthesis in differentiated human cell lines representative of tissues showing differential expression of PRPS1 and/or PRPS2 transcript abundance. The influences of growth promoting agents, viral transformation, and cell cycle traversal on hPRPS promoter activities and mouse PRS transcript and isoform levels will be tested in murine cell lines. These studies are aimed at: defining models for cell-specific and gene-differential regulation of PRPS gene expression; identifying where in genetic information transfer control occurs; and ascertaining the molecular mechanisms involved. Altered pretranslational regulation of hPRPS1 expression in PRS catalytic superactivity may reflect transcriptional dysregulation due to structural and/or functional defects in the control of the PRPS1 promoter. This hypothesis will be tested by comparing the structure of promoter regions of affected patients and normal individuals and by measuring the respective PRPS1 promoter activities in murine cells and in normal and patient fibroblasts. Finally, post-translational control of hPRS isoform expression by specific interaction with a PRS-associated 39kDa protein (PAP39) will be examined in studies assessing the specificity and functional consequences of the PAP39-PRS isoform complex and the results of selective disruption of the complex and its reconstitution from recombinant components.

Website: http://commons.cit.nih.gov/crisp3/CRISP.Generate_Ticket

- **Project Title: Synthesis and Biological Activity of Some N-Aminotetrahydropyridines**

Principal Investigator & Institution: Redda, Kinfe K.; Professor of Medicinal Chemistry; Florida Agricultural and Mechanical Univ Tallahassee, Fl 32307

Timing: Fiscal Year 2000

Summary: Synthesis and Biological Activity Determinations of Some N-aminotetrahydropyridines The primary objective is the design, synthesis and pharmacological evaluation of novel and medicinally important N-amino-1,2,3,6- tetrahydropyridine derivatives. We reported the synthesis of novel N- iminopyridinium ylides using the method employed by Tamura and modified in our laboratory. Sodium borohydride reduction of the ylides afforded preliminary pharmacological test results of a few tetrahydropyridines that exhibited analgesic and anti-inflammatory activities with no observed toxicity, even at very high dose levels. Our earlier work provides the basis for new and exciting studies so that a series of compounds related to the most active analogs could be

prepared, and retested and the octanol-water partition coefficient determined. Once sufficient data are accumulated, the compounds prepared will be subjected to structure activity analysis to study the electronic, steric and lipophilic effects of substituents. The physical and pharmacological data obtained in this study will then be used to design drugs with more beneficial biological activity. The primary focus of the pharmacological studies will be to develop an easily synthesized, effective and safe nonsteroidal anti-inflammatory agent for the treatment of rheumatic diseases, including rheumatoid arthritis, osteoarthritis, gout and rheumatic fever.

Website: http://commons.cit.nih.gov/crisp3/CRISP.Generate_Ticket

- **Project Title: Synthetic Applications of Carbene Complexes**

Principal Investigator & Institution: Wulff, William D.; Professor; Chemistry; University of Chicago 5801 S Ellis Ave Chicago, IL 60637

Timing: Fiscal Year 2000; Project Start 1-DEC-1983; Project End 0-NOV-2000

Summary: The broad scope of the work proposed involves the development of the chemistry of Fischer carbene complexes to the field of organic synthesis and to the synthesis of organic compounds of importance in human health. The reactions of Fischer carbene complexes with alkynes will be examined for the synthesis of the platelet activating factor antagonist phomactin D and for the synthesis of colchicine and allicolchicinoids that have been investigated for the treatment of gout, familial Mediterranean fever and liver cirrhosis. Asymmetric versions of this reaction will also be used to prepare aS,7S and aR,7S isomers of 1,2-methylcolchinyll methyl ether to test an unresolved issue regarding the stereochemical requirements for binding of colchicine and allicolchicinoids to tubulin. A new strategy for the synthesis of the new anticancer agent eluetherobin will be explored which involves an intramolecular exo-selective Diels-Alder reaction as a key step. The aldol reaction of Fischer carbene complexes will be utilized in the first synthesis of the anticancer agent fostriecin and analogs of fostriecin which are more stable and thus more useful in the clinic. The reaction of Fischer carbene complexes with 1,6-enynes will be explored as a method for rapid access to the taxol family of antitumor agents. The cyclopropanation reactions of chiral carbene complexes will be examined for the synthesis of aminocyclopropanes and for a synthesis of the antitumor agent helenalin which involves a tandem cyclopropanation/Cope rearrangement sequence.

Website: http://commons.cit.nih.gov/crisp3/CRISP.Generate_Ticket

E-Journals: PubMed Central²⁰

PubMed Central (PMC) is a digital archive of life sciences journal literature developed and managed by the National Center for Biotechnology Information (NCBI) at the U.S. National Library of Medicine (NLM).²¹ Access to this growing archive of e-journals is free and unrestricted.²² To search, go to <http://www.pubmedcentral.nih.gov/index.html#search>, and type “gout” (or synonyms) into the search box. This search gives you access to full-text articles. The following is a sample of items found for gout in the PubMed Central database:

- **Fructose-Induced Aberration of Metabolism in Familial Gout Identified by 31P Magnetic Resonance Spectroscopy** by JE Seegmiller, RM Dixon, GJ Kemp, PW Angus, TE McAlindon, P Dieppe, B Rajagopalan, and GK Radda; 1990 November 1
<http://www.pubmedcentral.nih.gov/articlerender.fcgi?rendertype=abstract&artid=54948>
- **Randomised double blind trial of etoricoxib and indometacin in treatment of acute gouty arthritis** by H Ralph Schumacher, Jr, Judith A Boice, David I Daikh, Saurabh Mukhopadhyay, Kerstin Malmstrom, Jennifer Ng, Guillermo A Tate, and Javier Molina; 2002 June 22
<http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=116444>

The National Library of Medicine: PubMed

One of the quickest and most comprehensive ways to find academic studies in both English and other languages is to use PubMed, maintained by the National Library of Medicine. The advantage of PubMed over previously mentioned sources is that it covers a greater number of domestic and foreign references. It is also free to the public.²³ If the publisher has a Web site that

²⁰ Adapted from the National Library of Medicine:

<http://www.pubmedcentral.nih.gov/about/intro.html>.

²¹ With PubMed Central, NCBI is taking the lead in preservation and maintenance of open access to electronic literature, just as NLM has done for decades with printed biomedical literature. PubMed Central aims to become a world-class library of the digital age.

²² The value of PubMed Central, in addition to its role as an archive, lies the availability of data from diverse sources stored in a common format in a single repository. Many journals already have online publishing operations, and there is a growing tendency to publish material online only, to the exclusion of print.

²³ PubMed was developed by the National Center for Biotechnology Information (NCBI) at the National Library of Medicine (NLM) at the National Institutes of Health (NIH). The PubMed database was developed in conjunction with publishers of biomedical literature as a search tool for accessing literature citations and linking to full-text journal articles at Web

offers full text of its journals, PubMed will provide links to that site, as well as to sites offering other related data. User registration, a subscription fee, or some other type of fee may be required to access the full text of articles in some journals.

To generate your own bibliography of studies dealing with gout, simply go to the PubMed Web site at www.ncbi.nlm.nih.gov/pubmed. Type "gout" (or synonyms) into the search box, and click "Go." The following is the type of output you can expect from PubMed for "gout" (hyperlinks lead to article summaries):

- **Earliest description of gout.**

Author(s): Rosner F.

Source: Arthritis and Rheumatism. 1983 February; 26(2): 236. No Abstract Available.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6337596&dopt=Abstract

- **The treatment of gout.**

Author(s): Wallace SL.

Source: Arthritis and Rheumatism. 1972 May-June; 15(3): 317-23. No Abstract Available.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=5031616&dopt=Abstract

Vocabulary Builder

Aberrant: Wandering or deviating from the usual or normal course. [EU]

Acidity: L. aciditas) the quality of being acid or sour; containing acid (hydrogen ions). [EU]

Analgesic: An agent that alleviates pain without causing loss of consciousness. [EU]

Antibody: An immunoglobulin molecule that has a specific amino acid sequence by virtue of which it interacts only with the antigen that induced its synthesis in cells of the lymphoid series (especially plasma cells), or with antigen closely related to it. Antibodies are classified according to their mode of action as agglutinins, bacteriolysins, haemolysins, opsonins, precipitins, etc. [EU]

sites of participating publishers. Publishers that participate in PubMed supply NLM with their citations electronically prior to or at the time of publication.

Assay: Determination of the amount of a particular constituent of a mixture, or of the biological or pharmacological potency of a drug. [EU]

Biochemical: Relating to biochemistry; characterized by, produced by, or involving chemical reactions in living organisms. [EU]

Chelation: Combination with a metal in complexes in which the metal is part of a ring. [EU]

Cholesterol: The principal sterol of all higher animals, distributed in body tissues, especially the brain and spinal cord, and in animal fats and oils. [NIH]

Cirrhosis: Liver disease characterized pathologically by loss of the normal microscopic lobular architecture, with fibrosis and nodular regeneration. The term is sometimes used to refer to chronic interstitial inflammation of any organ. [EU]

Cortex: The outer layer of an organ or other body structure, as distinguished from the internal substance. [EU]

Crystallization: The formation of crystals; conversion to a crystalline form. [EU]

Dehydration: The condition that results from excessive loss of body water. Called also anhydration, deaquation and hypohydration. [EU]

Diathesis: A constitution or condition of the body which makes the tissues react in special ways to certain extrinsic stimuli and thus tends to make the person more than usually susceptible to certain diseases. [EU]

Ethnopharmacology: The study of the actions and properties of drugs, usually derived from medicinal plants, indigenous to a population or ethnic group. [NIH]

Extremity: A limb; an arm or leg (membrum); sometimes applied specifically to a hand or foot. [EU]

Fibroblasts: Connective tissue cells which secrete an extracellular matrix rich in collagen and other macromolecules. [NIH]

Glucose: D-glucose, a monosaccharide (hexose), $C_6H_{12}O_6$, also known as dextrose (q.v.), found in certain foodstuffs, especially fruits, and in the normal blood of all animals. It is the end product of carbohydrate metabolism and is the chief source of energy for living organisms, its utilization being controlled by insulin. Excess glucose is converted to glycogen and stored in the liver and muscles for use as needed and, beyond that, is converted to fat and stored as adipose tissue. Glucose appears in the urine in diabetes mellitus. [EU]

Homologous: Corresponding in structure, position, origin, etc., as (a) the feathers of a bird and the scales of a fish, (b) antigen and its specific antibody, (c) allelic chromosomes. [EU]

Hormones: Chemical substances having a specific regulatory effect on the

activity of a certain organ or organs. The term was originally applied to substances secreted by various endocrine glands and transported in the bloodstream to the target organs. It is sometimes extended to include those substances that are not produced by the endocrine glands but that have similar effects. [NIH]

Hyperlipidemia: An excess of lipids in the blood. [NIH]

Insulin: A protein hormone secreted by beta cells of the pancreas. Insulin plays a major role in the regulation of glucose metabolism, generally promoting the cellular utilization of glucose. It is also an important regulator of protein and lipid metabolism. Insulin is used as a drug to control insulin-dependent diabetes mellitus. [NIH]

Intoxication: Poisoning, the state of being poisoned. [EU]

Leukaemia: An acute or chronic disease of unknown cause in man and other warm-blooded animals that involves the blood-forming organs, is characterized by an abnormal increase in the number of leucocytes in the tissues of the body with or without a corresponding increase of those in the circulating blood, and is classified according of the type leucocyte most prominently involved. [EU]

Lipophilic: Having an affinity for fat; pertaining to or characterized by lipophilia. [EU]

Lipoprotein: Any of the lipid-protein complexes in which lipids are transported in the blood; lipoprotein particles consist of a spherical hydrophobic core of triglycerides or cholesterol esters surrounded by an amphipathic monolayer of phospholipids, cholesterol, and apolipoproteins; the four principal classes are high-density, low-density, and very-low-density lipoproteins and chylomicrons. [EU]

Lupus: A form of cutaneous tuberculosis. It is seen predominantly in women and typically involves the nasal, buccal, and conjunctival mucosa. [NIH]

Methotrexate: An antineoplastic antimetabolite with immunosuppressant properties. It is an inhibitor of dihydrofolate reductase and prevents the formation of tetrahydrofolate, necessary for synthesis of thymidylate, an essential component of DNA. [NIH]

Microscopy: The application of microscope magnification to the study of materials that cannot be properly seen by the unaided eye. [NIH]

Mineralization: The action of mineralizing; the state of being mineralized. [EU]

Molecular: Of, pertaining to, or composed of molecules : a very small mass of matter. [EU]

Narcotic: 1. pertaining to or producing narcosis. 2. an agent that produces

insensibility or stupor, applied especially to the opioids, i.e. to any natural or synthetic drug that has morphine-like actions. [EU]

Nephropathy: Disease of the kidneys. [EU]

Neural: 1. pertaining to a nerve or to the nerves. 2. situated in the region of the spinal axis, as the neutral arch. [EU]

Neutrophil: Having an affinity for neutral dyes. [EU]

Osteoporosis: Reduction in the amount of bone mass, leading to fractures after minimal trauma. [EU]

Parvovirus: A genus of the family parvoviridae, subfamily parvovirinae, infecting a variety of vertebrates including humans. Parvoviruses are responsible for a number of important diseases but also can be non-pathogenic in certain hosts. The type species is mice minute virus. [NIH]

Phenotype: The outward appearance of the individual. It is the product of interactions between genes and between the genotype and the environment. This includes the killer phenotype, characteristic of yeasts. [NIH]

Poisoning: A condition or physical state produced by the ingestion, injection or inhalation of, or exposure to a deleterious agent. [NIH]

Predisposition: A latent susceptibility to disease which may be activated under certain conditions, as by stress. [EU]

Prevalence: The total number of cases of a given disease in a specified population at a designated time. It is differentiated from incidence, which refers to the number of new cases in the population at a given time. [NIH]

Prophylaxis: The prevention of disease; preventive treatment. [EU]

Psychosomatic: Pertaining to the mind-body relationship; having bodily symptoms of psychic, emotional, or mental origin; called also psychophysiological. [EU]

Recombinant: 1. a cell or an individual with a new combination of genes not found together in either parent; usually applied to linked genes. [EU]

Reconstitution: 1. a type of regeneration in which a new organ forms by the rearrangement of tissues rather than from new formation at an injured surface. 2. the restoration to original form of a substance previously altered for preservation and storage, as the restoration to a liquid state of blood serum or plasma that has been dried and stored. [EU]

Recurrence: The return of a sign, symptom, or disease after a remission. [NIH]

Sedimentation: The act of causing the deposit of sediment, especially by the use of a centrifugal machine. [EU]

Serum: The clear portion of any body fluid; the clear fluid moistening serous membranes. 2. blood serum; the clear liquid that separates from blood on clotting. 3. immune serum; blood serum from an immunized animal used

for passive immunization; an antiserum; antitoxin, or antivenin. [EU]

Substrate: A substance upon which an enzyme acts. [EU]

Systemic: Pertaining to or affecting the body as a whole. [EU]

Tophus: A chalky deposit of sodium urate occurring in gout; tophi form most often around joints in cartilage, bone, bursae, and subcutaneous tissue and in the external ear, producing a chronic foreign-body inflammatory response. [EU]

Toxicity: The quality of being poisonous, especially the degree of virulence of a toxic microbe or of a poison. [EU]

Tubulin: A microtubule subunit protein found in large quantities in mammalian brain. It has also been isolated from sperm flagella, cilia, and other sources. Structurally, the protein is a dimer with a molecular weight of approximately 120,000 and a sedimentation coefficient of 5.8S. It binds to colchicine, vincristine, and vinblastine. [NIH]

Uricosuric: 1. pertaining to, characterized by, or promoting uricosuria (= the excretion of uric acid in the urine). 2. an agent that promotes uricosuria. [EU]

CHAPTER 5. PATENTS ON GOUT

Overview

You can learn about innovations relating to gout by reading recent patents and patent applications. Patents can be physical innovations (e.g. chemicals, pharmaceuticals, medical equipment) or processes (e.g. treatments or diagnostic procedures). The United States Patent and Trademark Office defines a patent as a grant of a property right to the inventor, issued by the Patent and Trademark Office.²⁴ Patents, therefore, are intellectual property. For the United States, the term of a new patent is 20 years from the date when the patent application was filed. If the inventor wishes to receive economic benefits, it is likely that the invention will become commercially available to patients with gout within 20 years of the initial filing. It is important to understand, therefore, that an inventor's patent does not indicate that a product or service is or will be commercially available to patients with gout. The patent implies only that the inventor has "the right to exclude others from making, using, offering for sale, or selling" the invention in the United States. While this relates to U.S. patents, similar rules govern foreign patents.

In this chapter, we show you how to locate information on patents and their inventors. If you find a patent that is particularly interesting to you, contact the inventor or the assignee for further information.

²⁴Adapted from The U. S. Patent and Trademark Office:
<http://www.uspto.gov/web/offices/pac/doc/general/whatis.htm>.

Patents on Gout

By performing a patent search focusing on gout, you can obtain information such as the title of the invention, the names of the inventor(s), the assignee(s) or the company that owns or controls the patent, a short abstract that summarizes the patent, and a few excerpts from the description of the patent. The abstract of a patent tends to be more technical in nature, while the description is often written for the public. Full patent descriptions contain much more information than is presented here (e.g. claims, references, figures, diagrams, etc.). We will tell you how to obtain this information later in the chapter. The following is an example of the type of information that you can expect to obtain from a patent search on gout:

- **Method of treating gout with certain indole compounds**

Inventor(s): Johnson; Douglas W (Zionsville, IN), Morin, Jr.; John M (Brownsburg, IN), Sawyer; Jason S (Indianapolis, IN), Shuman; Robert T (Sedona, AZ)

Assignee(s): Eli Lilly and Company (Indianapolis, IN)

Patent Number: 6,303,610

Date filed: March 6, 2000

Abstract: This invention relates to a method of treating gout with certain indole compounds and other aromatic compounds.

Excerpt(s): The compounds of the present invention have been shown to effectively inhibit adhesion-dependent oxidant production. Accordingly, this invention provides methods of treating disease and conditions associated with excess neutrophil mediated oxidant production, including the following inflammatory diseases and other conditions: smoking, chronic bronchitis, emphysema, asthma, cystic fibrosis, cancer, adult respiratory distress syndrome, Wegener's granulomatosis, idiopathic pulmonary fibrosis, collagen vascular disorders, interstitial lung disease, hypersensitivity pneumonitis, sarcoidosis, bronchiolitis obliterans with organizing pneumonia, Crohn's Disease, Sjogren's Syndrome, rheumatoid arthritis, progressive systemic sclerosis, dermatomyositis, mixed connective tissue disease, familial idiopathic pulmonary fibrosis, systemic lupus erythematosus, progressive systemic sclerosis, autoimmune thyroid disease, inflammatory bowel disease, juvenile periodontitis, myocardial infarction, hemorrhagic shock, septic shock, ischemic shock, cerebral ischemia, stroke, hypertension, unstable angina, diabetes complications, thrombotic stroke, fibrosing alveolitis, bronchiectasis, periodontal disease, glomerulonephritis, alcoholic hepatitis, Kawasaki Disease, gingivitis, chronic obstructive pulmonary

disease, pulmonary infections (staphylococcal or klebsiella pneumonia), ulcerative colitis, psoriasis, arteriosclerosis, gout, gastroesophageal reflux disease, carditis, Barrett's Esophagus, Behcet's Disease, iritis, acute glomerulonephritis, periarteritis nodosa, unstable angina, coronary artery disease, coronary angioplasty, immune complex disease, cryoglobulinemic glomerulonephritis, anti-gbm glomerulonephritis, Goodpasture's Syndrome, myositis, and acute pancreatitis. ... The compounds of formula I are potent effective inhibitors of neutrophil mediated oxidant production. As such, they are useful in treating conditions associated with excessive or unregulated neutrophil accumulation, such as, but not limited to, the following: smoking, chronic bronchitis, emphysema, asthma, cystic fibrosis, cancer, adult respiratory distress syndrome, Wegener's granulomatosis, idiopathic pulmonary fibrosis, collagen vascular disorders, interstitial lung disease, hypersensitivity pneumonitis: sarcoidosis, bronchiolitis obliterans with organizing pneumonia, Crohn's Disease, Secondary Sjorgren's Syndrome, rheumatoid arthritis, progressive systemic sclerosis, dermatopolymyositis, mixed connective tissue disease, familial idiopathic pulmonary fibrosis, systemic lupus erythematosus, progressive systemic sclerosis, autoimmune thyroid disease, inflammatory bowel disease, juvenile periodontitis, myocardial infarction, hemorrhagic shock, septic shock, ischemic shock, cerebral ischemia, stroke, hypertension, unstable angina, diabetes complications, thrombotic stroke, fibrosing alveolitis, bronchiectasis, periodontal disease, glomerulonephritis, alcoholic hepatitis, Kawasaki Disease, gingivitis, chronic obstructive pulmonary disease, pulmonary infections (staphylococcal or klebsiella pneumonia), ulcerative colitis, psoriasis, arteriosclerosis, gout, gastroesophageal reflux disease, carditis, Barrett's Esophagus, Behcet's Disease, iritis, acute glomerulonephritis, periarteritis nodosa, unstable angina, coronary artery disease, coronary angioplasty, immune complex disease, cryoglobulinemic glomerulonephritis, anti-gbm glomerulonephritis, Goodpasture's Syndrome, myositis, and acute pancreatitis.

Web site: http://www.delphion.com/details?pn=US06303610__

- **Herbal compositions and their use as anti-inflammatory agents for alleviation of arthritis and gout**

Inventor(s): Tomer; Onkar S. (Watchung, NJ), Glomski; Peter (South Amboy, NJ), Borah; Kripanath (Morris Plains, NJ)

Assignee(s): Chromak Research, Inc. (Somerset, NJ)

Patent Number: 6,274,176

Date filed: July 1, 1999

Abstract: An edible composition for use as an anti-inflammatory agent for alleviation of arthritis and gout in mammals. The edible composition is a mixture of at least three, preferably at least seven, herbs selected from the group consisting of *Tanacetum parthenium*, *Zingibar officinale*, *Curcuma longa*, *Coriandrum sativum*, *Centella asiatica*, *Oenothera biennis*, *Valeriana officinalis*, *Tabebuia impetiginosa*, *Thymus vulgaris* and *Sambucus nigra*. A preferred composition will contain at least *Tanacetum parthenium*, *Zingibar officinale* and *Curcuma longa*. The composition preferably contains the herbs in approximately equal amounts.

Excerpt(s): The present invention is directed to an edible composition for use as an anti-inflammatory agent for alleviation of arthritis and gout in mammals. The composition comprises a synergistic mixture of at least three herbs selected from a group of ten herbs identified below. ... Arthritis is a chronic syndrome characterized by inflammation of the peripheral joints, while gout manifests itself as an inflammation of the lower leg. For the sake of brevity, whenever reference hereinbelow is made to arthritis, it should be understood as encompassing gout, since the principal difference between arthritis and gout is the location of the inflamed joints. There is a wide spectrum of disease severity but many patients run a course of intermittent relapses and remissions with an overall pattern of slowly progressive joint destruction and deformity. Persistent inflammation produces symptoms and damages tissue causing loss of cartilage, erosion of bone matter and subluxation of the joint. This results in a high degree of morbidity resulting in disturbed daily life of the patient. Diagnosis of arthritis is typically carried out by determination of rheumatoid factor in the blood and radiological changes in the peripheral joints. ... This invention describes an edible composition for use as an anti-inflammatory agent for alleviation of arthritis and gout in mammals. Since the composition comprises a mixture of herbs as described below, the composition meets all of the criteria set forth above, i.e., it is relatively inexpensive, produces no adverse side effects, may be taken in multiple daily doses over prolonged periods of time and it

results in the alleviation of arthritis (and gout) in the patient within a few weeks after commencement of ingestion of the composition.

Web site: http://www.delphion.com/details?pn=US06274176__

- **Oxypurinol alkali and alkaline earth salts in amorphous or crystalline form as agents for treating hyperuricaemia and gout**

Inventor(s): Scheiffele; Ekkehard (Berlin, DE)

Assignee(s): Henning Berlin GmbH Chemie-Und Pharmawerk (Berlin, DE)

Patent Number: 5,661,154

Date filed: February 6, 1995

Abstract: Treatment of hyperuricaemia and gout is possible by agents, among usual carriers and adjuvants containing pharmacologically active doses of oxypurinol alkali and/or alkaline earth salts in amorphous or crystalline form.

Excerpt(s): Therapy of hyperuricaemia and gout may be carried out using uricostatic or uricosuric agents or a combination of an uricostatic and an uricosuric agent. Generally, the xanthine oxidase inhibitors allopurinol or thiopurinol are being used as uricostatic agents; and as uricosuric agents, sulfinpyrazone and benzbromarone are primarily used. Investigations concerning the mechanism of action of allopurinol revealed that allopurinol has little activity itself, but that its therapeutic effect is achieved only after metabolizing to give 4,6-dihydroxypyrazolo[3,4-d]pyrimidine (oxypurinol). Allopurinol and oxypurinol are inhibiting the enzyme xanthine oxidase equally strongly. However, the residence time of allopurinol within the organism--being well resorbable from appropriate galenic formulations upon peroral application--is only about 6 hours; thereafter, the major portion has been transformed to oxypurinol, part of it is metabolized to allopurinol 1-riboside, and a further 3 to 10% is excreted via kidneys. In comparison, oxypurinol has a half-life of about 22 hours, and, therefore, is the intrinsically active principle in an allopurinol therapy, while allopurinol has to be regarded as a prodrug. It would be a substantial progress and a great advantage, if one could succeed in using oxypurinol itself for gout therapy. ... The problem of using oxypurinol effectively in the treatment of hyperuricaemia and gout was now solved in a surprisingly simple way, by converting oxypurinol to its alkali and alkaline earth salts, and administering same in amorphous or crystalline form per os. ... Thus, subject matter of the present invention are agents for peroral treatment of hyperuricaemia and gout, among usual carriers and adjuvants containing

pharmacologically active doses of oxypurinol alkali and/or alkaline earth salts in amorphous or crystalline form. Preferably, said agents contain from 50 to 500 mg of active substance per dose unit.

Web site: http://www.delphion.com/details?pn=US05661154__

- **Oxypurinol alkali and alkaline earth salts in amorphous or crystalline form as agents for treating hyperuricaemia and gout**

Inventor(s): Scheiffele; Ekkehard (Berlin, DE)

Assignee(s): Henning Berlin GmbH Chemie -und Pharmawerk (Berlin, DE)

Patent Number: 5,430,037

Date filed: January 19, 1993

Abstract: Treatment of hyperuricaemia and gout is possible by agents, among usual carriers and adjuvants containing pharmacologically active doses of oxypurinol alkali and/or alkaline earth salts in amorphous or crystalline form.

Excerpt(s): Therapy of hyperuricaemia and gout may be carried out using uricostatic or uricosuric agents or a combination of an uricostatic and an uricosuric agent. Generally, the xanthine oxidase inhibitors allopurinol or thiopurinol are being used as uricostatic agents; and as uricosuric agents, sulfinpyrazone and benzbromarone are primarily used. Investigations concerning the mechanism of action of allopurinol revealed that allopurinol has little activity itself, but that its therapeutic effect is achieved only after metabolizing to give 4,6-dihydroxypyrazolo[3,4-d]pyrimidine (oxypurinol). Allopurinol and oxypurinol are inhibiting the enzyme xanthine oxidase equally strongly. However, the residence time of allopurinol within the organism-being well resorbable from appropriate galenic formulations upon peroral application - is only about 6 hours; thereafter, the major portion has been transformed to oxypurinol, part of it is metabolized to allopurinol 1-riboside, and a further 3 to 10% is excreted via kidneys. In comparison, oxypurinol has a half-life of about 22 hours, and, therefore, is the intrinsically active principle in an allopurinol therapy, while allopurinol has to be regarded as a prodrug. It would be a substantial progress and a great advantage, if one could succeed in using oxypurinol itself for gout therapy. ... The problem of using oxypurinol effectively in the treatment of hyperuricaemia and gout was now solved in a surprisingly simple way, by converting oxypurinol to its alkali and alkaline earth salts, and administering same in amorphous or crystalline form per os. ... Thus, subject matter of the present invention are agents for peroral treatment of

hyperuricaemia and gout, among usual carriers and adjuvants containing pharmacologically active doses of oxypurinol alkali and/or alkaline earth salts in amorphous or crystalline form. Preferably, said agents contain from 50 to 500 mg of active substance per dose unit.

Web site: http://www.delphion.com/details?pn=US05430037__

- **Method of treating gout with novel 9-deazaguanines**

Inventor(s): Kostlan; Catherine R. (Ann Arbor, MI), Sircar; Jagadish C. (Ann Arbor, MI)

Assignee(s): Warner-Lambert Company (Morris Plains, NJ)

Patent Number: 5,102,879

Date filed: October 31, 1990

Abstract: The present invention is novel derivatives of pyrrolo[3,2-d]pyrimidines and pharmaceutical compositions and methods of use therefor. The derivatives are inhibitors of purine nucleoside phosphorylase selectively cytotoxic to T-cells but not to B-cells in the presence of 2'-deoxyguanosine and, therefore, are for use in the treatment of autoimmune diseases, gout, psoriasis or rejection of transplantation.

Excerpt(s): The present invention also includes methods of manufacturing and a pharmaceutical composition for treating autoimmune diseases; such as arthritis, systemic lupus erythematosus, inflammatory bowel diseases, juvenile diabetes, myasthenia gravis, multiple sclerosis, gout and gouty arthritis, as well as psoriasis, viral infections, and cancer, or rejection of transplantation, comprising an immunomodulator or antirejection effective amount; such as a cytotoxic to T-cell amount, of a compound of the Formula I with a pharmaceutically acceptable carrier. Thus, the invention is also a method of treating an autoimmune disease, psoriasis, or rejection of transplantation as listed above comprising administering to a host, such as a mammal including a human suffering from an autoimmune disease or psoriasis or transplantation rejection advantageously affected by T-cell toxicity of the compounds of the present invention comprising administering an effective amount of a compound of the Formula I in unit dosage form. It is understood, an ordinarily skilled physician would begin treatment with a nontoxic and less than effective amount and increase the dose until the desired effect is obtained exercising care to administer an amount less than the amount toxic to the host of the disease. ... Since T-Cells play a central role in immune response, use of the compounds of the invention is contemplated for the immunoregulation to prevent rejection in transplantation or in the treatment of psoriasis and

in the treatment of autoimmune disease such as rheumatoid arthritis, systemic lupus erythematosus, inflammatory bowel disease, multiple sclerosis, myasthenia gravis, gout or gouty arthritis juvenile diabetes, cancer, and viral diseases. The present invention thus includes compositions containing a compound of Formula I in treating rejection of transplantation or disease such as psoriasis in humans or autoimmune disease characterized by abnormal immune response in primates or humans. According to this aspect of the invention, the properties of the compounds of the invention are utilized by administering to a warmblooded animal an effective amount of a pharmaceutical composition containing as the active ingredient at least about 0.1 percent by weight, based on the total weight of the composition of at least one such compound of the invention.

Web site: http://www.delphion.com/details?pn=US05102879__

- **Composition for treating infectious diseases, gout or arteriosclerosis containing human pepsin and/or human leukocyte pepsin-like enzyme and method for using same**

Inventor(s): Ohnishi; Haruo (Funabashi, JP), Kosuzume; Hiroshi (Yokohama, JP), Suzuki; Yasuo (Kawaguchi, JP), Mochida; Ei (Toshima, JP)

Assignee(s): Mochida Pharmaceutical Co., Ltd. (Tokyo, JP)

Patent Number: 4,534,966

Date filed: November 17, 1983

Abstract: There are provided a pharmaceutical composition having an effect to control phagocytic function, which comprises a pharmaceutically effective amount of human pepsin and/or a human leukocyte pepsin-like enzyme and a pharmaceutically acceptable carrier, and a therapeutic method using said composition. The pharmaceutical composition is useful for treatment of infectious diseases, gout and arteriosclerosis.

Excerpt(s): Phagocytes not only engulf and digest foreign matter which has invaded the living body, e.g. microorganisms such as virus, bacteria, eumycetes, etc., and foreign matter which has been generated in the body, e.g. tumors, etc., but also play an important role in controlling immune response by transferring information on said foreign matter to lymphocytes. Further, it is believed that gout and arteriosclerosis are brought about by uric acid or cholesterol deposits generated in the body, and it is presumed that phagocytes also participate in disposal of these deposits. Therefore, drugs having an effect to control phagocytic functions are expected to be effective as drugs for treating not only such

diseases to which lymphocytic function-controlling agents have been conventionally applied but also such diseases as infectious diseases, tumors, arteriosclerosis, etc. ... Since a drug having an effect to control phagocytic functions would be expected to be effective as a drug for treating such diseases as infectious diseases caused by virus, bacteria, eumycetes, etc., and gout, arteriosclerosis, etc., the present inventors have intensively studied in order to develop such a drug and have found that human pepsin and/or a human leukocyte pepsin-like enzyme exhibit an effect to control phagocyte-mediated immunity and improve infectious diseases, gout and arteriosclerosis, thereby having accomplished this invention. ... Another object of this invention is to provide a therapeutic agent for treating infectious diseases, gout and arteriosclerosis which comprises human pepsin and/or a human leukocyte pepsin-like enzyme together with a pharmaceutically acceptable carrier.

Web site: http://www.delphion.com/details?pn=US04534966__

Patent Applications on Gout

As of December 2000, U.S. patent applications are open to public viewing.²⁵ Applications are patent requests which have yet to be granted (the process to achieve a patent can take several years). The following patent applications have been filed since December 2000 relating to gout:

- **Methods, compounds and compositions for treating gout**

Inventor(s): Zhang, Jie ; (Ellicott City, MD), Li, Jia-He ; (Cockeysville, MD)

Correspondence: Nixon & Vanderhye P.C.; 1100 North Glebe Rd., 8th Floor; Arlington; VA; 22201-4714; US

Patent Application Number: 20020019417

Date filed: June 1, 2001

Abstract: This invention relates to methods of preventing, treating or lessening verity of gout by administration of PARP inhibitors.

Excerpt(s): The present invention relates to methods of treating gout with inhibitors of the nuclear enzyme poly(adenosine 5'-diphospho-ribose) polymerase ["poly(ADP-ribose) polymerase" or "PARP", which is also referred to as ADPRT (NAD:protein (ADP-ribosyl transferase (polymerising)) and PARS (poly(ADP-ribose) synthetase) and provides compounds and compositions containing the disclosed compounds for

²⁵ This has been a common practice outside the United States prior to December 2000.

use in the disclosed method. ... Deposition of crystals of monosodium urate (MSU crystals) in the joint articular space is the etiological cause of inflammatory pathologies such as gout and pseudogout. Clinically, these inflammatory diseases are associated with oedema and erythema of the joints with consequently severe pain. A strong infiltration of leucocytes in the intraarticular and periarticular space leading to: 1) acute, episodic articular and periarticular inflammation, and 2) chronic articular changes, are also characteristic of this pathology. It has long been clear that neutrophils are the predominant cell type recovered from these inflammatory joints (Dieppe et al., (1979). *Synovial fluid crystals*. *Q. J. Med.* XLVIII: 533-553; Terkeltaub, (1991). *Monocyte-derived neutrophil chemotactic factor/interleukin-8 is a potential mediator of crystal-induced inflammation*. *Arth. Rheum.* 34: 894-903.). A better understanding of the inflammatory processes elicited by MSU crystals, and the fact that there is a clear relationship between these crystals and gouty arthritis, has prompted the characterisation of experimental models of crystal-induced inflammation. Examples of models where crystal challenge has led to cell recruitment into specific cavities, are canine joints (Phelps & McCarty, 1966, *Ann Int. Med.* 9: 115-125), rat pleurisy (Deporter et al., 1979, *Br. J. Pharmacol.* 65: 163-165; Sedgwick et al., 1985, *Agents Actions* 17: 209-213), and utilisation of a pre-formed rat air-pouch (Brookes et al., 1987). The latter experimental system has shown that neutrophil accumulation was related to generation of chemoattractants such as LTB₄, which was subsequently inhibited by colchicine (Brooks et al., 1987, *Br. J. Pharmacol.* 90: 413-419). ... In experimental models of gout the synthesis of a CXC chemokine selective for neutrophils, such as IL-8, has also been observed, but not that of a CC chemokine monocyte chemoattractant protein-1 (MCP-1) (Hachicha et al., 1995, *J. Exp. Med.* 182: 2019-2025). These results suggest that production of IL-8 and abolition of the release of MCP-1, will lead to an event where, theoretically there will be a recruitment of neutrophils but not mononuclear cells. This hypothesis is in accordance with the pathological state of gout and pseudogout, where the predominant inflammatory cell is the neutrophil (Hachicha et al., 1995). In addition MSU crystal activation of mononuclear phagocytes, which are normally found in the joint space, also induces secretion of IL-8 (Terkeltaub et al., 1991). The importance of IL-8 in this pathology has been shown in synovial fluids of patients with acute gouty arthritis where it occurs in elevated amounts (Terkeltaub et al., 1991; di Giovine et al., 1991, *J. Clin. Invest.* 87: 1375-1381). The use of a neutralising antibody against IL-8 has been shown significantly to attenuate the crystal induced joint swelling at 12 h and neutrophil infiltration into arthritic joints at 12 and 24 h in a rabbit model (Nishimura et al., 1997, *J. Leukoc. Biol.* 62: 444-449).

Web site: <http://appft1.uspto.gov/netahtml/PTO/search-bool.html>

Keeping Current

In order to stay informed about patents and patent applications dealing with gout, you can access the U.S. Patent Office archive via the Internet at no cost to you. This archive is available at the following Web address: <http://www.uspto.gov/main/patents.htm>. Under "Services," click on "Search Patents." You will see two broad options: (1) Patent Grants, and (2) Patent Applications. To see a list of granted patents, perform the following steps: Under "Patent Grants," click "Quick Search." Then, type "gout" (or synonyms) into the "Term 1" box. After clicking on the search button, scroll down to see the various patents which have been granted to date on gout. You can also use this procedure to view pending patent applications concerning gout. Simply go back to the following Web address: <http://www.uspto.gov/main/patents.htm>. Under "Services," click on "Search Patents." Select "Quick Search" under "Patent Applications." Then proceed with the steps listed above.

Vocabulary Builder

Adenosine: A nucleoside that is composed of adenine and d-ribose. Adenosine or adenosine derivatives play many important biological roles in addition to being components of DNA and RNA. Adenosine itself is a neurotransmitter. [NIH]

Adjuvant: A substance which aids another, such as an auxiliary remedy; in immunology, nonspecific stimulator (e.g., BCG vaccine) of the immune response. [EU]

Alveolitis: Inflammation of an alveolus. Called also odontobothritis. [EU]

Angioplasty: Endovascular reconstruction of an artery, which may include the removal of atheromatous plaque and/or the endothelial lining as well as simple dilatation. These are procedures performed by catheterization. When reconstruction of an artery is performed surgically, it is called endarterectomy. [NIH]

Benzbromarone: Uricosuric that acts by increasing uric acid clearance. It is used in the treatment of gout. [NIH]

Bronchiectasis: Chronic dilatation of the bronchi marked by fetid breath and paroxysmal coughing, with the expectoration of mucopurulent matter. It may affect the tube uniformly (cylindric b.), or occur in irregular pockets

(sacculated b.) or the dilated tubes may have terminal bulbous enlargements (fusiform b.). [EU]

Collagen: The protein substance of the white fibres (collagenous fibres) of skin, tendon, bone, cartilage, and all other connective tissue; composed of molecules of tropocollagen (q.v.), it is converted into gelatin by boiling. collagenous pertaining to collagen; forming or producing collagen. [EU]

Coronary: Encircling in the manner of a crown; a term applied to vessels; nerves, ligaments, etc. The term usually denotes the arteries that supply the heart muscle and, by extension, a pathologic involvement of them. [EU]

Cytotoxic: Pertaining to or exhibiting cytotoxicity. [EU]

Deoxyguanosine: A nucleoside consisting of the base guanine and the sugar deoxyribose. [NIH]

Emphysema: A pathological accumulation of air in tissues or organs; applied especially to such a condition of the lungs. [EU]

Fibrosis: The formation of fibrous tissue; fibroid or fibrous degeneration [EU]

Gingivitis: Inflammation of the gingivae. Gingivitis associated with bony changes is referred to as periodontitis. Called also oulitis and ulitis. [EU]

Glomerulonephritis: A variety of nephritis characterized by inflammation of the capillary loops in the glomeruli of the kidney. It occurs in acute, subacute, and chronic forms and may be secondary to haemolytic streptococcal infection. Evidence also supports possible immune or autoimmune mechanisms. [EU]

Hepatitis: Inflammation of the liver. [EU]

Hypersensitivity: A state of altered reactivity in which the body reacts with an exaggerated immune response to a foreign substance. Hypersensitivity reactions are classified as immediate or delayed, types I and IV, respectively, in the Gell and Coombs classification (q.v.) of immune responses. [EU]

Hyperuricaemia: Excess of uric acid or urates in the blood; it is a prerequisite for the development of gout and may lead to renal disease. Called also uricacidaemia and, formerly, lithemia. [EU]

Idiopathic: Of the nature of an idiopathy; self-originated; of unknown causation. [EU]

Infiltration: The diffusion or accumulation in a tissue or cells of substances not normal to it or in amounts of the normal. Also, the material so accumulated. [EU]

Ingestion: The act of taking food, medicines, etc., into the body, by mouth. [EU]

Ischemia: Deficiency of blood in a part, due to functional constriction or actual obstruction of a blood vessel. [EU]

Klebsiella: A genus of gram-negative, facultatively anaerobic, rod-shaped bacteria whose organisms arrange singly, in pairs, or short chains. This genus is commonly found in the intestinal tract and is an opportunistic pathogen that can give rise to bacteremia, pneumonia, urinary tract and several other types of human infection. [NIH]

Lymphocytic: Pertaining to, characterized by, or of the nature of lymphocytes. [EU]

Mediator: An object or substance by which something is mediated, such as (1) a structure of the nervous system that transmits impulses eliciting a specific response; (2) a chemical substance (transmitter substance) that induces activity in an excitable tissue, such as nerve or muscle; or (3) a substance released from cells as the result of the interaction of antigen with antibody or by the action of antigen with a sensitized lymphocyte. [EU]

Microorganism: A microscopic organism; those of medical interest include bacteria, viruses, fungi and protozoa. [EU]

Myasthenia: Muscular debility; any constitutional anomaly of muscle. [EU]

Neutrophils: Granular leukocytes having a nucleus with three to five lobes connected by slender threads of chromatin, and cytoplasm containing fine inconspicuous granules and stainable by neutral dyes. [NIH]

Oedema: The presence of abnormally large amounts of fluid in the intercellular tissue spaces of the body; usually applied to demonstrable accumulation of excessive fluid in the subcutaneous tissues. Edema may be localized, due to venous or lymphatic obstruction or to increased vascular permeability, or it may be systemic due to heart failure or renal disease. Collections of edema fluid are designated according to the site, e.g. ascites (peritoneal cavity), hydrothorax (pleural cavity), and hydropericardium (pericardial sac). Massive generalized edema is called anasarca. [EU]

Oxypurinol: A xanthine oxidase inhibitor. [NIH]

Pancreatitis: Acute or chronic inflammation of the pancreas, which may be asymptomatic or symptomatic, and which is due to autodigestion of a pancreatic tissue by its own enzymes. It is caused most often by alcoholism or biliary tract disease; less commonly it may be associated with hyperlipaemia, hyperparathyroidism, abdominal trauma (accidental or operative injury), vasculitis, or uraemia. [EU]

Peroral: Performed through or administered through the mouth. [EU]

Phosphorylase: An enzyme of the transferase class that catalyzes the phosphorylysis of a terminal alpha-1,4-glycosidic bond at the non-reducing end of a glycogen molecule, releasing a glucose 1-phosphate residue. Phosphorylase should be qualified by the natural substance acted upon. EC 2.4.1.1. [NIH]

Pneumonia: Inflammation of the lungs with consolidation. [EU]

Psoriasis: A common genetically determined, chronic, inflammatory skin disease characterized by rounded erythematous, dry, scaling patches. The lesions have a predilection for nails, scalp, genitalia, extensor surfaces, and the lumbosacral region. Accelerated epidermopoiesis is considered to be the fundamental pathologic feature in psoriasis. [NIH]

Remission: A diminution or abatement of the symptoms of a disease; also the period during which such diminution occurs. [EU]

Ribose: A pentose active in biological systems usually in its D-form. [NIH]

Sarcoidosis: An idiopathic systemic inflammatory granulomatous disorder comprised of epithelioid and multinucleated giant cells with little necrosis. It usually invades the lungs with fibrosis and may also involve lymph nodes, skin, liver, spleen, eyes, phalangeal bones, and parotid glands. [NIH]

Sclerosis: A induration, or hardening; especially hardening of a part from inflammation and in diseases of the interstitial substance. The term is used chiefly for such a hardening of the nervous system due to hyperplasia of the connective tissue or to designate hardening of the blood vessels. [EU]

Secretion: 1. the process of elaborating a specific product as a result of the activity of a gland; this activity may range from separating a specific substance of the blood to the elaboration of a new chemical substance. 2. any substance produced by secretion. [EU]

Septic: Produced by or due to decomposition by microorganisms; putrefactive. [EU]

Spectrum: A charted band of wavelengths of electromagnetic vibrations obtained by refraction and diffraction. By extension, a measurable range of activity, such as the range of bacteria affected by an antibiotic (antibacterial s.) or the complete range of manifestations of a disease. [EU]

Synergistic: Acting together; enhancing the effect of another force or agent. [EU]

Transplantation: The grafting of tissues taken from the patient's own body or from another. [EU]

CHAPTER 6. BOOKS ON GOUT

Overview

This chapter provides bibliographic book references relating to gout. You have many options to locate books on gout. The simplest method is to go to your local bookseller and inquire about titles that they have in stock or can special order for you. Some patients, however, feel uncomfortable approaching their local booksellers and prefer online sources (e.g. www.amazon.com and www.bn.com). In addition to online booksellers, excellent sources for book titles on gout include the Combined Health Information Database and the National Library of Medicine. Once you have found a title that interests you, visit your local public or medical library to see if it is available for loan.

Book Summaries: Federal Agencies

The Combined Health Information Database collects various book abstracts from a variety of healthcare institutions and federal agencies. To access these summaries, go to <http://chid.nih.gov/detail/detail.html>. You will need to use the "Detailed Search" option. To find book summaries, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer. For the format option, select "Monograph/Book." Now type "gout" (or synonyms) into the "For these words:" box. You will only receive results on books. You should check back periodically with this database which is updated every 3 months. The following is a typical result when searching for books on gout:

- **Podiatry Sourcebook**

Source: Detroit, MI: Omnigraphics, Inc. 2001. 392 p.

Contact: Available from Omnigraphics, Inc. 615 Griswold Street, Detroit, MI. (800) 234-1340. Fax (800) 875-1340. Website: www.omnigraphics.com. Price: \$78.00 plus shipping. ISBN 0780802152.

Summary: This book provides the general public and the layperson who has been diagnosed with a serious disease or disorder with general information about the practice of podiatry and health information about foot conditions, diseases, and injuries. Part 1 offers general information about foot care, including tips on selecting a podiatrist, facts about problems associated with shoe fit, and an overview of treatments for foot problems. The chapters in part 1 also provide information for special populations, such as pregnant women, the elderly, people who have diabetes, children, and athletes. Part 2 discusses the etiology, diagnosis, and treatment of common foot conditions, including athlete's foot, ingrown toenail, onychomycosis, skin disorders, foot odor, clawtoes, hammertoes, bunions, burning feet, peripheral neuropathy, Morton's neuroma, tarsal tunnel syndrome, clubfoot, pigeon toes, genetic foot disorders, and structural deformities. Part 3 presents information about foot-related problems caused by diseases such as diabetes, neuropathic arthropathy, gout, arthritis, Parkinson's disease, and AIDS. Part 4 offers facts about the etiology, diagnosis, and treatment of foot injuries, including heel pain, Sever's disease, overuse injuries, foot and ankle fractures, ankle sprains, great toe and midfoot injuries, tendinitis, bursitis, and sports-related injuries. The final chapter in part 4 presents information for amputees. Part 5 provides a glossary of podiatry terms, lists medical resources for foot care, and offers a directory of resources specific to foot safety. 55 figures, 11 tables, and numerous references.

- **Primer on the Rheumatic Diseases. 11th ed**

Source: Atlanta, GA: Arthritis Foundation. 1997. 529 p.

Contact: Available from Arthritis Foundation. P.O. Box 1616, Alpharetta, GA 30009-1616. (800) 207-8633. Fax (credit card orders only) (770) 442-9742. Website: www.arthritis.org. Price: \$39.95 plus shipping and handling.

Summary: This book provides health professionals with a concise, authoritative description of the current science, diagnosis, clinical consequences, and management of the rheumatic diseases. The book begins with chapters on the history of rheumatic diseases and their social and economic consequences. These are followed by chapters that describe the components and structure of the musculoskeletal system; identify the mediators of inflammation, tissue destruction, and repair; and discuss the role of immunity in rheumatic disease. Chapters then focus on evaluating the patient on the basis of medical history, physical examination, and

diagnostic tests and present the signs and symptoms of musculoskeletal disorders. Subsequent chapters present an overview of various rheumatic diseases, including rheumatoid arthritis, psoriatic arthritis, seronegative spondyloarthropathies, infectious disorders, rheumatic fever, osteoarthritis, apatites and miscellaneous crystals, calcium pyrophosphate dihydrate crystal deposition, gout, undifferentiated connective tissue syndromes, systemic lupus erythematosus, systemic sclerosis and related syndromes, inflammatory and metabolic diseases of muscle, Sjogren's syndrome, vasculitis, polymyalgia rheumatica, and Behcet's disease. Other rheumatic diseases featured include relapsing polychondritis, antiphospholipid syndrome, Adult Still's disease, reflex sympathetic dystrophy and transient regional osteoporosis, neuropathic arthropathy, sarcoidosis, deposition and storage diseases, arthropathies associated with hematologic and malignant disorders and endocrine disease, the amyloidoses, joint neoplasms, musculoskeletal manifestations of hyperlipoproteinemia, musculoskeletal problems in dialysis patients, heritable disorders of connective tissue, hypertrophic osteoarthropathy, bone and joint dysplasias, osteonecrosis, Paget's disease of bone, osteoporosis and metabolic bone diseases, foreign body synovitis, pediatric rheumatic diseases, and miscellaneous syndromes. In addition, the book addresses such issues as rehabilitation of patients who have rheumatic disease, psychosocial factors, patient education, and therapeutic injection of joints and soft tissues. Concluding chapters focus on pharmacological, operative, and questionable methods of treating rheumatic diseases. 5 appendixes, numerous figures, tables, and references.

- **PDR for Herbal Medicines. 1st ed**

Source: Montvale, NJ: Medical Economics Company. 1998. 1244 p.

Contact: Available from Medical Economics Publishing Inc. P.O. Box 10689, Des Moines, IA 50336. (800) 922-0937. Fax (515) 284-6714. Website: www.medecbookstore.com. Price: \$59.99. ISBN: 1563632926.

Summary: Most of today's herbal remedies exhibit varying degrees of therapeutic value. Some, such as ginkgo, valerian, and saw palmetto, seem genuinely useful, while others, such as ephedra, tansy, and nightshade, can actually be dangerous. As the use of unfamiliar botanicals spreads, the need to steer patients toward the few truly useful preparations and warn them away from ineffective, dangerous alternatives is becoming an increasingly significant priority. This volume, from the publishers of Physicians Desk Reference, brings together the findings of the German Regulatory Authority's herbal watchdog agency (commonly called Commission E). This agency conducted an intensive

assessment of the peer-reviewed literature on some 300 common botanicals, weighing the quality of the clinical evidence and identifying the uses for which the herb can reasonably be considered effective. This reference book contains profiles of over 600 medicinal herbs. Each entry contains up to 9 standard sections: name(s), description, actions and pharmacology, indications and usage, contraindications, precautions and adverse reactions, overdose, dosage, and literature. The entries have also been indexed by scientific and common name, indications, therapeutic category, and side effects. To assist in identification, the reference book includes a section of full-color plates of the plants included. The book concludes with a glossary of the specialized botanical nomenclature and other unfamiliar terminology, a list of poison control centers, and a list of drug information centers. Some of the herbs are listed for use for abdominal cramps or distress, acid indigestion, appetite stimulation, rectal bleeding, various bowel disorders, stomach cancer, cholelithiasis (gallstones), colic, colitis, constipation, dehydration, diarrhea, digestive disorders, dysentery, enteritis, anal fissure, flatulence (intestinal gas), gastritis, gastroenteritis, gastrointestinal disorders, gout, helminthiasis, hemorrhage, hemorrhoids, hepatitis, hypercholesterolemia, jaundice, liver and gall bladder complaints, liver disorders, malaria, nausea, abdominal pain, and vomiting.

- **Foods That Harm, Foods That Heal: An A-Z Guide to Safe and Healthy Eating**

Source: Pleasantville, NY: Reader's Digest. 1997. 400 p.

Contact: Available from Customer Service, Reader's Digest. Pleasantville, NY 10570. (800) 846-2100. Price: \$30.00. ISBN: 0895779129.

Summary: This nutrition reference book features more than 400 photographs and illustrations with more than 400 A to Z entries on a vast range of foods and health concerns, include caffeine, cancer, diabetes, fast food, garlic, heart disease, influenza, osteoporosis, pregnancy, sexually transmitted diseases, and vegetarianism. The book is designed to provide families with information to help understand the close links between foods and wellness. Each food entry provides at-a-glance information on its nutrients (or lack of) and its benefits and drawbacks. Each ailment is accompanied by a list of foods and beverages that are considered safe, and what foods or beverages should be cut down or avoided altogether. Personalized case studies help to illustrate various topics. There are special features on eating during different life stages, from infancy to old age, as well as such issues as genetically altered foods, irradiation, pesticides, and pollution. Other topics include how to cook foods to achieve maximum nutritional benefits; which dietary supplements really

work; tips on exercising, storing food, and reading food labels; an instructive analysis of the most popular diet regimens; and controversial foods and additives such as eggs, nitrites, bran, cheese, milk, fat, wine, and alcohol. A glossary defines unfamiliar or technical terms; there is also a listing of organizations that can provide further information and resources. Topics specifically related to digestive diseases include allergic reactions to food, anorexia nervosa, antioxidants, appetite loss, basic food groups, carbohydrates, celiac disease, childhood and adolescent nutrition, cholesterol, constipation, convenience foods, Crohn's disease, diarrhea, dieting and weight control, digestive and malabsorption disorders, diverticulitis, fats, fiber, food poisoning, gastritis, gastroenteritis, gout, hiatal hernia, indigestion and heartburn, intolerance to milk and other foods, irritable bowel syndrome, malnutrition, medicine-food interactions, minerals, obesity, organic and health foods, preparation and storage of food, restaurants and eating out, smoking and diet, sports nutrition, supplements, traveler's health, ulcers, vitamins, and worms and other parasites.

- **101 Foot Care Tips for People with Diabetes**

Source: Alexandria, VA: American Diabetes Association. 2000. 120 p.

Contact: Available from American Diabetes Association (ADA). Order Fulfillment Department, P.O. Box 930850, Atlanta, GA 31193-0850. (800) 232-6733. Fax (770) 442-9742. Website: www.diabetes.org. Price: \$14.95 plus shipping and handling. ISBN: 158040040X.

Summary: This book answers 101 of the most commonly asked questions about diabetes and foot care. Questions in chapter one provide general information about foot care, including the importance of foot care; the foot problems people with diabetes experience; the people at greatest risk for developing foot problems; the prevention of diabetic foot problems; the role of weight, blood glucose control, and meal planning in diabetic foot problems; and health care checkups. Chapter two offers tips on washing and soaking the feet; caring for dry skin; and dealing with athlete's foot fungus, foot odor, and foot swelling. The third chapter provides tips for nail care, including trimming toenails and caring for ingrown toenails. Questions in chapter four provide information on shoe and sock selection. Topics include selecting shoes that fit properly, using insoles and orthotic devices, and seeing a pedorthist. This is followed by a chapter that explains how to treat minor foot problems, including blisters, corns, calluses, warts, bunions, minor injuries, and deformities. Chapter six provides tips for exercising. Questions in the next chapter deal with the identification of major problems, including foot ulcers and infections. This is followed by chapters that answer questions about

complications such as peripheral neuropathy and poor circulation. Topics include the symptoms, diagnosis, and treatment of these complications. The final chapter answers questions about other foot problems, including arthritis, gout, Charcot's joint, osteomyelitis, gangrene, and toe amputation. The book also includes a list of resources and an index.

Book Summaries: Online Booksellers

Commercial Internet-based booksellers, such as Amazon.com and Barnes & Noble.com, offer summaries which have been supplied by each title's publisher. Some summaries also include customer reviews. Your local bookseller may have access to in-house and commercial databases that index all published books (e.g. Books in Print®). The following have been recently listed with online booksellers as relating to gout (sorted alphabetically by title; follow the hyperlink to view more details at Amazon.com):

- **Gutta Podagrica: A Treatise of the Govt (The English Experience, Its Record in Early Printed Books Published in Facsimile, No. 319)** by Philemon Holland, et al (1971); ISBN: 9022103196;
<http://www.amazon.com/exec/obidos/ASIN/9022103196/icongroupinterna>
- **Kidney in Gout and Hyperuricemia** by Ts'Ai-Fan Yu (Editor), et al (1982); ISBN: 0879931736;
<http://www.amazon.com/exec/obidos/ASIN/0879931736/icongroupinterna>
- **How to Eat Away Arthritis and Gout** by Norman Ford (1982); ISBN: 0134056477;
<http://www.amazon.com/exec/obidos/ASIN/0134056477/icongroupinterna>
- **Hyperuricaemia and Gout in Clinical Practice** by Bryan T Emerson (1983); ISBN: 0683100068;
<http://www.amazon.com/exec/obidos/ASIN/0683100068/icongroupinterna>
- **Hyperuricaemia and Gout in Clinical Practice** by Bryan T. Emmerson (1983); ISBN: 0867920068;
<http://www.amazon.com/exec/obidos/ASIN/0867920068/icongroupinterna>
- **Doctor Discusses Learning to Cope with Arthritis Rheumatism and Gout** by Robert E. Dunbar (1990); ISBN: 0318375044;

<http://www.amazon.com/exec/obidos/ASIN/0318375044/icongroupinterna>

- **Urate Deposition in Man and Its Clinical Consequences** by U. Gresser (Editor), N. Zollner (Editor) (1991); ISBN: 0387539719;
<http://www.amazon.com/exec/obidos/ASIN/0387539719/icongroupinterna>
- **Purine and Pyrimidine Metabolism in Man: Part A: Chemotherapy, Atp Depletion, and Gout (Advances in Experimental Medicine and Biology, 309A)** by R. Angus Harkness, Gertrude B. Elion (Editor) (1992); ISBN: 030644092X;
<http://www.amazon.com/exec/obidos/ASIN/030644092X/icongroupinterna>
- **Eclectic Tastes: Fine and Decorative Arts from the McCord/Questions De Gout: Arts Decoratifs Et Beaux-Arts Au McCord** by Conrad Graham, et al (1992); ISBN: 0773509666;
<http://www.amazon.com/exec/obidos/ASIN/0773509666/icongroupinterna>
- **The Gout-Lover's Cookbook** by Jodi Vickers (1995); ISBN: 1888141514;
<http://www.amazon.com/exec/obidos/ASIN/1888141514/icongroupinterna>
- **Acute Gout: The Devil's Curse** by Macey Casebeer (1995); ISBN: 096455464X;
<http://www.amazon.com/exec/obidos/ASIN/096455464X/icongroupinterna>
- **Les Chiffres (Le Gout De Savoir Series))** by Roger Pare (1996); ISBN: 2890212238;
<http://www.amazon.com/exec/obidos/ASIN/2890212238/icongroupinterna>
- **How to Eat Away Arthritis** by Lauri M. Aesoph, Norman D. Ford (1996); ISBN: 013242892X;
<http://www.amazon.com/exec/obidos/ASIN/013242892X/icongroupinterna>
- **Gout Haters Cookbook: Recipes Low in Purines** by Jodi Schneider, Renee Miller (Editor) (1997); ISBN: 1888141549;
<http://www.amazon.com/exec/obidos/ASIN/1888141549/icongroupinterna>
- **Treatment Options for Gout** by Medifocus (2001); ISBN: B000063J3L;
<http://www.amazon.com/exec/obidos/ASIN/B000063J3L/icongroupinterna>

- **Gout Hater's Cookbook II: The Low Purine Diet Cookbook** by Jodi Schneiter (2001); ISBN: 1888141808;
<http://www.amazon.com/exec/obidos/ASIN/1888141808/icongroupinterna>

The National Library of Medicine Book Index

The National Library of Medicine at the National Institutes of Health has a massive database of books published on healthcare and biomedicine. Go to the following Internet site, <http://locatorplus.gov/>, and then select "Search LOCATORplus." Once you are in the search area, simply type "gout" (or synonyms) into the search box, and select "books only." From there, results can be sorted by publication date, author, or relevance. The following was recently cataloged by the National Library of Medicine:²⁶

- **About gout; a handbook for patients.** Author: Arthritis and Rheumatism Foundation; Year: 1959; [New York, c1959]
- **Arthritis and Chinese herbal medicine.** Author: Pi-Kwang Tsung and Hong-yen Hsu; Year: 1987; Long Beach, CA, U.S.A.: Oriental Healing Arts Institute, c1987; ISBN: 0941942252 (pbk.)
<http://www.amazon.com/exec/obidos/ASIN/0941942252/icongroupinterna>
- **Arthritis bible: a comprehensive guide to alternative therapies and conventional treatments for arthritic diseases.** Author: Craig Weatherby, Leonid Gordin; Year: 1999; Rochester, Vt.: Healing Arts Press, c1999; ISBN: 0892818255 (alk. paper)
<http://www.amazon.com/exec/obidos/ASIN/0892818255/icongroupinterna>
- **Benemid; a review of the nature & treatment of gout.** Author: Merck Sharp & Dohme; Year: 1956; [Philadelphia] 1956
- **Crystal-induced arthropathies.** Author: William N. Kelley, guest editor; Year: 1977; London; Philadelphia: Saunders, 1977

²⁶ In addition to LOCATORPlus, in collaboration with authors and publishers, the National Center for Biotechnology Information (NCBI) is adapting biomedical books for the Web. The books may be accessed in two ways: (1) by searching directly using any search term or phrase (in the same way as the bibliographic database PubMed), or (2) by following the links to PubMed abstracts. Each PubMed abstract has a "Books" button that displays a facsimile of the abstract in which some phrases are hypertext links. These phrases are also found in the books available at NCBI. Click on hyperlinked results in the list of books in which the phrase is found. Currently, the majority of the links are between the books and PubMed. In the future, more links will be created between the books and other types of information, such as gene and protein sequences and macromolecular structures. See <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Books>.

- **Diabetes, gout and hypertension in the Pacific Islands.** Author: [compiled by Paul Zimmet ... et al.]; Year: 1978; Noumea, New Caledonia: South Pacific Commission, 1978
- **Dr. Halford on the treatment of the gout.** Author: Halford, Henry, Sir, bart., 1766-1844; Year: 1835; York: Printed and sold by Blyth and Moore, 1835
- **Endocrines, gout & vitamins, including diabetes.** Author: Ghalioungui, Paul; Year: 1955; Cairo, Al-Maaref Press, 1955
- **Epidemiology of the rheumatic diseases: proceedings of the fourth international conference, National Institutes of Health.** Author: [edited by] Reva C. Lawrence, Lawrence E. Shulman; Year: 1984; New York: Gower Medical Pub., c1984; ISBN: 0912143029
<http://www.amazon.com/exec/obidos/ASIN/0912143029/icongroupinterna>
- **Genetic and therapeutic aspects of lipid and purine metabolism.** Author: Günther Wolfram, (ed.); Year: 1989; Berlin; New York: Springer-Verlag, c1989; ISBN: 0387504087 (U.S.)
<http://www.amazon.com/exec/obidos/ASIN/0387504087/icongroupinterna>
- **Gout: recent studies.** Author: papers by Jack L. Katz ... [et al.]; Year: 1974; New York: MSS Information Corp., c1974; ISBN: 0842271910
<http://www.amazon.com/exec/obidos/ASIN/0842271910/icongroupinterna>
- **Gout: the patrician malady.** Author: Roy Porter and G.S. Rousseau; Year: 1998; New Haven [Conn.]: Yale University Press, c1998; ISBN: 0300073860 (cloth)
<http://www.amazon.com/exec/obidos/ASIN/0300073860/icongroupinterna>
- **Gout and hyperuricemia.** Author: James B. Wyngaarden, William N. Kelley; Year: 1976; New York: Grune and Stratton, c1976; ISBN: 0808909460
<http://www.amazon.com/exec/obidos/ASIN/0808909460/icongroupinterna>
- **Gout and its cure.** Author: by J. Compton Burnett.; Year: 1986; New Delhi: Indian Books & Periodicals Syndicate, [1986?]
- **Gout and pseudogout: discussions in patient management.** Author: by H. Ralph Schumacher, Jr; Year: 1978; Garden City, N. Y.: Medical Examination Pub. Co., 1978; ISBN: 0874888883
<http://www.amazon.com/exec/obidos/ASIN/0874888883/icongroupinterna>

- **Gout and uric acid metabolism.** Author: by John H. Talbott and Ts'ai-Fan Yü; with a chapter on intermediary purine metabolism by J. E. Seegmiller; Year: 1976; New York: Stratton International Medical Book Corp., c1976; ISBN: 0913258385
<http://www.amazon.com/exec/obidos/ASIN/0913258385/icongroupinterna>
- **Gout bible.** Author: Mayo Clinic; Year: 1951; [Rochester? 1951?]
- **Gout, by John H. Talbott... Edited by Henry A. Christian ...** Author: Talbott, John H. (John Harold), 1902-; Year: 1943; New York, London [etc.] Oxford university press [1943]
- **Gout, hyperuricemia, and other crystal-associated arthropathies.** Author: edited by Charley J. Smyth, V. Michael Holers; Year: 1999; New York: M. Dekker, c1999; ISBN: 0824702107 (alk. paper)
<http://www.amazon.com/exec/obidos/ASIN/0824702107/icongroupinterna>
- **Gouty arthritis and gout; an ancient disease with modern interest, by Thomas E. Weiss and Albert Segaloff.** Author: Weiss, Thomas Edward, 1916-; Year: 1959; Springfield, Ill., Thomas [c1959]
- **Hyperuricaemia and gout in clinical practice.** Author: Bryan T. Emmerson; Year: 1983; Sydney; Boston: ADIS Health Science Press, c1983; ISBN: 0867920068 (pbk.)
<http://www.amazon.com/exec/obidos/ASIN/0867920068/icongroupinterna>
- **Kidney in gout and hyperuricemia.** Author: edited by Ts'ai-fan Yü, Lawrence Berger; Year: 1982; Mount Kisco, N.Y.: Futura Pub. Co., 1982; ISBN: 0879331736
- **On the hydropathic cure of gout.** Author: by G. Hume Weatherhead; Year: 1842; London: S. Highley; Edinburgh: MacLachlan & Stewart; Dublin: Hodges & Smith, 1842
- **Practical researches on the nature, cure, and prevention of gout: in all its open and concealed forms, partly translated and condensed from the French of Guilbert and Hallé: with a critical examination of some celebrated remedies and modes of treatment.** Author: Johnson, James, 1777-1845; Year: 1819; London: Printed for Highley and Son, 1819
- **Roentgenographic changes in the arthritides (part II) ...** Author: Howard L. Steinbach and Pamela S. Jensen. Secondary gout associated with chronic myeloproliferative disorders / Ts'ai-fan Yu ... [et al.]. Juvenile rheumatoid arthritis: a general review and rep; Year: 1976; New York: Grune & Stratton, 1976

- **Uric acid in human plasma: a contribution to the study of pathogenetic mechanisms in gout.** Author: by J.O. Alvsaker; Year: 1965; [Oslo]: Universitetsforlaget, [1965?]
- **Water treatment of gout and rheumatism [microform]: the reasons for its failure in those cases: with remarks on the injurious effects of iodine on the system: and cases.** Author: by E.G. Martin; Year: 1844; London: Longman & Co.; Weymouth: W. Thomas, 1844
- **William Cadogan [His essay on gout] by John Ruhräh.** Author: Cadogan, William, 1711-1797; Year: 1925; New York, Hoeber, 1925

Chapters on Gout

Frequently, gout will be discussed within a book, perhaps within a specific chapter. In order to find chapters that are specifically dealing with gout, an excellent source of abstracts is the Combined Health Information Database. You will need to limit your search to book chapters and gout using the "Detailed Search" option. Go directly to the following hyperlink: <http://chid.nih.gov/detail/detail.html>. To find book chapters, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Book Chapter." By making these selections and typing in "gout" (or synonyms) into the "For these words:" box, you will only receive results on chapters in books. The following is a typical result when searching for book chapters on gout:

- **Pregnancy and the Rheumatic Diseases**

Source: in Maddison, P.J.; et al., Eds. Oxford Textbook of Rheumatology. Volume 1. New York, NY: Oxford University Press, Inc. 1993. p. 93-98.

Contact: Available from Oxford University Press, Inc., New York, NY.

Summary: This chapter for health professionals examines the effects of pregnancy on rheumatic disease and the effects of rheumatic disease on pregnancy and the fetus. Possible reasons why patients with rheumatoid arthritis improve during pregnancy are presented. Studies on the effects of pregnancy on systemic lupus erythematosus are reviewed. Pregnancy-related data on several other rheumatic diseases are highlighted, including data on systemic sclerosis, juvenile chronic arthritis, ankylosing spondylitis, psoriatic arthritis, gonococcal arthritis, gout, relapsing polychondritis, Wegener's granulomatosis, and Sjogren's syndrome. In addition, miscellaneous musculoskeletal problems that women may experience during pregnancy are identified. 80 references and 2 tables.

- **Haematology**

Source: in Maddison, P.J.; et al., Eds. Oxford Textbook of Rheumatology. Volume 1. New York, NY: Oxford University Press, Inc. 1993. p. 367-375.

Contact: Available from Oxford University Press, Inc., New York, NY.

Summary: This chapter for health professionals focuses on the interpretation of hematological data as it relates to rheumatic disease. Problems with techniques of examining blood cells are examined. Anemias in rheumatoid arthritis and other autoimmune diseases are described. Thrombocytosis and thrombocytopenia in rheumatoid arthritis and platelet abnormalities in systemic lupus are discussed. White blood cell abnormalities in rheumatic disease are identified, including Flety's syndrome, leucopenia, and leucocytosis. Coagulation abnormalities in systemic lupus are described, including lupus anticoagulant. The impact of acute phase reactants on the erythrocyte sedimentation rate (ESR) is examined. Causes of a high ESR are identified. Primary blood disorders are discussed, including coagulation disorders, hematological malignancies, hemoglobinopathies, hemochromatosis, and disorders presenting as gout. 22 references, 1 figure, and 7 tables.

- **Radiology in Adults**

Source: in Maddison, P.J.; et al., Eds. Oxford Textbook of Rheumatology. Volume 1. New York, NY: Oxford University Press, Inc. 1993. p. 423-440.

Contact: Available from Oxford University Press, Inc., New York, NY.

Summary: This chapter for health professionals focuses on the imaging techniques available for assessment of rheumatic diseases in adults. These techniques include radionuclide joint imaging, arthrography, computed tomography, photon and dual-photon absorptiometry, dual x-ray absorptiometry, quantitative computed tomography, and magnetic resonance imaging. The radiographic features of rheumatoid arthritis, systemic lupus erythematosus, systemic sclerosis, seronegative spondylarthropathies, osteoarthritis, neuroarthropathy, osteonecrosis, gout, pseudogout, hydroxyapatite, and septic arthritis are described. 31 references, 22 figures, and 1 table.

- **Rheumatic Complications of Drugs and Toxins**

Source: in Maddison, P.J.; et al., Eds. Oxford Textbook of Rheumatology. Volume 2. New York, NY: Oxford University Press, Inc. 1993. p. 1089-1095.

Contact: Available from Oxford University Press, Inc., New York, NY.

Summary: This chapter for health professionals examines the rheumatological complications of adverse drug reactions and toxins. The clinical features and pathogenesis of drug-induced lupus are discussed. The antinuclear profile in drug-induced lupus is described. The risk factors for drug-induced lupus are presented. The features of drug-induced myositis, myasthenia gravis, and scleroderma are highlighted. Chemicals inducing scleroderma-like disease are discussed, including silicone implants, vinyl chloride, rape-seed oil, and contaminated tryptophan supplements. Syndromes associated with food allergy are identified. Drugs and toxins causing gout, bone pain, and rheumatological effects are highlighted. The toxic effects of various antirheumatic drugs are described, focusing on analgesics; nonsteroidal anti-inflammatory drugs; disease-modifying, second-line therapy; and corticosteroids. 39 references and 5 tables.

- **Diseases of the Auricle and Periauricular Region**

Source: in Canalis, R.F. and Lambert, P.R., eds. *Ear: Comprehensive Otolology*. Philadelphia, PA: Lippincott Williams and Wilkins. 2000. p. 325-339.

Contact: Available from Lippincott Williams and Wilkins. P.O. Box 1600, Hagerstown, MD 21741. (800) 638-3030. Fax (301) 223-2300. Website: www.lww.com. Price: \$179.00 plus shipping and handling. ISBN: 078171558X.

Summary: Lesions of the external ear are common and may be grouped into any of the basic categories of disease, i.e., they may be congenital, infectious, traumatic, inflammatory, autoimmune, neoplastic, or idiopathic (of unknown cause). This chapter on diseases of the auricle (external ear) and periauricular region is from a textbook that offers complete coverage of the field of clinical otology (study of the ear). The book is oriented to serve both the otolaryngology resident as a practical learning tool and the practicing otolaryngologist as an updated reference source of clinical and basic information. This chapter covers the anatomy of the external ear; the examination of the auricle; congenital malformations, including conchal blockade, preauricular pits and sinus tracts, and first branchial cleft cysts; infections, including cellulitis and erysipelas, furunculosis, herpes zoster oticus (Ramsay Hunt syndrome), auricular perichondritis, and tropical disease; autoimmune disease, including relapsing polychondritis, chronic discoid lupus erythematosus, and Wegener's granulomatosis; auricular manifestations of systemic disease, including AIDS, gout, chondrodermatitis nodularis helices chronica, and ochronosis; and cysts and tumors of the auricle, including benign and malignant lesions. 16 figures. 58 references.

- **Management of Renal Transplant Patients**

Source: in Mandal, A.K. and Nahman, N.S., Jr., eds. *Kidney Disease in Primary Care*. Baltimore, MD: Williams and Wilkins. 1998. p. 241-254.

Contact: Available from Williams and Wilkins. 351 West Camden Street, Baltimore, MD 21201-2436. (800) 638-0672 or (410) 528-4223. Fax (800) 447-8438 or (410) 528-8550. E-mail: custserv@wwilkins.com. Price: \$39.95. ISBN: 0683300571.

Summary: This chapter on the management of renal transplant patients is from a textbook that provides primary care physicians with practical approaches to common clinical problems of kidney diseases. The authors focus on the short and long term complications that occur in renal transplant recipients and provide an introduction to commonly used immunosuppressive agents. Topics include graft and patient survival, organ availability, immunosuppressive agents (glucocorticoids, azathioprine, cyclosporine, tacrolimus FK-506, OKT3, antithymocyte globulin), early transplant complications (acute rejection and technical problems), early or later complications of hypertension and hyperlipidemia, late transplant complications (bone disease, posttransplant diabetes, chronic transplant rejection, malignancy, cardiovascular disease, gout, and posttransplant erythrocytosis), infectious complications, pregnancy in women with kidney transplants, exposure of the fetus to cyclosporine, immunizations, and living kidney donors. Graft loss after 1 year of transplantation occurs because of death with a functioning graft, chronic rejection, or recurrence of the native disease. Triple immunosuppressive therapy consisting of cyclosporine, corticosteroids, and azathioprine is most commonly used. The incidence of coronary artery disease is high. Blood pressure, glucose, and cholesterol should be kept under adequate control. 3 figures. 3 tables. 4 references.

- **Rheumatologic Disease**

Source: in Daugirdas, J.T. and Ing, T.S., eds. *Handbook of Dialysis*. 2nd ed. Boston, MA: Little, Brown and Company. 1994. p. 662-672.

Contact: Available from Lippincott-Raven Publishers. 12107 Insurance Way, Hagerstown, MD 21740. (800) 777-2295. Fax (301) 824-7390. E-mail: lrororders@phl.lrpub.com. Website: <http://www.lrpub.com>. Price: \$37.95. ISBN: 0316173835.

Summary: This chapter on rheumatologic disease in dialysis patients is from a handbook that outlines all aspects of dialysis therapy, emphasizing the management of dialysis patients. Topics include dialysis-related amyloidosis, including carpal tunnel syndrome and

destructive spondyloarthropathy; crystal-associated arthropathies; viral arthritis; muscle weakness; extensor tendon rupture; connective tissue disorders; and the use of rheumatologic drugs in dialysis patients, including NSAIDs, drugs for gout, and corticosteroids. For each condition, the authors discuss incidence, symptoms, diagnosis, pathophysiology, prevention, and management. The authors present information in outline form, for easy reference. 3 tables. 21 references.

- **Musculoskeletal Disorders**

Source: in Scully, C. and Cawson, R.A. *Medical Problems in Dentistry*. 4th ed. Woburn, MA: Butterworth-Heinemann. 1998. p. 310-335.

Contact: Available from Butterworth-Heinemann. 225 Wildwood Avenue, Woburn, MA 01801-2041. (800) 366-2665 or (781) 904-2500. Fax (800) 446-6520 or (781) 933-6333. E-mail: orders@bhusa.com. Website: www.bh.com. Price: \$110.00. ISBN: 0723610568.

Summary: This chapter on musculoskeletal disorders is from a text that covers the general medical and surgical conditions relevant to the oral health care sciences. The authors note that the jaws and temporomandibular joints are part of the skeletal system, but are rarely involved by systemic disease and few skeletal diseases affect the management of the dental patient directly. Muscle disorders are relatively uncommon and involvement of the masticatory (chewing) and facial muscles is not necessarily a prominent feature. However, for patients with musculoskeletal disease, access to the dental clinic or getting into or out of the chair may be difficult. Topics include genetic skeletal diseases, osteogenesis imperfecta, achondroplasia, cleidocranial dysplasia, osteopetrosis (Albers Schonberg disease), Marfan's syndrome, Ehlers Danlos syndrome, diseases of calcium metabolism and bone, rickets and osteomalacia, osteoporosis, William's syndrome, tumoral calcinosis, fibrous dysplasia, Paget's disease of bone (osteitis deformans), osteoarthritis, rheumatoid arthritis, Felty's syndrome, juvenile rheumatoid arthritis (childhood polyarthritis), psoriatic arthritis, Lyme disease, gout, ankylosing spondylitis, Reiter's disease, prosthetic joint replacements, genetic myopathies, polymyositis and dermatomyositis, and cranial arteritis and polymyalgia rheumatica. For each condition, the authors discuss general aspects, diagnosis and management issues, dental aspects, and patient care strategies. The chapter includes a summary of the points covered. 4 figures. 10 tables. 61 references.

- **Other Disorders**

Source: in Zarb, G.A., et al. *Temporomandibular Joint and Masticatory Muscle Disorders*. Copenhagen, Denmark: Munksgaard. 1994. p. 367-388.

Contact: Available from Munksgaard. 35 Norre Sogade, P.O. Box 2148, DK 1016 Copenhagen K, Denmark. Phone Number: 45 33 12 70 30; Fax: 45 33 12 93 87. Price: DDK1456.00. Contact publisher directly for current price in U.S. Dollars. ISBN: 8716106377.

Summary: The musculoskeletal system may be affected by more than one hundred different diseases, many of which will also involve the temporomandibular joint (TMJ) and masticatory muscles. This chapter, from a comprehensive textbook that addresses temporomandibular joint disorders (TMD) and masticatory muscle disorders, considers disorders in which the TMJ may be involved. Topics include spondyloarthropathies, including ankylosing spondylitis, and psoriatic arthritis; juvenile arthritis; other general and muscle disorders, including Reiter's disease, gout (arthritis urica), calcium pyrophosphate deposition disease (CPDD), systemic lupus erythematosus (SLE), Sjogren's syndrome, temporal arteritis, scleroderma, infectious arthritis, sarcoidosis, chondromalacia, inflammatory diseases of skeletal muscle, and tumors of the TMJ and masticatory muscles. For each condition discussed, the author covers definition, symptoms, diagnosis, and treatment. 6 figures. 1 table. 50 references. (AA-M).

- **Oral Manifestations of Metabolic Disorders**

Source: in Bork, K., et al. Diseases of the Oral Mucosa and the Lips. Orlando, FL: W.B. Saunders Company. 1993. p. 357-364.

Contact: Available from W.B. Saunders Company. Order Fulfillment, 6277 Sea Harbor Drive, Orlando, FL 32887-4430. (800) 545-2522 (individuals) or (800) 782-4479 (schools); Fax (800) 874-6418 or (407) 352-3445; <http://www.wbsaunders.com>. Price: \$99.00 plus shipping and handling. ISBN: 0721640397.

Summary: This chapter, from a textbook on diseases of the oral mucosa and the lips, discusses the oral manifestations of metabolic disorders. Disorders covered are gout, lipid abnormalities, hyperlipoproteinemias, mucinoses, amyloidosis, lipid proteinosis, Fabry's disease, Gaucher's disease, porphyrias, cystic fibrosis, and hemochromatosis. For each disorder, the authors describe the clinical features and present brief diagnostic and therapeutic recommendations. Full-color photographs illustrate the chapter; references are provided for some sections. 10 figures. 1 table. 24 references.

- **Crystal Arthropathies**

Source: in Maddison, P.J.; et al., Eds. Oxford Textbook of Rheumatology. Volume 2. New York, NY: Oxford University Press, Inc. 1993. p. 983-1005.

Contact: Available from Oxford University Press, Inc., New York, NY.

Summary: This chapter for health professionals presents an overview of crystal arthropathies. Major clinical manifestations of gout are outlined. Epidemiological data on gouty arthritis are provided. Data on serum urate levels, hyperuricemia, uric acid metabolism, purine synthesis, and uric acid excretion are presented. The pathogenesis of hyperuricemia is explained. Biochemical aspects of inborn errors of metabolism that lead to gout are examined. The pathogenesis of crystal inflammation is described. The clinical features of gout are discussed. Conditions associated with gout are highlighted. Techniques used in the diagnosis of gout are identified. Approaches to treating gout are presented, and suggestions for long-term management and prevention are offered. The epidemiology, etiology, pathogenesis, clinical features, and treatment of calcium pyrophosphate dihydrate deposition are discussed. In addition, the role of calcium phosphate crystal deposition in various disorders is considered. 181 references, 21 figures, and 7 tables.

General Home References

In addition to references for gout, you may want a general home medical guide that spans all aspects of home healthcare. The following list is a recent sample of such guides (sorted alphabetically by title; hyperlinks provide rankings, information, and reviews at Amazon.com):

- **All About Joints** by Irwin M. Siegel; Paperback - 224 pages 1st edition (December 15, 2001), Demos Medical Publishing; ISBN: 1888799560;
<http://www.amazon.com/exec/obidos/ASIN/1888799560/icongroupinterna>
- **Arthritis Sourcebook : Basic Consumer Health Information About Specific Forms of Arthritis and Related Disorders** by Allan R. Cook (Editor); Hardcover - 600 pages 1 edition (October 1998), Omnigraphics, Inc.; ISBN: 0780802012;
<http://www.amazon.com/exec/obidos/ASIN/0780802012/icongroupinterna>
- **Primer on the Rheumatic Diseases** by John H. Klippel, et al; Paperback - 700 pages, 12th edition (December 2001), National Book Network; ISBN: 0912423293;
<http://www.amazon.com/exec/obidos/ASIN/0912423293/icongroupinterna>

Vocabulary Builder

Antioxidant: One of many widely used synthetic or natural substances added to a product to prevent or delay its deterioration by action of oxygen in the air. Rubber, paints, vegetable oils, and prepared foods commonly contain antioxidants. [EU]

Arthrography: Roentgenography of a joint, usually after injection of either positive or negative contrast medium. [NIH]

Benign: Not malignant; not recurrent; favourable for recovery. [EU]

Blister: Visible accumulations of fluid within or beneath the epidermis. [NIH]

Bursitis: Inflammation of a bursa, occasionally accompanied by a calcific deposit in the underlying supraspinatus tendon; the most common site is the subdeltoid bursa. [EU]

Carbohydrate: An aldehyde or ketone derivative of a polyhydric alcohol, particularly of the pentahydric and hexahydric alcohols. They are so named because the hydrogen and oxygen are usually in the proportion to form water, $(CH_2O)_n$. The most important carbohydrates are the starches, sugars, celluloses, and gums. They are classified into mono-, di-, tri-, poly- and heterosaccharides. [EU]

Cellulitis: An acute, diffuse, and suppurative inflammation of loose connective tissue, particularly the deep subcutaneous tissues, and sometimes muscle, which is most commonly seen as a result of infection of a wound, ulcer, or other skin lesions. [NIH]

Chemotherapy: The treatment of disease by means of chemicals that have a specific toxic effect upon the disease - producing microorganisms or that selectively destroy cancerous tissue. [EU]

Cholelithiasis: The presence or formation of gallstones. [EU]

Coagulation: 1. the process of clot formation. 2. in colloid chemistry, the solidification of a sol into a gelatinous mass; an alteration of a disperse phase or of a dissolved solid which causes the separation of the system into a liquid phase and an insoluble mass called the clot or curd. Coagulation is usually irreversible. 3. in surgery, the disruption of tissue by physical means to form an amorphous residuum, as in electrocoagulation and photocoagulation. [EU]

Colic: Paroxysms of pain. This condition usually occurs in the abdominal region but may occur in other body regions as well. [NIH]

Diverticulitis: Inflammation of a diverticulum, especially inflammation related to colonic diverticula, which may undergo perforation with abscess formation. Sometimes called left-sided or L-sides appendicitis. [EU]

Dysentery: Any of various disorders marked by inflammation of the

intestines, especially of the colon, and attended by pain in the abdomen, tenesmus, and frequent stools containing blood and mucus. Causes include chemical irritants, bacteria, protozoa, or parasitic worms. [EU]

Dysplasia: Abnormality of development; in pathology, alteration in size, shape, and organization of adult cells. [EU]

Dystrophy: Any disorder arising from defective or faulty nutrition, especially the muscular dystrophies. [EU]

Enteritis: Inflammation of the intestine, applied chiefly to inflammation of the small intestine; see also enterocolitis. [EU]

Erysipelas: An acute superficial form of cellulitis involving the dermal lymphatics, usually caused by infection with group A streptococci, and chiefly characterized by a peripherally spreading hot, bright red, edematous, brawny, infiltrated, and sharply circumscribed plaque with a raised indurated border. Formerly called St. Anthony's fire. [EU]

Fissure: Any cleft or groove, normal or otherwise; especially a deep fold in the cerebral cortex which involves the entire thickness of the brain wall. [EU]

Flatulence: The presence of excessive amounts of air or gases in the stomach or intestine, leading to distention of the organs. [EU]

Fungus: A general term used to denote a group of eukaryotic protists, including mushrooms, yeasts, rusts, moulds, smuts, etc., which are characterized by the absence of chlorophyll and by the presence of a rigid cell wall composed of chitin, mannans, and sometimes cellulose. They are usually of simple morphological form or show some reversible cellular specialization, such as the formation of pseudoparenchymatous tissue in the fruiting body of a mushroom. The dimorphic fungi grow, according to environmental conditions, as moulds or yeasts. [EU]

Furunculosis: 1. the persistent sequential occurrence of furuncles over a period of weeks or months. 2. the simultaneous occurrence of a number of furuncles. [EU]

Gangrene: Death of tissue, usually in considerable mass and generally associated with loss of vascular (nutritive) supply and followed by bacterial invasion and putrefaction. [EU]

Gastroenteritis: An acute inflammation of the lining of the stomach and intestines, characterized by anorexia, nausea, diarrhoea, abdominal pain, and weakness, which has various causes, including food poisoning due to infection with such organisms as *Escherichia coli*, *Staphylococcus aureus*, and *Salmonella* species; consumption of irritating food or drink; or psychological factors such as anger, stress, and fear. Called also enterogastritis. [EU]

Gastrointestinal: Pertaining to or communicating with the stomach and

intestine, as a gastrointestinal fistula. [EU]

Heartburn: Substernal pain or burning sensation, usually associated with regurgitation of gastric juice into the esophagus. [NIH]

Helminthiasis: Infestation with parasitic worms of the helminth class. [NIH]

Hemoglobinopathies: A group of inherited disorders characterized by structural alterations within the hemoglobin molecule. [NIH]

Hemorrhage: Bleeding or escape of blood from a vessel. [NIH]

Hemorrhoids: Varicosities of the hemorrhoidal venous plexuses. [NIH]

Hernia: (he protrusion of a loop or knuckle of an organ or tissue through an abnormal opening. [EU]

Herpes: Any inflammatory skin disease caused by a herpesvirus and characterized by the formation of clusters of small vesicles. When used alone, the term may refer to herpes simplex or to herpes zoster. [EU]

Hypercholesterolemia: Abnormally high levels of cholesterol in the blood. [NIH]

Hyperlipoproteinemia: Metabolic disease characterized by elevated plasma cholesterol and/or triglyceride levels. The inherited form is attributed to a single gene mechanism. [NIH]

Immunization: The induction of immunity. [EU]

Influenza: An acute viral infection involving the respiratory tract. It is marked by inflammation of the nasal mucosa, the pharynx, and conjunctiva, and by headache and severe, often generalized, myalgia. [NIH]

Intestinal: Pertaining to the intestine. [EU]

Iodine: A nonmetallic element of the halogen group that is represented by the atomic symbol I, atomic number 53, and atomic weight of 126.90. It is a nutritionally essential element, especially important in thyroid hormone synthesis. In solution, it has anti-infective properties and is used topically. [NIH]

Jaundice: A clinical manifestation of hyperbilirubinemia, consisting of deposition of bile pigments in the skin, resulting in a yellowish staining of the skin and mucous membranes. [NIH]

Lesion: Any pathological or traumatic discontinuity of tissue or loss of function of a part. [EU]

Malabsorption: Impaired intestinal absorption of nutrients. [EU]

Malformation: A morphologic defect resulting from an intrinsically abnormal developmental process. [EU]

Malignant: Tending to become progressively worse and to result in death. Having the properties of anaplasia, invasion, and metastasis; said of tumours. [EU]

Masticatory: 1. subserving or pertaining to mastication; affecting the muscles of mastication. 2. a remedy to be chewed but not swallowed. [EU]

Nausea: An unpleasant sensation, vaguely referred to the epigastrium and abdomen, and often culminating in vomiting. [EU]

Neoplasms: New abnormal growth of tissue. Malignant neoplasms show a greater degree of anaplasia and have the properties of invasion and metastasis, compared to benign neoplasms. [NIH]

Neoplastic: Pertaining to or like a neoplasm (= any new and abnormal growth); pertaining to neoplasia (= the formation of a neoplasm). [EU]

Neuropathy: A general term denoting functional disturbances and/or pathological changes in the peripheral nervous system. The etiology may be known e.g. arsenical n., diabetic n., ischemic n., traumatic n.) or unknown. Encephalopathy and myelopathy are corresponding terms relating to involvement of the brain and spinal cord, respectively. The term is also used to designate noninflammatory lesions in the peripheral nervous system, in contrast to inflammatory lesions (neuritis). [EU]

Osteogenesis: The histogenesis of bone including ossification. It occurs continuously but particularly in the embryo and child and during fracture repair. [NIH]

Osteomalacia: A condition marked by softening of the bones (due to impaired mineralization, with excess accumulation of osteoid), with pain, tenderness, muscular weakness, anorexia, and loss of weight, resulting from deficiency of vitamin D and calcium. [EU]

Osteomyelitis: Inflammation of bone caused by a pyogenic organism. It may remain localized or may spread through the bone to involve the marrow, cortex, cancellous tissue, and periosteum. [EU]

Osteonecrosis: Death of a bone or part of a bone, either atraumatic or posttraumatic. [NIH]

Osteopetrosis: Excessive formation of dense trabecular bone leading to pathological fractures, osteitis, splenomegaly with infarct, anemia, and extramedullary hemopoiesis. [NIH]

Otolaryngology: A surgical specialty concerned with the study and treatment of disorders of the ear, nose, and throat. [NIH]

Overdosage: 1. the administration of an excessive dose. 2. the condition resulting from an excessive dose. [EU]

Podiatry: A specialty concerned with the diagnosis and treatment of foot disorders and injuries and anatomic defects of the foot. [NIH]

Polyarthritis: An inflammation of several joints together. [EU]

Porphyria: A pathological state in man and some lower animals that is often

due to genetic factors, is characterized by abnormalities of porphyrin metabolism, and results in the excretion of large quantities of porphyrins in the urine and in extreme sensitivity to light. [EU]

Reflex: 1; reflected. 2. a reflected action or movement; the sum total of any particular involuntary activity. [EU]

Rickets: A condition caused by deficiency of vitamin D, especially in infancy and childhood, with disturbance of normal ossification. The disease is marked by bending and distortion of the bones under muscular action, by the formation of nodular enlargements on the ends and sides of the bones, by delayed closure of the fontanelles, pain in the muscles, and sweating of the head. Vitamin D and sunlight together with an adequate diet are curative, provided that the parathyroid glands are functioning properly. [EU]

Stomach: An organ of digestion situated in the left upper quadrant of the abdomen between the termination of the esophagus and the beginning of the duodenum. [NIH]

Synovitis: Inflammation of a synovial membrane. It is usually painful, particularly on motion, and is characterized by a fluctuating swelling due to effusion within a synovial sac. Synovitis is qualified as fibrinous, gonorrhoeal, hyperplastic, lipomatous, metritic, puerperal, rheumatic, scarlatinal, syphilitic, tuberculous, urethral, etc. [EU]

Tacrolimus: A macrolide isolated from the culture broth of a strain of *Streptomyces tsukubaensis* that has strong immunosuppressive activity in vivo and prevents the activation of T-lymphocytes in response to antigenic or mitogenic stimulation in vitro. [NIH]

Tendinitis: Inflammation of tendons and of tendon-muscle attachments. [EU]

Tomography: The recording of internal body images at a predetermined plane by means of the tomograph; called also body section roentgenography. [EU]

Toxin: A poison; frequently used to refer specifically to a protein produced by some higher plants, certain animals, and pathogenic bacteria, which is highly toxic for other living organisms. Such substances are differentiated from the simple chemical poisons and the vegetable alkaloids by their high molecular weight and antigenicity. [EU]

Tryptophan: An essential amino acid that is necessary for normal growth in infants and for nitrogen balance in adults. It is a precursor serotonin and niacin. [NIH]

Warts: Benign epidermal proliferations or tumors; some are viral in origin. [NIH]

CHAPTER 7. MULTIMEDIA ON GOUT

Overview

Information on gout can come in a variety of formats. Among multimedia sources, video productions, slides, audiotapes, and computer databases are often available. In this chapter, we show you how to keep current on multimedia sources of information on gout. We start with sources that have been summarized by federal agencies, and then show you how to find bibliographic information catalogued by the National Library of Medicine. If you see an interesting item, visit your local medical library to check on the availability of the title.

Bibliography: Multimedia on Gout

The National Library of Medicine is a rich source of information on healthcare-related multimedia productions including slides, computer software, and databases. To access the multimedia database, go to the following Web site: <http://locatorplus.gov/>. Select "Search LOCATORplus." Once in the search area, simply type in gout (or synonyms). Then, in the option box provided below the search box, select "Audiovisuals and Computer Files." From there, you can choose to sort results by publication date, author, or relevance. The following multimedia has been indexed on gout. For more information, follow the hyperlink indicated:

- **Analgesics.** Source: University of Maryland School of Dentistry; Year: 1972; Format: Slide; [Baltimore]: The School: [for sale by Univ. of Maryland School of Dentistry, Independent Learning Center, 1972]

- **Arthritis.** Source: presented by the Clinical Center, National Institutes of Health, Public Health Service, U.S. Department of Health, Education, and Welfare; Year: 1980; Format: Videorecording; [Bethesda, Md.]: The Center, [1980]
- **Arthritis.** Source: [Gordon E. Madge]; Year: 1970; Format: Slide; [Richmond: G. E. Madge, 1970]
- **Clinical features of rheumatic diseases.** Source: Canadian Arthritis and Rheumatism Society; Year: 1976; Format: Slide; [Toronto, Ont.: Arthritis Society, 1970]
- **Clinical slide collection on the rheumatic diseases.** Source: prepared by the Visual Aids Subcommittee of the Professional Education Committee of the Arthritis Foundation; Year: 1972; Format: Slide; New York: Arthritis Foundation, c1972
- **Crystalline arthritis : gout.** Source: by Bruce M. Rothschild; Year: 1982; Format: Slide; [Westport, Conn.]: Medical Education Programs, c1982
- **Cutaneous lesions : signs of internal diseases.** Source: Ervin Epstein, Ervin Epstein, Jr; Year: 1972; Format: Slide; New York: Medcom, c1972
- **Diagnosis of hyperuricemia.** Source: Dept. of Family Medicine, Medical University of S.C. in Charleston; presented by the Health Communications Network, Division of Continuing Education, Medical University of S.C. in Charleston; Year: 1980; Format: Videorecording; Charleston, S.C.: The University, [1980]
- **Gout .** Year: 1983; Format: Slide; [Tempe, Ariz.]: C.E. Institute, c1983
- **Gout and gouty arthritis.** Source: Continuing Education Committee of the New York State Podiatry Society, Western Division; Year: 1975; Format: Slide; [Buffalo, N. Y.]: Communications in Learning, 1975
- **Gout and hyperuricemia.** Source: [presented by] Audio-Video Digest Foundation, in collaboration with the University of California, San Francisco, School of Medicine; Year: 1981; Format: Videorecording; [Berkeley, Calif.]: Regents of the University of California, c1981
- **Gout.** Source: Herbert S. Diamond; Year: 1979; Format: Slide; [New York]: Medcom, c1979
- **Gout.** Source: Burroughs Wellcome Co.; produced by MEDCOM; Year: 1971; Format: Motion picture; Research Triangle Park: Burroughs Wellcome: [for loan by Burroughs Wellcome Co., Hospital Services Dept.], c1971
- **Learning to diagnose arthritis.** Source: Penn State Television, WPSX-TV; Year: 1978; Format: Videorecording; University Park, Pa.: Penn State Univ.: [for loan and sale by its Audio-Visual Services], c1978

- **Management of hyperuricemia and gout.** Source: Biomedical Media Production Unit, the University of Michigan Medical Center, Office of Educational Resources & Research; Year: 1981; Format: Videorecording; Ann Arbor, Mich.: The University, c1981
- **Medical management of rheumatoid arthritis.** Source: with Gene V. Ball and Warren D. Blackburn; Year: 1987; Format: Videorecording; Secaucus, N.J.: Network for Continuing Medical Education, c1987
- **Medical terminology: orthopedic disorders and surgery.** Source: Au-Vid, inc; Year: 1974; Format: Sound recording; [Garden Grove, Calif.]: Au-Vid, [1974]
- **Metabolic and nutritional diseases.** Source: Roger Harrison Brodtkin; Year: 1979; Format: Slide; [New York]: Medcom, c1979
- **Radiology of degenerative joint disease.** Source: Harold G. Jacobson, Neil H. Messinger; Year: 1973; Format: Slide; New York: Medcom, c1973
- **Rheumatoid arthritis.** Source: Norman P. Schenker; with scientific collaboration of E.G.L. Bywaters ... [et al]; Year: 1963; Format: Motion picture; [New York]: Pfizer, [1963?]
- **Rheumatology.** Source: Frank Schmid; Year: 1977; Format: Sound recording; [Park Ridge, Ill.]: ASCME, p1977
- **Rheumatology.** Source: Douglas N. Golding; Year: 1973; Format: Slide; New York: Medcom, c1973
- **Role of metabolic disorders in disease.** Source: Harry I. Lurie; [made by] Visual Education Dept., Medical College of Virginia; Year: 1975; Format: Slide; Richmond: Medical College of Virginia Learning Resource Centers; [Chapel Hill, N.C.: for loan or sale by Health Sciences Consortium], c1975
- **Synovial fluid analysis.** Source: Bernard F. Germain; Year: 1972; Format: Slide; [Richmond]: B. F. Germain: [for loan by the Medical College of Virginia, Learning Resources Centers, 1972]
- **Update in rheumatology.** Source: American College of Physicians; Year: 1981; Format: Sound recording; [Philadelphia, Pa.]: The College, [1981]

Vocabulary Builder

Degenerative: Undergoing degeneration : tending to degenerate; having the character of or involving degeneration; causing or tending to cause degeneration. [EU]

CHAPTER 8. PERIODICALS AND NEWS ON GOUT

Overview

Keeping up on the news relating to gout can be challenging. Subscribing to targeted periodicals can be an effective way to stay abreast of recent developments on gout. Periodicals include newsletters, magazines, and academic journals.

In this chapter, we suggest a number of news sources and present various periodicals that cover gout beyond and including those which are published by patient associations mentioned earlier. We will first focus on news services, and then on periodicals. News services, press releases, and newsletters generally use more accessible language, so if you do choose to subscribe to one of the more technical periodicals, make sure that it uses language you can easily follow.

News Services & Press Releases

Well before articles show up in newsletters or the popular press, they may appear in the form of a press release or a public relations announcement. One of the simplest ways of tracking press releases on gout is to search the news wires. News wires are used by professional journalists, and have existed since the invention of the telegraph. Today, there are several major “wires” that are used by companies, universities, and other organizations to announce new medical breakthroughs. In the following sample of sources, we will briefly describe how to access each service. These services only post recent news intended for public viewing.

PR Newswire

Perhaps the broadest of the wires is PR Newswire Association, Inc. To access this archive, simply go to <http://www.prnewswire.com>. Below the search box, select the option "The last 30 days." In the search box, type "gout" or synonyms. The search results are shown by order of relevance. When reading these press releases, do not forget that the sponsor of the release may be a company or organization that is trying to sell a particular product or therapy. Their views, therefore, may be biased.

Reuters

The Reuters' Medical News database can be very useful in exploring news archives relating to gout. While some of the listed articles are free to view, others can be purchased for a nominal fee. To access this archive, go to <http://www.reutershealth.com/frame2/arch.html> and search by "gout" (or synonyms). The following was recently listed in this archive for gout:

- **Gout drug may help heart failure patients**
Source: Reuters Health eLine
Date: juin 17, 2002
<http://www.reuters.gov/archive/2002/06/17/eline/links/20020617elin004.html>
- **Ice packs may help ease pain of gouty arthritis**
Source: Reuters Health eLine
Date: mars 01, 2002
<http://www.reuters.gov/archive/2002/03/01/eline/links/20020301elin017.html>
- **Ice therapy helpful during bouts of acute gouty arthritis**
Source: Reuters Medical News
Date: février 27, 2002
<http://www.reuters.gov/archive/2002/02/27/professional/links/20020227clin006.html>
- **Gout drug shows promise for heart failure: study**
Source: Reuters Health eLine
Date: novembre 13, 2001
<http://www.reuters.gov/archive/2001/11/13/eline/links/20011113elin014.html>

- **Gout drug shows promise for heart failure in early study**
 Source: Reuters Industry Breifing
 Date: novembre 13, 2001
<http://www.reuters.gov/archive/2001/11/13/business/links/20011113drgd006.html>
- **Gout drug shows promise as heart failure therapy**
 Source: Reuters Medical News
 Date: novembre 13, 2001
<http://www.reuters.gov/archive/2001/11/13/professional/links/20011113drgd005.html>
- **Maintaining low serum urate levels prevents attacks of gout**
 Source: Reuters Industry Breifing
 Date: avril 13, 2001
<http://www.reuters.gov/archive/2001/04/13/business/links/20010413clin003.html>
- **Reduced-carbohydrate/calorie diet halves frequency of acute gout episodes**
 Source: Reuters Medical News
 Date: août 15, 2000
<http://www.reuters.gov/archive/2000/08/15/professional/links/20000815clin005.html>
- **Gout frequently unrecognized in the Asia-Pacific region**
 Source: Reuters Medical News
 Date: juin 09, 2000
<http://www.reuters.gov/archive/2000/06/09/professional/links/20000609epid004.html>
- **Japanese gout drugs tied to six deaths**
 Source: Reuters Medical News
 Date: février 24, 2000
<http://www.reuters.gov/archive/2000/02/24/professional/links/20000224rglt001.html>
- **Arthrocentesis effective for diagnosing gout between acute attacks**
 Source: Reuters Medical News
 Date: novembre 22, 1999
<http://www.reuters.gov/archive/1999/11/22/professional/links/19991122clin008.html>

- **TAP Holdings licenses gout compound**
Source: Reuters Medical News
Date: octobre 07, 1999
<http://www.reuters.gov/archive/1999/10/07/professional/links/19991007inds011.html>
- **Gout No Picnic for T. Rex**
Source: Reuters Health eLine
Date: mai 21, 1997
<http://www.reuters.gov/archive/1997/05/21/eline/links/19970521elin010.html>

The NIH

Within MEDLINEplus, the NIH has made an agreement with the New York Times Syndicate, the AP News Service, and Reuters to deliver news that can be browsed by the public. Search news releases at http://www.nlm.nih.gov/medlineplus/alphanews_a.html. MEDLINEplus allows you to browse across an alphabetical index. Or you can search by date at <http://www.nlm.nih.gov/medlineplus/newsbydate.html>. Often, news items are indexed by MEDLINEplus within their search engine. The following was recently indexed as relating to gout:

- **Gout Drug May Help Heart Failure Patients**
http://www.nlm.nih.gov/medlineplus/news/fullstory_8113.html

Business Wire

Business Wire is similar to PR Newswire. To access this archive, simply go to <http://www.businesswire.com>. You can scan the news by industry category or company name.

Internet Wire

Internet Wire is more focused on technology than the other wires. To access this site, go to <http://www.internetwire.com> and use the "Search Archive" option. Type in "gout" (or synonyms). As this service is oriented to technology, you may wish to search for press releases covering diagnostic procedures or tests that you may have read about.

Search Engines

Free-to-view news can also be found in the news section of your favorite search engines (see the health news page at Yahoo: http://dir.yahoo.com/Health/News_and_Media/, or use this Web site's general news search page <http://news.yahoo.com/>. Type in "gout" (or synonyms). If you know the name of a company that is relevant to gout, you can go to any stock trading Web site (such as www.etrade.com) and search for the company name there. News items across various news sources are reported on indicated hyperlinks.

BBC

Covering news from a more European perspective, the British Broadcasting Corporation (BBC) allows the public free access to their news archive located at <http://www.bbc.co.uk/>. Search by "gout" (or synonyms).

Newsletter Articles

If you choose not to subscribe to a newsletter, you can nevertheless find references to newsletter articles. We recommend that you use the Combined Health Information Database, while limiting your search criteria to "newsletter articles." Again, you will need to use the "Detailed Search" option. Go directly to the following hyperlink: <http://chid.nih.gov/detail/detail.html>. Go to the bottom of the search page where "You may refine your search by." Select the dates and language that you prefer. For the format option, select "Newsletter Article."

By making these selections, and typing in "gout" (or synonyms) into the "For these words:" box, you will only receive results on newsletter articles. You should check back periodically with this database as it is updated every 3 months. The following is a typical result when searching for newsletter articles on gout:

- **Rheumatic Manifestations of Diabetes Mellitus**

Source: Bulletin on the Rheumatic Diseases. 49(5): 1-4. 2000.

Contact: Available from Arthritis Foundation. 1330 West Peachtree Street, Atlanta, GA 30309. (404) 872-7100. Fax (404) 872-9559.

Summary: This newsletter article provides health professionals with information on the rheumatic manifestations of diabetes mellitus. There are several musculoskeletal disorders that occur either exclusively or predominantly in people who have diabetes, so the presence of this disease must be recognized when evaluating and treating patients who have musculoskeletal complaints. Syndromes related to increased collagen deposition include cheiroarthropathy, frozen shoulder, flexor tenosynovitis, and Dupuytren's contracture. Syndromes related to neuropathy, a frequent complication of diabetes, include Charcot's arthropathy and reflex sympathetic dystrophy. Other syndromes and conditions that people who have diabetes may be more prone to are osteoarthritis, osteopenia, diffuse idiopathic skeletal hyperostosis, infections, gout, pseudogout, carpal tunnel syndrome, and rheumatoid arthritis. The effect of various treatment modalities on musculoskeletal complaints in people who have diabetes must also be considered. Drugs commonly used for musculoskeletal conditions include nonsteroidal antiinflammatory drugs and glucocorticoids; however, these drugs may have an adverse impact on patients who also have diabetes. 1 table and 20 references.

- **Arthritis**

Source: Mayo Clinic Health Letter-Supplement. 17(2): 1-8. February 1999.

Summary: This newsletter article provides people who have arthritis with information on managing this chronic condition. The article describes the main types of arthritis, that is osteoarthritis (OA) and rheumatoid arthritis (RA) and related forms. OA, the most common form, involves the wearing away of cartilage. RA is an autoimmune inflammatory disease that is often more severe than other forms of arthritis. Related forms that are thought to involve an autoimmune problem include systemic lupus erythematosus, scleroderma, polymyositis, giant cell arteritis, polymyalgia rheumatica, ankylosing spondylitis, gout and pseudogout, and joint infections. The article provides guidelines on managing arthritis, including keeping a positive attitude, controlling weight, exercising regularly, and knowing one's limits. A discussion of the types of medication used to treat arthritis, including nonsteroidal anti-inflammatory drugs, corticosteroids, disease-modifying antirheumatic drugs, antidepressants, and topical pain relievers follows. Other nonsurgical and surgical treatments for relieving the pain of arthritis are highlighted. In addition, the article explains who gets arthritis, offers some tips on exercising, provides guidelines on applying heat and cold, describes alternative treatments under evaluation, identifies the benefits of massage, highlights current research

efforts, presents ways to make daily activities easy on one's joints, and lists sources of additional information. 6 figures.

- **Acute Monarthritis**

Source: Bulletin of the Rheumatic Diseases. 46(7): 1-2. November 1997.

Summary: This newsletter article provides health professionals with information on the diagnosis and treatment of acute monarthritis. This type of arthritis is a rheumatologic emergency that requires urgent, thorough investigation with the goal of making a precise diagnosis. Diagnostic possibilities include nongonococcal and gonococcal bacterial infections. The most common nongonococcal pathogens causing acute monarthritis include *Staphylococcus aureus*. Pathogenic organisms enter the joint through hematogenous spread from another primary site of infection or contiguous spread from soft tissue, penetrating trauma, surgery, or underlying bone. Symptoms of acute bacterial infection include acute onset of severe pain and swelling of a single joint. The knee is the joint most commonly affected, followed by other large, diarthrodial joints. Treatment should include joint drainage either by needle aspiration or open drainage and antibiotic therapy. Disseminated gonococcal infection is the most frequent cause of septic arthritis in immunocompetent people under 40 years old. About 50 percent of these individuals present with acute monarthritis. Definitive diagnosis requires culture confirmation. Treatment involves the use of third-generation cephalosporin or a quinolone. The second broad category of acute monarthritis is crystalline arthritis. Acute gout and pseudogout are the dominate forms of crystalline arthritis. The article presents a case history that highlights some of the issues related to acute monarthritis. 8 references. (AA-M).

- **Know the Symptoms of Psoriatic Arthritis**

Source: National Psoriasis Foundation Bulletin. 27(5):8; September/October 1996.

Contact: National Psoriasis Foundation. 6600 SW 92nd Avenue, Suite 300, Portland, OR 97223-7195. (503)244-7404. Fax (503) 245-0626.

Summary: This newsletter article for individuals with psoriasis presents the symptoms of psoriatic arthritis. This form of arthritis affects single or multiple joints, particularly those of the hands and feet. The simultaneous presence of psoriasis and nail malformation are an indication of psoriatic arthritis. Nonpharmacological modalities used to treat psoriatic arthritis are highlighted. Drugs that have been beneficial to individuals with both rheumatoid and psoriatic arthritis are identified, including methotrexate

and antimalarials. The co-occurrence of gout in individuals with psoriatic arthritis is also discussed.

- **Cataracts and Body Size: Researchers Find a Connection**

Source: Tufts University Health and Nutrition Letter. 18(12):1. February 2001.

Contact: 10 High Street, Suite 706, Boston, MA 02110.
healthletter@tufts.edu www.healthletter.tufts.edu.

Summary: Researchers at Harvard found that being tall, heavy, or carrying extra fat around the middle may increase a person's risk for developing cataracts. The researchers examined the health records of 17,150 male doctors who participated in a research study from 1982 to 1997. The doctors who were overweight had a 20 percent higher risk for cataracts than those who were healthy weight; obese men had a 40 percent increased risk over that of the healthy weight men. The men who carried their weight around their middle had a higher cataract risk as well: 31 percent more for the thickest waistlines versus the thinnest. Men who were 6 feet or taller had a 23 percent greater cataract risk compared to men who were 5 feet 7 inches or shorter. Obese people are more likely to develop gout, a condition linked to cataract risk. Obese individuals are also predisposed to developing diabetes, which speeds up cataract formation. The height-weight connection may be the result of a genetic predisposition to be both taller and develop cataracts. As for abdominal fat, the excess fat can alter the body's metabolism in such a manner that the protein in the lens of the eye is affected.

- **Gout: How To Control an Ancient Disease**

Source: Mayo Clinic Women's HealthSource. 4(6): 6. June 2000.

Contact: Available from Mayo Clinic Women's HealthSource, 200 First Street SW, Rochester, MN 55905. (800) 876-8633 or (303) 604-1465. Email: HealthSource@Mayo.Edu.

Summary: This newsletter article provides people who have gout with information on controlling this disease. Gout, or gouty arthritis, has been recognized for more than 2,000 years. It is caused by too much uric acid. People who have gout either produce too much uric acid or excrete too little. Uric acid is typically dissolved in the blood and passed through the kidneys into the urine. When excess uric acid builds up, sharp crystals can form and deposit in a joint and surrounding tissue. This causes pain, inflammation, and swelling. Other factors that contribute to gout include foods high in purines, alcohol consumption, obesity, high cholesterol, diabetes, and medications. Diagnosis involves undergoing a blood uric

acid test and having fluid drawn from the affected joint to look for crystals. An acute attack can be treated with nonsteroidal antiinflammatory drugs. Preventive treatment involves a regimen of medications such as allopurinol. Lifestyle changes such as weight loss, dietary changes, and abstinence from alcohol can also help. 1 figure.

Academic Periodicals covering Gout

Academic periodicals can be a highly technical yet valuable source of information on gout. We have compiled the following list of periodicals known to publish articles relating to gout and which are currently indexed within the National Library of Medicine's PubMed database (follow hyperlinks to view more information, summaries, etc., for each). In addition to these sources, to keep current on articles written on gout published by any of the periodicals listed below, you can simply follow the hyperlink indicated or go to the following Web site: www.ncbi.nlm.nih.gov/pubmed. Type the periodical's name into the search box to find the latest studies published.

If you want complete details about the historical contents of a periodical, you can also visit <http://www.ncbi.nlm.nih.gov/entrez/jrbrowser.cgi>. Here, type in the name of the journal or its abbreviation, and you will receive an index of published articles. At <http://locatorplus.gov/> you can retrieve more indexing information on medical periodicals (e.g. the name of the publisher). Select the button "Search LOCATORplus." Then type in the name of the journal and select the advanced search option "Journal Title Search." The following is a sample of periodicals which publish articles on gout:

- **Archives of Disease in Childhood. (Arch Dis Child)**
<http://www.ncbi.nlm.nih.gov/entrez/jrbrowser.cgi?field=0®exp=Archives+of+Disease+in+Childhood&dispmax=20&dispstart=0>
- **Arthritis and Rheumatism. (Arthritis Rheum)**
<http://www.ncbi.nlm.nih.gov/entrez/jrbrowser.cgi?field=0®exp=Arthritis+and+Rheumatism&dispmax=20&dispstart=0>
- **British Medical Journal. (Br Med J)**
<http://www.ncbi.nlm.nih.gov/entrez/jrbrowser.cgi?field=0®exp=British+Medical+Journal&dispmax=20&dispstart=0>

- **Bulletin of the History of Medicine. (Bull Hist Med)**
<http://www.ncbi.nlm.nih.gov/entrez/jrbrowser.cgi?field=0®exp=Bulletin+of+the+History+of+Medicine&dispmax=20&dispstart=0>
- **Kidney International. (Kidney Int)**
<http://www.ncbi.nlm.nih.gov/entrez/jrbrowser.cgi?field=0®exp=Kidney+International&dispmax=20&dispstart=0>
- **Psychosomatic Medicine. (Psychosom Med)**
<http://www.ncbi.nlm.nih.gov/entrez/jrbrowser.cgi?field=0®exp=Psychosomatic+Medicine&dispmax=20&dispstart=0>

Vocabulary Builder

Antibiotic: A chemical substance produced by a microorganism which has the capacity, in dilute solutions, to inhibit the growth of or to kill other microorganisms. Antibiotics that are sufficiently nontoxic to the host are used as chemotherapeutic agents in the treatment of infectious diseases of man, animals and plants. [EU]

Antidepressant: An agent that stimulates the mood of a depressed patient, including tricyclic antidepressants and monoamine oxidase inhibitors. [EU]

Cataract: An opacity, partial or complete, of one or both eyes, on or in the lens or capsule, especially an opacity impairing vision or causing blindness. The many kinds of cataract are classified by their morphology (size, shape, location) or etiology (cause and time of occurrence). [EU]

Contracture: A condition of fixed high resistance to passive stretch of a muscle, resulting from fibrosis of the tissues supporting the muscles or the joints, or from disorders of the muscle fibres. [EU]

Hyperostosis: Hypertrophy of bone; exostosis. [EU]

Staphylococcus: A genus of gram-positive, facultatively anaerobic, coccoid bacteria. Its organisms occur singly, in pairs, and in tetrads and characteristically divide in more than one plane to form irregular clusters. Natural populations of Staphylococcus are membranes of warm-blooded animals. Some species are opportunistic pathogens of humans and animals. [NIH]

Topical: Pertaining to a particular surface area, as a topical anti-infective applied to a certain area of the skin and affecting only the area to which it is applied. [EU]

CHAPTER 9. PHYSICIAN GUIDELINES AND DATABASES

Overview

Doctors and medical researchers rely on a number of information sources to help patients with their conditions. Many will subscribe to journals or newsletters published by their professional associations or refer to specialized textbooks or clinical guides published for the medical profession. In this chapter, we focus on databases and Internet-based guidelines created or written for this professional audience.

NIH Guidelines

For the more common diseases, The National Institutes of Health publish guidelines that are frequently consulted by physicians. Publications are typically written by one or more of the various NIH Institutes. For physician guidelines, commonly referred to as “clinical” or “professional” guidelines, you can visit the following Institutes:

- Office of the Director (OD); guidelines consolidated across agencies available at <http://www.nih.gov/health/consumer/conkey.htm>
- National Institute of General Medical Sciences (NIGMS); fact sheets available at <http://www.nigms.nih.gov/news/facts/>
- National Library of Medicine (NLM); extensive encyclopedia (A.D.A.M., Inc.) with guidelines:
<http://www.nlm.nih.gov/medlineplus/healthtopics.html>
- National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS); fact sheets and guidelines available at <http://www.nih.gov/niams/healthinfo/>

NIH Databases

In addition to the various Institutes of Health that publish professional guidelines, the NIH has designed a number of databases for professionals.²⁷ Physician-oriented resources provide a wide variety of information related to the biomedical and health sciences, both past and present. The format of these resources varies. Searchable databases, bibliographic citations, full text articles (when available), archival collections, and images are all available. The following are referenced by the National Library of Medicine:²⁸

- **Bioethics:** Access to published literature on the ethical, legal and public policy issues surrounding healthcare and biomedical research. This information is provided in conjunction with the Kennedy Institute of Ethics located at Georgetown University, Washington, D.C.:
http://www.nlm.nih.gov/databases/databases_bioethics.html
- **HIV/AIDS Resources:** Describes various links and databases dedicated to HIV/ AIDS research:
<http://www.nlm.nih.gov/pubs/factsheets/aidsinfs.html>
- **NLM Online Exhibitions:** Describes “Exhibitions in the History of Medicine”: <http://www.nlm.nih.gov/exhibition/exhibition.html>. Additional resources for historical scholarship in medicine:
<http://www.nlm.nih.gov/hmd/hmd.html>
- **Biotechnology Information:** Access to public databases. The National Center for Biotechnology Information conducts research in computational biology, develops software tools for analyzing genome data, and disseminates biomedical information for the better understanding of molecular processes affecting human health and disease: <http://www.ncbi.nlm.nih.gov/>
- **Population Information:** The National Library of Medicine provides access to worldwide coverage of population, family planning, and related health issues, including family planning technology and programs, fertility, and population law and policy:
http://www.nlm.nih.gov/databases/databases_population.html
- **Cancer Information:** Access to cancer-oriented databases:
http://www.nlm.nih.gov/databases/databases_cancer.html

²⁷ Remember, for the general public, the National Library of Medicine recommends the databases referenced in MEDLINEplus (<http://medlineplus.gov/> or <http://www.nlm.nih.gov/medlineplus/databases.html>).

²⁸ See <http://www.nlm.nih.gov/databases/databases.html>.

- **Profiles in Science:** Offering the archival collections of prominent twentieth-century biomedical scientists to the public through modern digital technology: <http://www.profiles.nlm.nih.gov/>
- **Chemical Information:** Provides links to various chemical databases and references: <http://sis.nlm.nih.gov/Chem/ChemMain.html>
- **Clinical Alerts:** Reports the release of findings from the NIH-funded clinical trials where such release could significantly affect morbidity and mortality: http://www.nlm.nih.gov/databases/alerts/clinical_alerts.html
- **Space Life Sciences:** Provides links and information to space-based research (including NASA):
http://www.nlm.nih.gov/databases/databases_space.html
- **MEDLINE:** Bibliographic database covering the fields of medicine, nursing, dentistry, veterinary medicine, the healthcare system, and the pre-clinical sciences:
http://www.nlm.nih.gov/databases/databases_medline.html
- **Toxicology and Environmental Health Information (TOXNET):** Databases covering toxicology and environmental health:
<http://sis.nlm.nih.gov/Tox/ToxMain.html>
- **Visible Human Interface:** Anatomically detailed, three-dimensional representations of normal male and female human bodies:
http://www.nlm.nih.gov/research/visible/visible_human.html

While all of the above references may be of interest to physicians who study and treat gout, the following are particularly noteworthy.

The Combined Health Information Database

A comprehensive source of information on clinical guidelines written for professionals is the Combined Health Information Database. You will need to limit your search to "Brochure/Pamphlet," "Fact Sheet," or "Information Package" and gout using the "Detailed Search" option. Go directly to the following hyperlink: <http://chid.nih.gov/detail/detail.html>. To find associations, use the drop boxes at the bottom of the search page where "You may refine your search by." For the publication date, select "All Years," select your preferred language, and the format option "Fact Sheet." By making these selections and typing "gout" (or synonyms) into the "For these words:" box above, you will only receive results on fact sheets dealing with gout. The following is a sample result:

- **Meeting the Challenge and Reaping the Rewards: Coping with Kidney Transplantation**

Source: in Exceptional Parent. End Stage Renal Disease: A Practical Guide for Physicians, Dietitians, Nurses, Patients, Families, and Caregivers. Englewood Cliffs, NJ: Exceptional Parent. 1999. p. 30-33.

Contact: Available from Exceptional Parent. P.O. Box 1807, Englewood Cliffs, NJ 07632. (800) 535-1910. Fax (201) 947-9376. E-mail: eplibrary@aol.com. Website: www.eparent.com. Price: \$5.95.

Summary: Transplantation is an ongoing journey that begins with the first visit to the transplant center. This article on coping with kidney transplantation is from a monograph written to soften the blow of receiving the diagnosis of kidney failure by providing patients, caregivers, and their families some practical, easy to read information. The articles are written to be practical enough for patients to use, yet informative enough that professionals can refer to them as well. This article reviews the pre transplant process, the transplant surgery itself, common immunosuppressive medications and their side effects, postoperative care, and common post transplant problems, including delayed graft function, acute rejection, hypertension (high blood pressure), diabetes mellitus related problems, gout (elevated uric acid), weight gain, hypercholesterolemia, infections, mood disturbances, and malignancies. One sidebar discusses covering the costs of transplantation; another focuses on rehabilitation perspectives for life after the transplant; a third shares the experience of a kidney donor who donated one of his kidneys to his infant daughter. 1 figure. 1 table.

- **Understanding Arthritis in African Americans**

Source: Atlanta, GA: Arthritis Foundation. 1997. 8 p.

Contact: Available from Arthritis Foundation. P.O. Box 1616, Alpharetta, GA 30009-1616. (800) 207-8633. Fax (credit card orders only) (770) 442-9742. <http://www.arthritis.org>. Price: Single copy free from local Arthritis Foundation chapter (call 800-283-7800 for closest local chapter); bulk orders may be purchased from address above.

Summary: This brochure provides African Americans with information about arthritis, which usually affects the joints and tissues around the joints and causes stiffness, pain, and swelling. The brochure provides general information about arthritis, some statistics on African Americans who have arthritis or related condition, and a discussion on the common forms of arthritis in African Americans, primarily gout and lupus. It explains the symptoms and treatments available for gout, a painful form of arthritis caused by the deposit of uric acid crystals in joints and other

tissues. Lupus, an autoimmune disease in which the body's immune system attacks its own tissues and organs with the result of inflammation and tissue and organ damage, is also detailed. It discusses the course of flareups and remission of symptoms, the difficulty of diagnosis, and the combination of treatments used to control the disease. It encourages people with these conditions to participate in the managing of their disease and thus reduce its impact. The brochure also provides information on the Arthritis Foundation.

- **Your Podiatric Physician Talks About Arthritis**

Source: Bethesda, MD: American Podiatric Medical Association. 1997. 6 p.

Contact: Available from American Podiatric Medical Association. 9312 Old Georgetown Road, Bethesda, MD 20814-1698. (800) 275-2762 or (301) 581-9277. Fax (301) 530-2752. Website: www.apma.org. Price: Single copy free; bulk orders available at cost.

Summary: This pamphlet provides people who have arthritis with information on this disease, which is characterized by inflammation of the cartilage and lining of the body's joints. Arthritis can be caused by heredity, injury, bacterial and viral infections, and drug use. In addition, arthritis can develop in conjunction with inflammatory bowel disorders, and it can be a part of a congenital autoimmune disease syndrome. The pamphlet outlines arthritis symptoms, such as swelling, pain, redness, limitation of motion, early-morning stiffness, and skin changes, and describes various forms of arthritis, such as osteoarthritis, rheumatoid arthritis, and gout. Other topics include the diagnosis and treatment of arthritis. 2 figures.

- **Arthritis Advice**

Source: Bethesda, MD: National Institute on Aging. 1996. 6 p.

Contact: National Institute on Aging Information Center, P.O. Box 8057, Gaithersburg, MD 20898-8057. (800) 222-2225. (800) 224-4225 (tty).

Summary: This pamphlet for individuals with arthritis presents an overview of this disease. It describes the common forms of arthritis in older individuals, including osteoarthritis, rheumatoid arthritis, and gout, and outlines common warning signs of arthritis. The pamphlet discusses treatments for arthritis, including using medications to relieve pain and reduce swelling, exercising, applying heat or cold to the areas around the joint, controlling or losing weight, and undergoing surgery, and it warns against unproven remedies. In addition, the pamphlet identifies sources of additional information.

- **Arthritis: What It Is and How To Live With It**

Source: Seattle, WA: Hope Heart Institute. 199x. 20 p.

Contact: Available from International Health Awareness Center, Inc. 350 East Michigan, Suite 301, Kalamazoo, MI 49007-3851. (800) 334-4094 or (616) 343-0770. Website: www.hithope.com. Price: Single copy \$4.95 plus shipping and handling; bulk orders available. Item Number: 426.

Summary: This illustrated booklet provides people who have arthritis with an overview of this chronic condition. Although there are over 100 different diseases that are considered arthritis, the most common are osteoarthritis (OA), rheumatoid arthritis (RA), lupus, spondyloarthropathies, and gout. The booklet explains how normal joints work, lists the warning signs of arthritis, compares the features of OA and RA, outlines the causes and symptoms of OA, offers suggestions on preventing or minimizing OA, discusses the importance of exercise in managing OA, provides examples of range of motion exercises, and presents tips on getting the most out of exercise. Other topics include maintaining a healthy diet; working with the pain; and using treatments such as aspirin and acetaminophen, hot and cold packs, ointments and creams, and unproven remedies. In addition, the booklet offers tips on making life with arthritis easier and provides sources of additional information.

- **Learning To Live With Arthritis**

Source: Seattle, WA: Hope Heart Institute. 199x. 8 p.

Contact: Available from International Health Awareness Center, Inc. 350 East Michigan, Suite 301, Kalamazoo, MI 49007-3851. (800) 334-4094 or (616) 343-0770. Website: www.hithope.com. Price: Single copy \$0.55 plus shipping and handling; bulk orders available. Item Number: 174.

Summary: This pamphlet provides people who have arthritis with information on ways to live with this chronic condition. Although there are over 100 types of arthritis, osteoarthritis and rheumatoid arthritis are among the most common. The pamphlet describes the anatomy of a joint, compares the features of these two forms of arthritis, and provides information on gout. In addition, the pamphlet discusses the role of exercise in improving quality of life for people who have arthritis, describes the basic forms of therapeutic exercise, and offers tips on exercise. Other topics include taking charge of one's condition and watching out for fraudulent cure-alls.

- **Do You Know the Health Risks of Being Overweight?**

Source: Bethesda, MD: Weight-Control Information Network. 1998. 10 p.

Contact: Available from Weight-Control Information Network. 1 WIN Way, Bethesda, MD 20892-3665. (800) 946-8098 or (301) 984-7378. Fax (301) 984-7196. E-mail: win@info.niddk.nih.gov. Price: Single copy free.

Summary: This brochure discusses the health risks of being overweight. It uses a question and answer format to help people determine whether they are overweight, whether their waist measurement indicates a risk for health problems, and what health problems overweight people may experience. Health risks associated with being overweight include heart disease and stroke, type 2 diabetes, various cancers, sleep apnea, osteoarthritis, gout, and gallbladder disease. The brochure suggests that even a small weight loss can improve one's health. It recommends that people make long-term changes in eating habits and physical activity to lose weight and keep it off over time. In addition, the brochure provides a list of additional reading materials and identifies organizations that have information and educational materials available to the public on health problems associated with being overweight. 1 figure.

- **About Foot Care**

Source: South Deerfield, MA: Channing L. Bete Co., Inc. 1994. 15 p.

Contact: Available from Channing L. Bete Co., Inc. 200 State Road, South Deerfield, MA 01373. (800) 628-7733. Price: \$1; plus \$3.75 shipping and handling. Order Number: 12294.

Summary: This booklet reviews the importance of foot care. Written in easy-to-understand language and illustrated with cartoon-like line drawings, the booklet addresses the anatomy of the feet; why foot care is important; common foot problems, including injured toenails, gout, bunions, corns, burning feet; ingrown toenails, calluses, foot cramps, foot strain, flat feet, athlete's foot, contact dermatitis, and plantar warts; foot problems as signs of more serious health problems; basic rules of foot care, including choosing and wearing proper footwear, practicing good foot hygiene, and exercising the feet by walking; and people who must take special care of their feet (people with diabetes, children, older people, and athletes). The section on people with diabetes includes suggestions for footcare. The booklet concludes with a brief section on podiatrists.

- **Stone Disease: Patient Education**

Source: Tarrytown, NY: Bayer Corporation. 1999. 7 p.

Contact: Available from Bayer Corporation. Diagnostics Division, 511 Benedict Avenue, Tarrytown, NY 10591-5097. (800) 445-5901. Price: Single copy free.

Summary: This patient education brochure reviews kidney stones (urolithiasis), crystal like masses that form in the urinary tract. The development, shape, and growth of kidney stones depend on chemicals that are present in the urine. Certain chemicals (promoters) can speed up the growth of kidney stones; other chemicals (inhibitors) slow down or prevent the formation of kidney stones. The brochure defines the condition, describes risk factors and causes, outlines the diagnostic approaches that may be used, reviews treatment options, and offers suggestions for prevention. Some stones formed in the kidneys may remain there without causing symptoms; other stones pass during normal urination. Commonly, however, a stone becomes large enough to block the flow of urine. Severe pain in the back, side, or abdomen is a sign of serious blockage. Other symptoms include nausea, vomiting, and blood in the urine. An acute attack should be handled as a medical emergency. Risk factors that can lead to the formation of kidney stones include family history of stones, variations in kidney structure, low daily fluid intake, and genetic or other medical conditions, such as gout, eating disorders, or intestinal disease. Diagnosis is based on symptoms, x rays of the abdomen, intravenous pyelogram (IVP), ultrasound, and computed tomography (CT scan). Common medical treatments for kidney stones include changes in diet, increasing daily fluid intake, and medication. Stones are also treated by shock wave lithotripsy (which uses energy to break up the stones, which are then passed with the urine), percutaneous lithotripsy, and open surgery with an incision. The stone size, location, composition, and hardness are important as well as the individual anatomy of the urinary tract, the medical history, and health of the patient. The brochure concludes with a brief glossary of terms and a short list of resources for readers wishing to obtain additional information. A tear-off section lists the topics covered in the booklet; readers are encouraged to check off the items corresponding to issues they would like to discuss with their health care provider, to use the checklist as a reminder tool. 2 figures.

- **Hypertension**

Source: Lenexa, KS: North American Transplant Coordinators Organization. 199x. 2 p.

Contact: Available from North American Transplant Coordinators Organization. P.O. Box 15384, Lenexa, KS 66285-5384. (913) 492-3600. Price: \$0.25.

Summary: This brief brochure answers questions about hypertension (high blood pressure) commonly asked by patients undergoing kidney transplantation. Topics include a definition of blood pressure and hypertension; factors that contribute to hypertension, including obesity, eating too much salt, smoking, drinking alcohol, certain medications, psychological stress, gout, pregnancy, diabetes, heredity, and kidney disease; the complications of hypertension; the symptoms of hypertension (often there are none); and posttransplant changes in hypertension. The brochure concludes with a discussion of antihypertensive medications and other treatment options, including lifestyle changes. The brochure emphasizes that hypertension can cause the loss of a transplanted kidney, just as it can cause damage and loss of native kidneys. The brochure includes the address and telephone number of the North American Transplant Coordinators Organization.

- **Kidney Stone Diet: Uric Acid Stones**

Source: Camp Hill, PA: Chek-Med Systems, Inc. 199x. [4 p.].

Contact: Available from Chek-Med Systems, Inc. 200 Grandview Avenue, Camp Hill, PA 17011-1706. (800) 451-5797 or (717) 761-0216. Fax (717) 761-0216. Price: \$0.75 each; plus shipping and handling; bulk copies available. Booklets must be ordered in quantities of 10. Order number: D28.

Summary: About 5 percent of all kidney stones are uric acid or urate kidney stones. Certain diseases, such as gout, can lead to the formation of uric acid kidney stones. Normally, urine is slightly acid. The most important factor leading to the formation of uric acid stones is the production of urine that is too acid. This booklet outlines the recommended diet for people who have been treated for uric acid stones and want to prevent recurrence of the problem. Treatment to prevent uric acid stones is usually with medication which is used to raise the pH of urine (make it less acidic) and prevent stone formation. Dietary changes may help the medication raise and maintain the alkaline level of urine. The booklet outlines five strategies that include increasing fluid intake, incorporating alkaline-ash foods in the diet, monitoring protein intake (not exceeding the RDA for protein and sometimes limiting foods high in purines), avoiding certain medications (such as aspirin), and limiting the use of alcohol (which increases uric acid production). One chart lists foods with high, moderate, and low content of purine. Another chart lists foods that produce acid ash or alkaline ash, and foods that are neutral; foods are listed in categories of meats, fats, milk, starches, vegetables, fruits, sweets, and beverages. A final chart offers a sample menu for patients with uric acid stone formation tendencies. 3 tables.

- **Food and drug interactions**

Source: Washington, DC: National Consumers League. n.d. 1 p.

Contact: Available from National Consumers League, 815 15th Street, N.W., Suite 928-N, Washington, DC 20005. Telephone: (202) 639-8140. Available at no charge for members, \$1.00 nonmembers; Spanish editions and bulk rates available.

Summary: This brochure is designed to help persons decide if their diet should be changed to adjust to the effects of a particular medicine. It covers the interactions that occur between food and commonly used medications, both prescription and over the counter. The medications are categorized by conditions and symptoms for which they are taken, such as allergies, infections, intestinal problems, pain, and gout. The brochure is for educated consumers and is available in Spanish. The American Pharmaceutical Association, Food and Drug Administration, Food Marketing Institute, and National Consumers League participated in its development.

- **Improving your health: Tips for African American men and women**

Source: Weight-control Information Network (WIN).

Contact: WIN, 1 WIN WAY, Bethesda, MD 20892-3665. 1-800-984-.

Summary: Overweight and obesity have become a growing problem for African Americans in the United States. Being overweight can lead to high blood pressure, heart disease, stroke, diabetes, certain types of cancer, gout, gallbladder disease, sleep apnea and osteoarthritis. This brochure presents steps African American adults can take to change eating and exercise habits for healthier living. The brochure also includes a substitution list that provides lowfat, healthier alternatives to traditional African American foods.

- **Living With Arthritis: Home Health Wellness Maps**

Source: San Bruno, CA: StayWell Company. 199x. 12 p.

Contact: Available from StayWell Company. 1100 Grundy Lane, San Bruno, CA 94066-3030. (800) 333-3032. Website: www.staywell.com.

Price: Call or write for current pricing on single and bulk orders.

Summary: This brochure provides people who have arthritis with information on this joint condition. Arthritis results in joint inflammation and pain, swelling, stiffness, and limited mobility. The most common types of arthritis are osteoarthritis and rheumatoid arthritis. Other types include juvenile rheumatoid arthritis, seronegative arthritis, ankylosing spondylitis, and gouty arthritis. A healthy lifestyle that includes

exercising, using relaxation techniques, and maintaining a balanced diet will help people with arthritis improve their quality of life. Various physical therapy modalities, such as hot and cold packs, ultrasound, massage, hydrotherapy, wax dips, and splints may also help relieve symptoms. Medical treatments for arthritis include taking nonsteroidal anti-inflammatory drugs, injecting cortisone or gold salts, taking gold salt capsules, and undergoing surgery. The brochure notes myths about arthritis and offers suggestions on making changes in each room of the house so that the activities of daily living will be easier.

The NLM Gateway²⁹

The NLM (National Library of Medicine) Gateway is a Web-based system that lets users search simultaneously in multiple retrieval systems at the U.S. National Library of Medicine (NLM). It allows users of NLM services to initiate searches from one Web interface, providing “one-stop searching” for many of NLM's information resources or databases.³⁰ One target audience for the Gateway is the Internet user who is new to NLM's online resources and does not know what information is available or how best to search for it. This audience may include physicians and other healthcare providers, researchers, librarians, students, and, increasingly, patients, their families, and the public.³¹ To use the NLM Gateway, simply go to the search site at <http://gateway.nlm.nih.gov/gw/Cmd>. Type “gout” (or synonyms) into the search box and click “Search.” The results will be presented in a tabular form, indicating the number of references in each database category.

²⁹ Adapted from NLM: <http://gateway.nlm.nih.gov/gw/Cmd?Overview.x>.

³⁰ The NLM Gateway is currently being developed by the Lister Hill National Center for Biomedical Communications (LHNCBC) at the National Library of Medicine (NLM) of the National Institutes of Health (NIH).

³¹ Other users may find the Gateway useful for an overall search of NLM's information resources. Some searchers may locate what they need immediately, while others will utilize the Gateway as an adjunct tool to other NLM search services such as PubMed® and MEDLINEplus®. The Gateway connects users with multiple NLM retrieval systems while also providing a search interface for its own collections. These collections include various types of information that do not logically belong in PubMed, LOCATORplus, or other established NLM retrieval systems (e.g., meeting announcements and pre-1966 journal citations). The Gateway will provide access to the information found in an increasing number of NLM retrieval systems in several phases.

Results Summary

Category	Items Found
Journal Articles	7659
Books / Periodicals / Audio Visual	603
Consumer Health	141
Meeting Abstracts	2
Other Collections	0
Total	8405

HSTAT³²

HSTAT is a free, Web-based resource that provides access to full-text documents used in healthcare decision-making.³³ HSTAT's audience includes healthcare providers, health service researchers, policy makers, insurance companies, consumers, and the information professionals who serve these groups. HSTAT provides access to a wide variety of publications, including clinical practice guidelines, quick-reference guides for clinicians, consumer health brochures, evidence reports and technology assessments from the Agency for Healthcare Research and Quality (AHRQ), as well as AHRQ's Put Prevention Into Practice.³⁴ Simply search by "gout" (or synonyms) at the following Web site: <http://text.nlm.nih.gov>.

Coffee Break: Tutorials for Biologists³⁵

Some patients may wish to have access to a general healthcare site that takes a scientific view of the news and covers recent breakthroughs in biology that may one day assist physicians in developing treatments. To this end, we

³² Adapted from HSTAT: <http://www.nlm.nih.gov/pubs/factsheets/hstat.html>.

³³ The HSTAT URL is <http://hstat.nlm.nih.gov/>.

³⁴ Other important documents in HSTAT include: the National Institutes of Health (NIH) Consensus Conference Reports and Technology Assessment Reports; the HIV/AIDS Treatment Information Service (ATIS) resource documents; the Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Treatment (SAMHSA/CSAT) Treatment Improvement Protocols (TIP) and Center for Substance Abuse Prevention (SAMHSA/CSAP) Prevention Enhancement Protocols System (PEPS); the Public Health Service (PHS) Preventive Services Task Force's *Guide to Clinical Preventive Services*; the independent, nonfederal Task Force on Community Services *Guide to Community Preventive Services*; and the Health Technology Advisory Committee (HTAC) of the Minnesota Health Care Commission (MHCC) health technology evaluations.

³⁵ Adapted from <http://www.ncbi.nlm.nih.gov/Coffeebreak/Archive/FAQ.html>.

recommend “Coffee Break,” a collection of short reports on recent biological discoveries. Each report incorporates interactive tutorials that demonstrate how bioinformatics tools are used as a part of the research process. Currently, all Coffee Breaks are written by NCBI staff.³⁶ Each report is about 400 words and is usually based on a discovery reported in one or more articles from recently published, peer-reviewed literature.³⁷ This site has new articles every few weeks, so it can be considered an online magazine of sorts, and intended for general background information. You can access the Coffee Break Web site at <http://www.ncbi.nlm.nih.gov/Coffeebreak/>.

Other Commercial Databases

In addition to resources maintained by official agencies, other databases exist that are commercial ventures addressing medical professionals. Here are a few examples that may interest you:

- **CliniWeb International:** Index and table of contents to selected clinical information on the Internet; see <http://www.ohsu.edu/clinweb/>.
- **Image Engine:** Multimedia electronic medical record system that integrates a wide range of digitized clinical images with textual data stored in the University of Pittsburgh Medical Center's MARS electronic medical record system; see the following Web site: <http://www.cml.upmc.edu/cml/imageengine/imageEngine.html>.
- **Medical World Search:** Searches full text from thousands of selected medical sites on the Internet; see <http://www.mwsearch.com/>.
- **MedWeaver:** Prototype system that allows users to search differential diagnoses for any list of signs and symptoms, to search medical literature, and to explore relevant Web sites; see <http://www.med.virginia.edu/~wmd4n/medweaver.html>.
- **Metaphrase:** Middleware component intended for use by both caregivers and medical records personnel. It converts the informal language generally used by caregivers into terms from formal, controlled vocabularies; see <http://www.lexical.com/Metaphrase.html>.

³⁶ The figure that accompanies each article is frequently supplied by an expert external to NCBI, in which case the source of the figure is cited. The result is an interactive tutorial that tells a biological story.

³⁷ After a brief introduction that sets the work described into a broader context, the report focuses on how a molecular understanding can provide explanations of observed biology and lead to therapies for diseases. Each vignette is accompanied by a figure and hypertext links that lead to a series of pages that interactively show how NCBI tools and resources are used in the research process.

The Genome Project and Gout

With all the discussion in the press about the Human Genome Project, it is only natural that physicians, researchers, and patients want to know about how human genes relate to gout. In the following section, we will discuss databases and references used by physicians and scientists who work in this area.

Online Mendelian Inheritance in Man (OMIM)

The Online Mendelian Inheritance in Man (OMIM) database is a catalog of human genes and genetic disorders authored and edited by Dr. Victor A. McKusick and his colleagues at Johns Hopkins and elsewhere. OMIM was developed for the World Wide Web by the National Center for Biotechnology Information (NCBI).³⁸ The database contains textual information, pictures, and reference information. It also contains copious links to NCBI's Entrez database of MEDLINE articles and sequence information.

Go to <http://www.ncbi.nlm.nih.gov/Omim/searchomim.html> to search the database. Type "gout" (or synonyms) in the search box, and click "Submit Search." If too many results appear, you can narrow the search by adding the word "clinical." Each report will have additional links to related research and databases. By following these links, especially the link titled "Database Links," you will be exposed to numerous specialized databases that are largely used by the scientific community. These databases are overly technical and seldom used by the general public, but offer an abundance of information. The following is an example of the results you can obtain from the OMIM for gout:

- **Gout**
Web site: <http://www.ncbi.nlm.nih.gov/htbin-post/Omim/dispim?138900>
- **Gout, Hprt-related**
Web site: <http://www.ncbi.nlm.nih.gov/htbin-post/Omim/dispim?300323>

³⁸ Adapted from <http://www.ncbi.nlm.nih.gov/>. Established in 1988 as a national resource for molecular biology information, NCBI creates public databases, conducts research in computational biology, develops software tools for analyzing genome data, and disseminates biomedical information--all for the better understanding of molecular processes affecting human health and disease.

- **Nephropathy, Familial, with Gout**
Web site: <http://www.ncbi.nlm.nih.gov/htbin-post/Omim/dispim?162000>

Genes and Disease (NCBI - Map)

The Genes and Disease database is produced by the National Center for Biotechnology Information of the National Library of Medicine at the National Institutes of Health. Go to <http://www.ncbi.nlm.nih.gov/disease/>, and browse the system pages to have a full view of important conditions linked to human genes. Since this site is regularly updated, you may wish to re-visit it from time to time. The following systems and associated disorders are addressed:

- **Muscle and Bone:** Movement and growth.
Examples: Duchenne muscular dystrophy, Ellis-van Creveld syndrome, Marfan syndrome, myotonic dystrophy, spinal muscular atrophy.
Web site: <http://www.ncbi.nlm.nih.gov/disease/Muscle.html>
- **Nervous System:** Mind and body.
Examples: Alzheimer disease, Amyotrophic lateral sclerosis, Angelman syndrome, Charcot-Marie-Tooth disease, epilepsy, essential tremor, Fragile X syndrome, Friedreich's ataxia, Huntington disease, Niemann-Pick disease, Parkinson disease, Prader-Willi syndrome, Rett syndrome, Spinocerebellar atrophy, Williams syndrome.
Web site: <http://www.ncbi.nlm.nih.gov/disease/Brain.html>
- **Signals:** Cellular messages.
Examples: Ataxia telangiectasia, Baldness, Cockayne syndrome, Glaucoma, SRY: sex determination, Tuberous sclerosis, Waardenburg syndrome, Werner syndrome.
Web site: <http://www.ncbi.nlm.nih.gov/disease/Signals.html>

Entrez

Entrez is a search and retrieval system that integrates several linked databases at the National Center for Biotechnology Information (NCBI). These databases include nucleotide sequences, protein sequences, macromolecular structures, whole genomes, and MEDLINE through PubMed. Entrez provides access to the following databases:

- **PubMed:** Biomedical literature (PubMed),
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=PubMed>

- **Nucleotide Sequence Database (Genbank):**
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Nucleotide>
- **Protein Sequence Database:**
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Protein>
- **Structure:** Three-dimensional macromolecular structures,
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Structure>
- **Genome:** Complete genome assemblies,
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Genome>
- **PopSet:** Population study data sets,
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Popset>
- **OMIM:** Online Mendelian Inheritance in Man,
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=OMIM>
- **Taxonomy:** Organisms in GenBank,
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Taxonomy>
- **Books:** Online books,
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=books>
- **ProbeSet:** Gene Expression Omnibus (GEO),
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=geo>
- **3D Domains:** Domains from Entrez Structure,
Web site: <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=geo>
- **NCBI's Protein Sequence Information Survey Results:**
Web site: <http://www.ncbi.nlm.nih.gov/About/proteinsurvey/>

To access the Entrez system at the National Center for Biotechnology Information, go to <http://www.ncbi.nlm.nih.gov/entrez>, and then select the database that you would like to search. The databases available are listed in the drop box next to "Search." In the box next to "for," enter "gout" (or synonyms) and click "Go."

Jablonski's Multiple Congenital Anomaly/Mental Retardation (MCA/MR) Syndromes Database³⁹

This online resource can be quite useful. It has been developed to facilitate the identification and differentiation of syndromic entities. Special attention is given to the type of information that is usually limited or completely omitted in existing reference sources due to space limitations of the printed form.

At http://www.nlm.nih.gov/mesh/jablonski/syndrome_toc/toc_a.html you can also search across syndromes using an alphabetical index. You can also search at http://www.nlm.nih.gov/mesh/jablonski/syndrome_db.html.

The Genome Database⁴⁰

Established at Johns Hopkins University in Baltimore, Maryland in 1990, the Genome Database (GDB) is the official central repository for genomic mapping data resulting from the Human Genome Initiative. In the spring of 1999, the Bioinformatics Supercomputing Centre (BiSC) at the Hospital for Sick Children in Toronto, Ontario assumed the management of GDB. The Human Genome Initiative is a worldwide research effort focusing on structural analysis of human DNA to determine the location and sequence of the estimated 100,000 human genes. In support of this project, GDB stores and curates data generated by researchers worldwide who are engaged in the mapping effort of the Human Genome Project (HGP). GDB's mission is to provide scientists with an encyclopedia of the human genome which is continually revised and updated to reflect the current state of scientific knowledge. Although GDB has historically focused on gene mapping, its focus will broaden as the Genome Project moves from mapping to sequence, and finally, to functional analysis.

To access the GDB, simply go to the following hyperlink: <http://www.gdb.org/>. Search "All Biological Data" by "Keyword." Type "gout" (or synonyms) into the search box, and review the results. If more than one word is used in the search box, then separate each one with the word "and" or "or" (using "or" might be useful when using synonyms). This database is extremely technical as it was created for specialists. The articles are the results which are the most accessible to non-professionals and often

³⁹ Adapted from the National Library of Medicine:
http://www.nlm.nih.gov/mesh/jablonski/about_syndrome.html.

⁴⁰ Adapted from the Genome Database:
<http://gdbwww.gdb.org/gdb/aboutGDB.html#mission>.

listed under the heading "Citations." The contact names are also accessible to non-professionals.

Specialized References

The following books are specialized references written for professionals interested in gout (sorted alphabetically by title, hyperlinks provide rankings, information, and reviews at Amazon.com):

- **Atlas of Rheumatology** by Gene G. Hunder (Editor); Hardcover, 2nd edition (June 2001), Current Medicine; ISBN: 1573401714;
<http://www.amazon.com/exec/obidos/ASIN/1573401714/icongroupinterna>
- **Clinical Problems in Rheumatology** by Dudley; Paperback, 3rd edition (May 2001), Dunitz Martin Ltd; ISBN: 1853175722;
<http://www.amazon.com/exec/obidos/ASIN/1853175722/icongroupinterna>
- **Diagnosis and Treatment of Movement Impairment Syndromes** by Shirley Sahrman; Hardcover - 384 pages, 1st edition (September 4, 2001), Mosby, Inc.; ISBN: 0801672058;
<http://www.amazon.com/exec/obidos/ASIN/0801672058/icongroupinterna>
- **Diagnosis of Bone and Joint Disorders (5-Volume Set)** by Donald Resnick; Hardcover - 5472 pages, 4th edition (March 8, 2002); W B Saunders Co.; ISBN: 0721689213;
<http://www.amazon.com/exec/obidos/ASIN/0721689213/icongroupinterna>
- **Kelley's Textbook of Rheumatology (2-Volume Set)** by Shaun Ruddy (Editor), et al; Hardcover - 1788 pages, 6th edition (January 15, 2001), W B Saunders Co.; ISBN: 0721680089;
<http://www.amazon.com/exec/obidos/ASIN/0721680089/icongroupinterna>
- **Kelley's Textbook of Rheumatology CD-ROM** by Shaun Ruddy (Editor), et al; 6th edition (July 15, 2001), W B Saunders Co.; ISBN: 0721690327;
<http://www.amazon.com/exec/obidos/ASIN/0721690327/icongroupinterna>
- **Mechanical Loading of Bones and Joints** by Hideaki Takahashi (Editor); Hardcover - 324 pages, 1st edition (July 15, 1999), Springer Verlag; ISBN: 4431702423;
<http://www.amazon.com/exec/obidos/ASIN/4431702423/icongroupinterna>
- **Modern Therapeutics in Rheumatic Diseases** by George C. Tsokos (Editor), Steffen Gay (Editor); Hardcover - 655 pages, 1st edition (January 15, 2002), Humana Press; ISBN: 0896039161;
<http://www.amazon.com/exec/obidos/ASIN/0896039161/icongroupinterna>
- **Oxford Handbook of Rheumatology** by Alan Hakim (Editor), Gavin Clunie (Editor); Paperback, 1st edition (March 15, 2002); Oxford University

Press; ISBN: 0192630547;

<http://www.amazon.com/exec/obidos/ASIN/0192630547/icongroupinterna>

- **Pathology and Pathobiology of Rheumatic Diseases** by H. G. Fassbender; Hardcover (September 2001), Springer Verlag; ISBN: 3540629424; <http://www.amazon.com/exec/obidos/ASIN/3540629424/icongroupinterna>
- **Rehabilitation Techniques in Rheumatology** by Clarke; Hardcover, 2nd edition (March 15, 2001), Dunitz Martin Ltd.; ISBN: 1853171204; <http://www.amazon.com/exec/obidos/ASIN/1853171204/icongroupinterna>
- **Rheumatology Secrets** by Sterling G. West, M.D.; Paperback, 2nd edition (February 15, 2002), Lippincott, Williams & Wilkins Publishers; ISBN: 1560534745; <http://www.amazon.com/exec/obidos/ASIN/1560534745/icongroupinterna>
- **Treatment of the Rheumatic Diseases: Companion to Kelley's Textbook of Rheumatology** by Michael H. Weisman, et al; Hardcover - 563 pages, 2nd edition (January 15, 2001), W B Saunders Co.; ISBN: 0721684645; <http://www.amazon.com/exec/obidos/ASIN/0721684645/icongroupinterna>

Vocabulary Builder

Abdomen: That portion of the body that lies between the thorax and the pelvis. [NIH]

Acetaminophen: Analgesic antipyretic derivative of acetanilide. It has weak anti-inflammatory properties and is used as a common analgesic, but may cause liver, blood cell, and kidney damage. [NIH]

Antihypertensive: An agent that reduces high blood pressure. [EU]

Apnea: A transient absence of spontaneous respiration. [NIH]

Capsules: Hard or soft soluble containers used for the oral administration of medicine. [NIH]

Heredity: 1. the genetic transmission of a particular quality or trait from parent to offspring. 2. the genetic constitution of an individual. [EU]

Lithotripsy: The destruction of a calculus of the kidney, ureter, bladder, or gallbladder by physical forces, including crushing with a lithotripter through a catheter. Focused percutaneous ultrasound and focused hydraulic shock waves may be used without surgery. Lithotripsy does not include the dissolving of stones by acids or litholysis. Lithotripsy by laser is lithotripsy, laser. [NIH]

Ointments: Semisolid preparations used topically for protective emollient

effects or as a vehicle for local administration of medications. Ointment bases are various mixtures of fats, waxes, animal and plant oils and solid and liquid hydrocarbons. [NIH]

Percutaneous: Performed through the skin, as injection of radiopaque material in radiological examination, or the removal of tissue for biopsy accomplished by a needle. [EU]

PART III. APPENDICES

ABOUT PART III

Part III is a collection of appendices on general medical topics which may be of interest to patients with gout and related conditions.

APPENDIX A. RESEARCHING YOUR MEDICATIONS

Overview

There are a number of sources available on new or existing medications which could be prescribed to patients with gout. While a number of hard copy or CD-Rom resources are available to patients and physicians for research purposes, a more flexible method is to use Internet-based databases. In this chapter, we will begin with a general overview of medications. We will then proceed to outline official recommendations on how you should view your medications. You may also want to research medications that you are currently taking for other conditions as they may interact with medications for gout. Research can give you information on the side effects, interactions, and limitations of prescription drugs used in the treatment of gout. Broadly speaking, there are two sources of information on approved medications: public sources and private sources. We will emphasize free-to-use public sources.

Your Medications: The Basics⁴¹

The Agency for Health Care Research and Quality has published extremely useful guidelines on how you can best participate in the medication aspects of gout. Taking medicines is not always as simple as swallowing a pill. It can involve many steps and decisions each day. The AHCRQ recommends that patients with gout take part in treatment decisions. Do not be afraid to ask questions and talk about your concerns. By taking a moment to ask questions early, you may avoid problems later. Here are some points to cover each time a new medicine is prescribed:

- Ask about all parts of your treatment, including diet changes, exercise, and medicines.
- Ask about the risks and benefits of each medicine or other treatment you might receive.
- Ask how often you or your doctor will check for side effects from a given medication.

Do not hesitate to ask what is important to you about your medicines. You may want a medicine with the fewest side effects, or the fewest doses to take each day. You may care most about cost, or how the medicine might affect how you live or work. Or, you may want the medicine your doctor believes will work the best. Telling your doctor will help him or her select the best treatment for you.

Do not be afraid to “bother” your doctor with your concerns and questions about medications for gout. You can also talk to a nurse or a pharmacist. They can help you better understand your treatment plan. Feel free to bring a friend or family member with you when you visit your doctor. Talking over your options with someone you trust can help you make better choices, especially if you are not feeling well. Specifically, ask your doctor the following:

- The name of the medicine and what it is supposed to do.
- How and when to take the medicine, how much to take, and for how long.
- What food, drinks, other medicines, or activities you should avoid while taking the medicine.
- What side effects the medicine may have, and what to do if they occur.
- If you can get a refill, and how often.

⁴¹ This section is adapted from AHCRQ: <http://www.ahcpr.gov/consumer/ncpiebro.htm>.

- About any terms or directions you do not understand.
- What to do if you miss a dose.
- If there is written information you can take home (most pharmacies have information sheets on your prescription medicines; some even offer large-print or Spanish versions).

Do not forget to tell your doctor about all the medicines you are currently taking (not just those for gout). This includes prescription medicines and the medicines that you buy over the counter. Then your doctor can avoid giving you a new medicine that may not work well with the medications you take now. When talking to your doctor, you may wish to prepare a list of medicines you currently take, the reason you take them, and how you take them. Be sure to include the following information for each:

- Name of medicine
- Reason taken
- Dosage
- Time(s) of day

Also include any over-the-counter medicines, such as:

- Laxatives
- Diet pills
- Vitamins
- Cold medicine
- Aspirin or other pain, headache, or fever medicine
- Cough medicine
- Allergy relief medicine
- Antacids
- Sleeping pills
- Others (include names)

Learning More about Your Medications

Because of historical investments by various organizations and the emergence of the Internet, it has become rather simple to learn about the medications your doctor has recommended for gout. One such source is the

United States Pharmacopeia. In 1820, eleven physicians met in Washington, D.C. to establish the first compendium of standard drugs for the United States. They called this compendium the “U.S. Pharmacopeia (USP).” Today, the USP is a non-profit organization consisting of 800 volunteer scientists, eleven elected officials, and 400 representatives of state associations and colleges of medicine and pharmacy. The USP is located in Rockville, Maryland, and its home page is located at www.usp.org. The USP currently provides standards for over 3,700 medications. The resulting USP DI® Advice for the Patient® can be accessed through the National Library of Medicine of the National Institutes of Health. The database is partially derived from lists of federally approved medications in the Food and Drug Administration's (FDA) Drug Approvals database.⁴²

While the FDA database is rather large and difficult to navigate, the Pharmacopeia is both user-friendly and free to use. It covers more than 9,000 prescription and over-the-counter medications. To access this database, simply type the following hyperlink into your Web browser: <http://www.nlm.nih.gov/medlineplus/druginformation.html>. To view examples of a given medication (brand names, category, description, preparation, proper use, precautions, side effects, etc.), simply follow the hyperlinks indicated within the United States Pharmacopoeia. It is important to read the disclaimer by the United States Pharmacopoeia (<http://www.nlm.nih.gov/medlineplus/drugdisclaimer.html>) before using the information provided.

Of course, we as editors cannot be certain as to what medications you are taking. Therefore, we have compiled a list of medications associated with the treatment of gout. Once again, due to space limitations, we only list a sample of medications and provide hyperlinks to ample documentation (e.g. typical dosage, side effects, drug-interaction risks, etc.). The following drugs have been mentioned in the Pharmacopeia and other sources as being potentially applicable to gout:

Allopurinol

- **Systemic - U.S. Brands:** Aloprim; Zyloprim
<http://www.nlm.nih.gov/medlineplus/druginfo/allopurinolsystemic202021.html>

⁴² Though cumbersome, the FDA database can be freely browsed at the following site: www.fda.gov/cder/da/da.htm.

Anti-Inflammatory Drugs, Nonsteroidal

- **Systemic - U.S. Brands:** Actron; Advil; Advil Caplets; Advil, Children's; Aleve; Anaprox; Anaprox DS; Ansaid; Bayer Select Ibuprofen Pain Relief Formula Caplets; Cataflam; Clinoril; Cotylbutazone; Cramp End; Daypro; Dolgesic; Dolobid; EC-Naprosyn; Excedrin IB; Excedrin IB Caple
<http://www.nlm.nih.gov/medlineplus/druginfo/antiinflammatorydrugsnonsteroid202743.html>

Caffeine

- **Systemic - U.S. Brands:** Cafcit; Caffeine Caplets; Dexitac Stay Alert Stimulant; Enerjets; Keep Alert; Maximum Strength SnapBack Stimulant Powders; NoDoz Maximum Strength Caplets; Pep-Back; Quick Pep; Ultra Pep-Back; Vivarin
<http://www.nlm.nih.gov/medlineplus/druginfo/caffeinesystemic202105.html>

Citrates

- **Systemic - U.S. Brands:** Bicitra; Citrolith; Oracit; Polycitra Syrup; Polycitra-K; Polycitra-K Crystals; Polycitra-LC; Urocit-K
<http://www.nlm.nih.gov/medlineplus/druginfo/citratessystemic202144.html>

Colchicine

- **Systemic - U.S. Brands:**
<http://www.nlm.nih.gov/medlineplus/druginfo/colchicinesystemic202105.html>

Corticosteroids

- **Dental - U.S. Brands:** Kenalog in Orabase; Orabase-HCA; Oracort; Oralone
<http://www.nlm.nih.gov/medlineplus/druginfo/corticosteroidsdental202010.html>
- **Inhalation - U.S. Brands:** AeroBid; AeroBid-M; Azmacort; Beclovent; Decadron Respihaler; Pulmicort Respules; Pulmicort Turbuhaler; Vanceril; Vanceril 84 mcg Double Strength
<http://www.nlm.nih.gov/medlineplus/druginfo/corticosteroidsinhalation202011.html>

- **Nasal - U.S. Brands:** Beconase; Beconase AQ; Dexacort Turbinaire; Flonase; Nasacort; Nasacort AQ; Nasalide; Nasarel; Nasonex; Rhinocort; Vancenase; Vancenase AQ 84 mcg; Vancenase pockethaler
<http://www.nlm.nih.gov/medlineplus/druginfo/corticosteroidsnasal202012.html>
- **Ophthalmic - U.S. Brands:** AK-Dex; AK-Pred; AK-Tate; Baldex; Decadron; Dexair; Dextotic; Econopred; Econopred Plus; Eflone; Flarex; Fluor-Op; FML Forte; FML Liquifilm; FML S.O.P.; HMS Liquifilm; Inflamase Forte; Inflamase Mild; I-Pred; Lite Pred; Maxidex; Ocu-Dex; Ocu-Pred; Ocu-Pr
<http://www.nlm.nih.gov/medlineplus/druginfo/corticosteroidsophthalmic202013.html>
- **Otic - U.S. Brands:** Decadron
<http://www.nlm.nih.gov/medlineplus/druginfo/corticosteroidsoptic202014.html>
- **Rectal - U.S. Brands:** Anucort-HC; Anu-Med HC; Anuprep HC; Anusol-HC; Anutone-HC; Anuzone-HC; Cort-Dome; Cortenema; Cortifoam; Hemorrhoidal HC; Hemril-HC Uniserts; Proctocort; Proctosol-HC; Rectosol-HC
<http://www.nlm.nih.gov/medlineplus/druginfo/corticosteroidsrectal203366.html>

Epinephrine

- **Ophthalmic - U.S. Brands:** Epifrin; Epinal; Eppy/N; Glaucon
<http://www.nlm.nih.gov/medlineplus/druginfo/epinephrineophthalmic202213.html>

Ethambutol

- **Systemic - U.S. Brands:** Myambutol
<http://www.nlm.nih.gov/medlineplus/druginfo/ethambutolsystemic202229.html>

Probenecid

- **Systemic - U.S. Brands:** Benemid; Probalan
<http://www.nlm.nih.gov/medlineplus/druginfo/probenecidsystemic202480.html>

Probenecid and Colchicine

- **Systemic - U.S. Brands:** ColBenemid; Col-Probenecid; Proben-C
<http://www.nlm.nih.gov/medlineplus/druginfo/probenecidandcolchicinesystemi202481.html>

Pyrazinamide

- **Systemic - U.S. Brands:**
<http://www.nlm.nih.gov/medlineplus/druginfo/probenecidsystemic202480.html>

Sulfinpyrazone

- **Systemic - U.S. Brands:** Anturane
<http://www.nlm.nih.gov/medlineplus/druginfo/sulfinpyrazonesystemic202538.html>

Commercial Databases

In addition to the medications listed in the USP above, a number of commercial sites are available by subscription to physicians and their institutions. You may be able to access these sources from your local medical library or your doctor's office.

Reuters Health Drug Database

The Reuters Health Drug Database can be searched by keyword at the hyperlink: <http://www.reutershealth.com/frame2/drug.html>. The following medications are listed in the Reuters' database as associated with gout (including those with contraindications):⁴³

- **Allopurinol**
<http://www.reutershealth.com/atoz/html/Allopurinol.htm>
- **Bismuth Subsalicylate**
http://www.reutershealth.com/atoz/html/Bismuth_Subsalicylate.htm
- **Bumetanide**
<http://www.reutershealth.com/atoz/html/Bumetanide.htm>
- **Colchicine**
<http://www.reutershealth.com/atoz/html/Colchicine.htm>

⁴³ Adapted from *A to Z Drug Facts* by Facts and Comparisons.

- **Dexamethasone**
<http://www.reutershealth.com/atoz/html/Dexamethasone.htm>
- **Diazoxide Oral**
http://www.reutershealth.com/atoz/html/Diazoxide_Oral.htm
- **Diclofenac**
<http://www.reutershealth.com/atoz/html/Diclofenac.htm>
- **Doxazosin Mesylate**
http://www.reutershealth.com/atoz/html/Doxazosin_Mesylate.htm
- **Enalapril Maleate Hydrochlorothiazide**
http://www.reutershealth.com/atoz/html/Enalapril_Maleate_Hydrochlorothiazide.htm
- **Ethacrynic Acid**
http://www.reutershealth.com/atoz/html/Ethacrynic_Acid.htm
- **Ethacrynic Acid (Ethacrynate)**
[http://www.reutershealth.com/atoz/html/Ethacrynic_Acid_\(Ethacrynate\).htm](http://www.reutershealth.com/atoz/html/Ethacrynic_Acid_(Ethacrynate).htm)
- **Flurbiprofen**
<http://www.reutershealth.com/atoz/html/Flurbiprofen.htm>
- **Goserelin Acetate**
http://www.reutershealth.com/atoz/html/Goserelin_Acetate.htm
- **Hydrocortisone (Cortisol)**
[http://www.reutershealth.com/atoz/html/Hydrocortisone_\(Cortisol\).htm](http://www.reutershealth.com/atoz/html/Hydrocortisone_(Cortisol).htm)
- **Indapamide**
<http://www.reutershealth.com/atoz/html/Indapamide.htm>
- **Methenamine and Methenamine Salts**
http://www.reutershealth.com/atoz/html/Methenamine_and_Methenamine_Salts.htm
- **Methenamine Hippurate**
http://www.reutershealth.com/atoz/html/Methenamine_Hippurate.htm
- **Methylprednisolone**
<http://www.reutershealth.com/atoz/html/Methylprednisolone.htm>
- **Metolazone**
<http://www.reutershealth.com/atoz/html/Metolazone.htm>
- **Naproxen**
<http://www.reutershealth.com/atoz/html/Naproxen.htm>

- **Niacin**
<http://www.reutershealth.com/atoz/html/Niacin.htm>
- **Nizatidine**
<http://www.reutershealth.com/atoz/html/Nizatidine.htm>
- **Prednisolone**
<http://www.reutershealth.com/atoz/html/Prednisolone.htm>
- **Probenecid**
<http://www.reutershealth.com/atoz/html/Probenecid.htm>
- **Pyrazinamide**
<http://www.reutershealth.com/atoz/html/Pyrazinamide.htm>
- **Sildenafil**
<http://www.reutershealth.com/atoz/html/Sildenafil.htm>
- **Sulfinpyrazone**
<http://www.reutershealth.com/atoz/html/Sulfinpyrazone.htm>
- **Sulindac**
<http://www.reutershealth.com/atoz/html/Sulindac.htm>
- **Torsemide**
<http://www.reutershealth.com/atoz/html/Torsemide.htm>
- **Triamcinolone**
<http://www.reutershealth.com/atoz/html/Triamcinolone.htm>

Mosby's GenRx

Mosby's GenRx database (also available on CD-Rom and book format) covers 45,000 drug products including generics and international brands. It provides prescribing information, drug interactions, and patient information. Information in Mosby's GenRx database can be obtained at the following hyperlink: <http://www.genrx.com/Mosby/PhyGenRx/group.html>.

Physicians Desk Reference

The Physicians Desk Reference database (also available in CD-Rom and book format) is a full-text drug database. The database is searchable by brand name, generic name or by indication. It features multiple drug interactions reports. Information can be obtained at the following hyperlink: http://physician.pdr.net/physician/templates/en/acl/psuser_t.htm.

Other Web Sites

A number of additional Web sites discuss drug information. As an example, you may like to look at **www.drugs.com** which reproduces the information in the Pharmacopeia as well as commercial information. You may also want to consider the Web site of the Medical Letter, Inc. which allows users to download articles on various drugs and therapeutics for a nominal fee: <http://www.medletter.com/>.

Contraindications and Interactions (Hidden Dangers)

Some of the medications mentioned in the previous discussions can be problematic for patients with gout--not because they are used in the treatment process, but because of contraindications, or side effects. Medications with contraindications are those that could react with drugs used to treat gout or potentially create deleterious side effects in patients with gout. You should ask your physician about any contraindications, especially as these might apply to other medications that you may be taking for common ailments.

Drug-drug interactions occur when two or more drugs react with each other. This drug-drug interaction may cause you to experience an unexpected side effect. Drug interactions may make your medications less effective, cause unexpected side effects, or increase the action of a particular drug. Some drug interactions can even be harmful to you.

Be sure to read the label every time you use a nonprescription or prescription drug, and take the time to learn about drug interactions. These precautions may be critical to your health. You can reduce the risk of potentially harmful drug interactions and side effects with a little bit of knowledge and common sense.

Drug labels contain important information about ingredients, uses, warnings, and directions which you should take the time to read and understand. Labels also include warnings about possible drug interactions. Further, drug labels may change as new information becomes available. This is why it's especially important to read the label every time you use a medication. When your doctor prescribes a new drug, discuss all over-the-counter and prescription medications, dietary supplements, vitamins, botanicals, minerals and herbals you take as well as the foods you eat. Ask your pharmacist for the package insert for each prescription drug you take.

The package insert provides more information about potential drug interactions.

A Final Warning

At some point, you may hear of alternative medications from friends, relatives, or in the news media. Advertisements may suggest that certain alternative drugs can produce positive results for patients with gout. Exercise caution--some of these drugs may have fraudulent claims, and others may actually hurt you. The Food and Drug Administration (FDA) is the official U.S. agency charged with discovering which medications are likely to improve the health of patients with gout. The FDA warns patients to watch out for⁴⁴:

- Secret formulas (real scientists share what they know)
- Amazing breakthroughs or miracle cures (real breakthroughs don't happen very often; when they do, real scientists do not call them amazing or miracles)
- Quick, painless, or guaranteed cures
- If it sounds too good to be true, it probably isn't true.

If you have any questions about any kind of medical treatment, the FDA may have an office near you. Look for their number in the blue pages of the phone book. You can also contact the FDA through its toll-free number, 1-888-INFO-FDA (1-888-463-6332), or on the World Wide Web at www.fda.gov.

General References

In addition to the resources provided earlier in this chapter, the following general references describe medications (sorted alphabetically by title; hyperlinks provide rankings, information and reviews at Amazon.com):

- **Complete Guide to Prescription and Nonprescription Drugs 2001 (Complete Guide to Prescription and Nonprescription Drugs, 2001)** by H. Winter Griffith, Paperback 16th edition (2001), Medical Surveillance; ISBN: 0942447417;
<http://www.amazon.com/exec/obidos/ASIN/039952634X/icongroupinterna>

⁴⁴ This section has been adapted from
<http://www.fda.gov/opacom/lowlit/medfraud.html>.

- **The Essential Guide to Prescription Drugs, 2001** by James J. Rybacki, James W. Long; Paperback - 1274 pages (2001), Harper Resource; ISBN: 0060958162;
<http://www.amazon.com/exec/obidos/ASIN/0060958162/icongroupinterna>
- **Handbook of Commonly Prescribed Drugs** by G. John Digregorio, Edward J. Barbieri; Paperback 16th edition (2001), Medical Surveillance; ISBN: 0942447417;
<http://www.amazon.com/exec/obidos/ASIN/0942447417/icongroupinterna>
- **Johns Hopkins Complete Home Encyclopedia of Drugs 2nd ed.** by Simeon Margolis (Ed.), Johns Hopkins; Hardcover - 835 pages (2000), Rebus; ISBN: 0929661583;
<http://www.amazon.com/exec/obidos/ASIN/0929661583/icongroupinterna>
- **Medical Pocket Reference: Drugs 2002** by Springhouse Paperback 1st edition (2001), Lippincott Williams & Wilkins Publishers; ISBN: 1582550964;
<http://www.amazon.com/exec/obidos/ASIN/1582550964/icongroupinterna>
- **PDR** by Medical Economics Staff, Medical Economics Staff Hardcover - 3506 pages 55th edition (2000), Medical Economics Company; ISBN: 1563633752;
<http://www.amazon.com/exec/obidos/ASIN/1563633752/icongroupinterna>
- **Pharmacy Simplified: A Glossary of Terms** by James Grogan; Paperback - 432 pages, 1st edition (2001), Delmar Publishers; ISBN: 0766828581;
<http://www.amazon.com/exec/obidos/ASIN/0766828581/icongroupinterna>
- **Physician Federal Desk Reference** by Christine B. Fraizer; Paperback 2nd edition (2001), Medicode Inc; ISBN: 1563373971;
<http://www.amazon.com/exec/obidos/ASIN/1563373971/icongroupinterna>
- **Physician's Desk Reference Supplements** Paperback - 300 pages, 53 edition (1999), ISBN: 1563632950;
<http://www.amazon.com/exec/obidos/ASIN/1563632950/icongroupinterna>

Vocabulary Builder

The following vocabulary builder gives definitions of words used in this chapter that have not been defined in previous chapters:

Bumetanide: A sulfamyl diuretic. [NIH]

Epinephrine: The active sympathomimetic hormone from the adrenal medulla in most species. It stimulates both the alpha- and beta- adrenergic

systems, causes systemic vasoconstriction and gastrointestinal relaxation, stimulates the heart, and dilates bronchi and cerebral vessels. It is used in asthma and cardiac failure and to delay absorption of local anesthetics. [NIH]

Ethacrynic Acid: A compound that inhibits symport of sodium, potassium, and chloride primarily in the ascending limb of Henle, but also in the proximal and distal tubules. This pharmacological action results in excretion of these ions, increased urinary output, and reduction in extracellular fluid. This compound has been classified as a loop or high ceiling diuretic. [NIH]

Flurbiprofen: An anti-inflammatory analgesic and antipyretic of the phenylalkanoic acid series. It has been shown to reduce bone resorption in periodontal disease by inhibiting carbonic anhydrase. [NIH]

Ibuprofen: A nonsteroidal anti-inflammatory agent with analgesic properties used in the therapy of rheumatism and arthritis. [NIH]

Indapamide: A sulfamyl diuretic with about 16x the effect of furosemide. It has also been shown to be an effective antihypertensive agent in the clinic. [NIH]

Inhalation: The drawing of air or other substances into the lungs. [EU]

Metolazone: A potent, long acting diuretic useful in chronic renal disease. It also tends to lower blood pressure and increase potassium loss. [NIH]

Nizatidine: A histamine H₂ receptor antagonist with low toxicity that inhibits gastric acid secretion. The drug is used for the treatment of duodenal ulcers. [NIH]

Ophthalmic: Pertaining to the eye. [EU]

Stimulant: 1. producing stimulation; especially producing stimulation by causing tension on muscle fibre through the nervous tissue. 2. an agent or remedy that produces stimulation. [EU]

Sulindac: A sulfinylindene derivative whose sulfinyl moiety is converted in vivo to an active anti-inflammatory analgesic that undergoes enterohepatic circulation to maintain constant blood levels without causing gastrointestinal side effects. [NIH]

APPENDIX B. RESEARCHING ALTERNATIVE MEDICINE

Overview

Complementary and alternative medicine (CAM) is one of the most contentious aspects of modern medical practice. You may have heard of these treatments on the radio or on television. Maybe you have seen articles written about these treatments in magazines, newspapers, or books. Perhaps your friends or doctor have mentioned alternatives.

In this chapter, we will begin by giving you a broad perspective on complementary and alternative therapies. Next, we will introduce you to official information sources on CAM relating to gout. Finally, at the conclusion of this chapter, we will provide a list of readings on gout from various authors. We will begin, however, with the National Center for Complementary and Alternative Medicine's (NCCAM) overview of complementary and alternative medicine.

What Is CAM?⁴⁵

Complementary and alternative medicine (CAM) covers a broad range of healing philosophies, approaches, and therapies. Generally, it is defined as those treatments and healthcare practices which are not taught in medical schools, used in hospitals, or reimbursed by medical insurance companies. Many CAM therapies are termed “holistic,” which generally means that the healthcare practitioner considers the whole person, including physical, mental, emotional, and spiritual health. Some of these therapies are also known as “preventive,” which means that the practitioner educates and

⁴⁵ Adapted from the NCCAM: <http://nccam.nih.gov/nccam/fcp/faq/index.html#what-is>.

treats the person to prevent health problems from arising, rather than treating symptoms after problems have occurred.

People use CAM treatments and therapies in a variety of ways. Therapies are used alone (often referred to as alternative), in combination with other alternative therapies, or in addition to conventional treatment (sometimes referred to as complementary). Complementary and alternative medicine, or “integrative medicine,” includes a broad range of healing philosophies, approaches, and therapies. Some approaches are consistent with physiological principles of Western medicine, while others constitute healing systems with non-Western origins. While some therapies are far outside the realm of accepted Western medical theory and practice, others are becoming established in mainstream medicine.

Complementary and alternative therapies are used in an effort to prevent illness, reduce stress, prevent or reduce side effects and symptoms, or control or cure disease. Some commonly used methods of complementary or alternative therapy include mind/body control interventions such as visualization and relaxation, manual healing including acupressure and massage, homeopathy, vitamins or herbal products, and acupuncture.

What Are the Domains of Alternative Medicine?⁴⁶

The list of CAM practices changes continually. The reason being is that these new practices and therapies are often proved to be safe and effective, and therefore become generally accepted as “mainstream” healthcare practices. Today, CAM practices may be grouped within five major domains: (1) alternative medical systems, (2) mind-body interventions, (3) biologically-based treatments, (4) manipulative and body-based methods, and (5) energy therapies. The individual systems and treatments comprising these categories are too numerous to list in this sourcebook. Thus, only limited examples are provided within each.

Alternative Medical Systems

Alternative medical systems involve complete systems of theory and practice that have evolved independent of, and often prior to, conventional biomedical approaches. Many are traditional systems of medicine that are

⁴⁶ Adapted from the NCCAM: <http://nccam.nih.gov/nccam/fcp/classify/index.html>.

practiced by individual cultures throughout the world, including a number of venerable Asian approaches.

Traditional oriental medicine emphasizes the balance or disturbances of qi (pronounced chi) or vital energy in health and disease, respectively. Traditional oriental medicine consists of a group of techniques and methods including acupuncture, herbal medicine, oriental massage, and qi gong (a form of energy therapy). Acupuncture involves stimulating specific anatomic points in the body for therapeutic purposes, usually by puncturing the skin with a thin needle.

Ayurveda is India's traditional system of medicine. Ayurvedic medicine (meaning "science of life") is a comprehensive system of medicine that places equal emphasis on body, mind, and spirit. Ayurveda strives to restore the innate harmony of the individual. Some of the primary Ayurvedic treatments include diet, exercise, meditation, herbs, massage, exposure to sunlight, and controlled breathing.

Other traditional healing systems have been developed by the world's indigenous populations. These populations include Native American, Aboriginal, African, Middle Eastern, Tibetan, and Central and South American cultures. Homeopathy and naturopathy are also examples of complete alternative medicine systems.

Homeopathic medicine is an unconventional Western system that is based on the principle that "like cures like," i.e., that the same substance that in large doses produces the symptoms of an illness, in very minute doses cures it. Homeopathic health practitioners believe that the more dilute the remedy, the greater its potency. Therefore, they use small doses of specially prepared plant extracts and minerals to stimulate the body's defense mechanisms and healing processes in order to treat illness.

Naturopathic medicine is based on the theory that disease is a manifestation of alterations in the processes by which the body naturally heals itself and emphasizes health restoration rather than disease treatment. Naturopathic physicians employ an array of healing practices, including the following: diet and clinical nutrition, homeopathy, acupuncture, herbal medicine, hydrotherapy (the use of water in a range of temperatures and methods of applications), spinal and soft-tissue manipulation, physical therapies (such as those involving electrical currents, ultrasound, and light), therapeutic counseling, and pharmacology.

Mind-Body Interventions

Mind-body interventions employ a variety of techniques designed to facilitate the mind's capacity to affect bodily function and symptoms. Only a select group of mind-body interventions having well-documented theoretical foundations are considered CAM. For example, patient education and cognitive-behavioral approaches are now considered "mainstream." On the other hand, complementary and alternative medicine includes meditation, certain uses of hypnosis, dance, music, and art therapy, as well as prayer and mental healing.

Biological-Based Therapies

This category of CAM includes natural and biological-based practices, interventions, and products, many of which overlap with conventional medicine's use of dietary supplements. This category includes herbal, special dietary, orthomolecular, and individual biological therapies.

Herbal therapy employs an individual herb or a mixture of herbs for healing purposes. An herb is a plant or plant part that produces and contains chemical substances that act upon the body. Special diet therapies, such as those proposed by Drs. Atkins, Ornish, Pritikin, and Weil, are believed to prevent and/or control illness as well as promote health. Orthomolecular therapies aim to treat disease with varying concentrations of chemicals such as magnesium, melatonin, and mega-doses of vitamins. Biological therapies include, for example, the use of laetrile and shark cartilage to treat cancer and the use of bee pollen to treat autoimmune and inflammatory diseases.

Manipulative and Body-Based Methods

This category includes methods that are based on manipulation and/or movement of the body. For example, chiropractors focus on the relationship between structure and function, primarily pertaining to the spine, and how that relationship affects the preservation and restoration of health. Chiropractors use manipulative therapy as an integral treatment tool.

In contrast, osteopaths place particular emphasis on the musculoskeletal system and practice osteopathic manipulation. Osteopaths believe that all of the body's systems work together and that disturbances in one system may have an impact upon function elsewhere in the body. Massage therapists manipulate the soft tissues of the body to normalize those tissues.

Energy Therapies

Energy therapies focus on energy fields originating within the body (biofields) or those from other sources (electromagnetic fields). Biofield therapies are intended to affect energy fields (the existence of which is not yet experimentally proven) that surround and penetrate the human body. Some forms of energy therapy manipulate biofields by applying pressure and/or manipulating the body by placing the hands in or through these fields. Examples include Qi gong, Reiki and Therapeutic Touch.

Qi gong is a component of traditional oriental medicine that combines movement, meditation, and regulation of breathing to enhance the flow of vital energy (qi) in the body, improve blood circulation, and enhance immune function. Reiki, the Japanese word representing Universal Life Energy, is based on the belief that, by channeling spiritual energy through the practitioner, the spirit is healed and, in turn, heals the physical body. Therapeutic Touch is derived from the ancient technique of “laying-on of hands.” It is based on the premises that the therapist’s healing force affects the patient's recovery and that healing is promoted when the body's energies are in balance. By passing their hands over the patient, these healers identify energy imbalances.

Bioelectromagnetic-based therapies involve the unconventional use of electromagnetic fields to treat illnesses or manage pain. These therapies are often used to treat asthma, cancer, and migraine headaches. Types of electromagnetic fields which are manipulated in these therapies include pulsed fields, magnetic fields, and alternating current or direct current fields.

Can Alternatives Affect My Treatment?

A critical issue in pursuing complementary alternatives mentioned thus far is the risk that these might have undesirable interactions with your medical treatment. It becomes all the more important to speak with your doctor who can offer advice on the use of alternatives. Official sources confirm this view. Though written for women, we find that the National Women’s Health Information Center’s advice on pursuing alternative medicine is appropriate for patients of both genders and all ages.⁴⁷

⁴⁷ Adapted from <http://www.4woman.gov/faq/alternative.htm>.

Is It Okay to Want Both Traditional and Alternative Medicine?

Should you wish to explore non-traditional types of treatment, be sure to discuss all issues concerning treatments and therapies with your healthcare provider, whether a physician or practitioner of complementary and alternative medicine. Competent healthcare management requires knowledge of both conventional and alternative therapies you are taking for the practitioner to have a complete picture of your treatment plan.

The decision to use complementary and alternative treatments is an important one. Consider before selecting an alternative therapy, the safety and effectiveness of the therapy or treatment, the expertise and qualifications of the healthcare practitioner, and the quality of delivery. These topics should be considered when selecting any practitioner or therapy.

Finding CAM References on Gout

Having read the previous discussion, you may be wondering which complementary or alternative treatments might be appropriate for gout. For the remainder of this chapter, we will direct you to a number of official sources which can assist you in researching studies and publications. Some of these articles are rather technical, so some patience may be required.

The Combined Health Information Database

For a targeted search, The Combined Health Information Database is a bibliographic database produced by health-related agencies of the Federal Government (mostly from the National Institutes of Health). This database is updated four times a year at the end of January, April, July, and October. Check the titles, summaries, and availability of CAM-related information by using the "Simple Search" option at the following Web site: <http://chid.nih.gov/simple/simple.html>. In the drop box at the top, select "Complementary and Alternative Medicine." Then type "gout" (or synonyms) in the second search box. We recommend that you select 100 "documents per page" and to check the "whole records" options. The following was extracted using this technique:

- **Herbs and Metabolic/Endocrine Disease: From the Past to Present**
Source: Australian Family Physician. 30(2): 146-150. February 2001.

Summary: This journal article reviews herbal remedies and medications of herbal derivation that are used for metabolic disorders. It discusses herbal treatments for gout, diabetes mellitus, hyperlipidemia, thyroid disorder, and elevated homocysteine levels. The treatments are divided into three groups: (1) conventional medicines of herbal origin, (2) herbal therapies that have been subjected to clinical or laboratory studies, and (3) herbal therapies used on the basis of anecdotal support. The author concludes that herbal therapies may be useful for certain metabolic disorders, but until this is proven, health care providers should continue to encourage use of the effective orthodox lipid and glucose lowering treatments with known side effect profiles. The article has 5 figures and 34 references.

- **Efficacy and Safety of Comfrey**

Source: Public Health Nutrition. 3(4A): 501-508. 2000.

Summary: This journal article reviews the literature on the efficacy and safety of comfrey ('Symphytum officinale'). In Western Europe, comfrey has been used for inflammatory conditions such as arthritis, thrombophlebitis, and gout, and as a treatment for diarrhea. Recently, however, the use of comfrey leaves has been recognized as a substantial health hazard with hepatic toxicity in humans and carcinogenic potential in rodents. These effects are most likely due to various hepatotoxic pyrrolizidine alkaloids such as lasiocarpine and symphytine and their related N-oxides. The mechanisms by which toxicity and mutagenicity are conveyed are still not fully understood but seem to be mediated through a toxic mechanism related to the biotransformation of alkaloids by hepatic microsomal enzymes. This produces highly reactive pyrroles that act as powerful alkylating agents. The main liver damage caused by comfrey is veno-occlusive disease, a nonthrombotic obliteration of small hepatic veins leading to cirrhosis and eventually liver failure. Patients may present with either acute or chronic clinical signs with portal hypertension, hepatomegaly, and abdominal pain as the main features. The authors recommend against the use of comfrey. The article has 3 figures, 2 tables, and 65 references.

- **Honey, Mud, Maggots and Other Medical Marvels**

Source: Boston, MA: Houghton Mifflin Company. 1997. 279 p.

Contact: Houghton Mifflin Company. 222 Berkeley Street, Boston, MA 02116. (617) 351-5000. Price: \$13.00. ISBN: 0395924928 (Softcover).

Summary: This book investigates age-old remedies often dismissed by 20th century Western medicine as harmful or foolish, but now shown to

have scientific validity, according to the authors. Each chapter is the story of a folk medicine from a particular century and part of the world. Among foods, honey and sugar have been found to have antibacterial properties and promote wound drainage and growth of muscle and tissue, and can be used as a remedy for bed sores, burns, and infections. The book covers environmental cures, such as eating dirt and clay to survive famines and become detoxified. Mineral water springs, allegedly effective because of the weightlessness created by submersion, have been used since ancient times for lead-poisoning, gout, infertility, headaches, ulcers, liver ailments, colic, dysentery, rheumatism, itching, and fever. The authors describe how maggots aid wound healing and leeches help remove coagulated blood and promote circulation. Use of body fluids includes urine for skin problems, wound cleaning, stanching bleeding, and reproductive problems; saliva's antiseptic properties for wound healing; and inoculation against a disease, such as smallpox, using the pus from a sore caused by a light case of the disease. Drawing blood is observed to be effective for healing fevers, lowering hypertension, promoting rest, and stimulating immune function. The book describes non-medical, traditional contraceptive methods and use of circumcision for hygiene and sexual disease prevention. More modern remedies include plastic and cellophane wraps for bandaging burns and wounds and suction devices to unclog and withdraw stale bodily fluids. The book also includes chapters on native peoples' healing practices and the transition from folk remedy to marketed pharmaceutical product. It features an introduction, an index, and a bibliography.

- **Healing Plants: Self-Treatment of the Most Common Everyday Complaints and Disorders With Selected Medicinal Plants. Time-Tested Recipes for Teas, Tea Blends, Tinctures, Ointments,**

Source: Hauppauge, NY: Barron's Educational Series. 1992. 224 p.

Contact: Available from Barron's Educational Series. 250 Wireless Boulevard, Hauppauge, NY 11788-3917. 516-434-3311, 800-645-3476, FAX: 516-434-3723. Price: \$18.95. ISBN: 0812014987.

Summary: This book is a guide to self treatment of several minor health problems with herbal and botanical remedies. It includes detailed instructions on how to evaluate complaints properly, how to select the proper application of a treatment, and how to prepare and use a treatment, including detailed instructions on preparing a medicinal tea, tinctures, baths, washes, inhalations, and compresses. There also is a section on the efficacy and the potential problems with treatment by medicinal plants; the author strongly suggests that people who are thinking about using these treatments discuss them with their physicians.

The health problems discussed include nervousness and sleep disturbances; colds; bladder and kidney complaints; stomach and intestinal complaints; rheumatism and gout; gallbladder and liver complaints; childhood diseases; gynecological complaints and menopause; geriatric complaints such as gastric troubles, constipation, and low blood pressure; cardiac and circulatory disorders; and minor injuries and skin irritations. The book provides a compendium of medicinal plants including instructions on cultivation, harvesting, and preparation of 73 different medicinal plants. Many of the entries contain full color pictures of the plants. There are several appendices including an index; a glossary; a list of sources for herbs, herb seeds, and additional information; and a list of further readings.

National Center for Complementary and Alternative Medicine

The National Center for Complementary and Alternative Medicine (NCCAM) of the National Institutes of Health (<http://nccam.nih.gov>) has created a link to the National Library of Medicine's databases to allow patients to search for articles that specifically relate to gout and complementary medicine. To search the database, go to the following Web site: www.nlm.nih.gov/nccam/camonpubmed.html. Select "CAM on PubMed." Enter "gout" (or synonyms) into the search box. Click "Go." The following references provide information on particular aspects of complementary and alternative medicine (CAM) that are related to gout:

- **A biochemical investigation on chicken gout observed in the Marmara region in Turkey.**
 Author(s): Mert N.
 Source: *Advances in Experimental Medicine and Biology*. 1991; 309A: 251-4.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1789220&dopt=Abstract

- **Acute renal failure and gout as presenting features of acute lymphoblastic leukaemia.**
 Author(s): Morley CJ, Houston IB, Morris-Jones P.
 Source: *Archives of Disease in Childhood*. 1976 September; 51(9): 723-5.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1069569&dopt=Abstract

- **Chronic lead accumulation as a possible cause of renal failure in gouty patients.**
Author(s): Colleoni N, D'Amico G.
Source: Nephron. 1986; 44(1): 32-5.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3092121&dopt=Abstract
- **Chronic renal failure with gout: a marker of chronic lead poisoning.**
Author(s): Craswell PW, Price J, Boyle PD, Heazlewood VJ, Baddeley H, Lloyd HM, Thomas BJ, Thomas BW.
Source: Kidney International. 1984 September; 26(3): 319-23.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6439940&dopt=Abstract
- **Colchicum autumnale and the gout. Naked ladies and portly gentlemen.**
Author(s): Lee MR.
Source: Proc R Coll Physicians Edinb. 1999 January; 29(1): 65-70. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11623671&dopt=Abstract
- **Earliest description of gout.**
Author(s): Rosner F.
Source: Arthritis and Rheumatism. 1983 February; 26(2): 236. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6337596&dopt=Abstract
- **Effect of balneotherapy in Ciechocinek Spa on the occurrence of gouty attacks and the symptoms of chronic gouty arthropathy (observations of 112 cures).**
Author(s): Kawenoki-Minc E, Zielinski Z.
Source: Pol Med J. 1972; 11(6): 1494-500. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4659072&dopt=Abstract
- **Gout in the Bible and the Talmud.**
Author(s): Rosner F.

Source: *Annals of Internal Medicine*. 1977 June; 86(6): 833. No Abstract Available.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=326118&dopt=Abstract

- **Gout of the temporomandibular joint. Report of three cases.**
 Author(s): Kleinman HZ, Ewbank RL.
 Source: *Oral Surg Oral Med Oral Pathol*. 1969 February; 27(2): 281-2. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=5249526&dopt=Abstract
- **Historical aspects of gout.**
 Author(s): Copeman WS.
 Source: *Clinical Orthopaedics and Related Research*. 1970; 71: 14-22. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4914838&dopt=Abstract
- **Inhibition of xanthine oxidase by some Chinese medicinal plants used to treat gout.**
 Author(s): Kong LD, Cai Y, Huang WW, Cheng CH, Tan RX.
 Source: *Journal of Ethnopharmacology*. 2000 November; 73(1-2): 199-207.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11025157&dopt=Abstract
- **Lead and the gouty kidney.**
 Author(s): Wedeen R.
 Source: *American Journal of Kidney Diseases : the Official Journal of the National Kidney Foundation*. 1983 March; 2(5): 559-63. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6402928&dopt=Abstract
- **Lead and the kidney: nephropathy, hypertension, and gout.**
 Author(s): Perazella MA.
 Source: *Conn Med*. 1996 September; 60(9): 521-6. Review.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8908777&dopt=Abstract

- **Lead chelation therapy and urate excretion in patients with chronic renal diseases and gout.**
Author(s): Lin JL, Yu CC, Lin-Tan DT, Ho HH.
Source: *Kidney International*. 2001 July; 60(1): 266-71.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11422760&dopt=Abstract
- **Lead nephropathy, gout, and hypertension.**
Author(s): Batuman V.
Source: *Am J Med Sci*. 1993 April; 305(4): 241-7. Review.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8475950&dopt=Abstract
- **Moonshine and lead. Relationship to the pathogenesis of hyperuricemia in gout.**
Author(s): Reynolds PP, Knapp MJ, Baraf HS, Holmes EW.
Source: *Arthritis and Rheumatism*. 1983 September; 26(9): 1057-64. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6412722&dopt=Abstract
- **Occult lead intoxication in patients with gout and kidney disease.**
Author(s): Wright LF, Saylor RP, Cecere FA.
Source: *J Rheumatol*. 1984 August; 11(4): 517-20.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6434739&dopt=Abstract
- **Patterns of lead excretion in patients with gout and chronic renal failure--a comparative German and Australian study.**
Author(s): Craswell PW, Price J, Boyle PD, Behringer D, Stoeppler M, Ritz E.
Source: *The Science of the Total Environment*. 1987 October; 66: 17-28.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3120309&dopt=Abstract
- **Psychiatric observations on attacks of gout in a patient with ulcerative colitis. Report of a case.**
Author(s): Castelnuovo-Tedesco P.
Source: *Psychosomatic Medicine*. 1966 November-December; 28(6): 781-8. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=5972491&dopt=Abstract

- **Purine metabolism in patients with gout: the role of lead.**
 Author(s): Miranda-Carus E, Mateos FA, Sanz AG, Herrero E, Ramos T, Puig JG.
 Source: Nephron. 1997; 75(3): 327-35.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9069456&dopt=Abstract
- **Saturnine gout: a review of 42 patients.**
 Author(s): Halla JT, Ball GV.
 Source: Seminars in Arthritis and Rheumatism. 1982 February; 11(3): 307-14. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6821383&dopt=Abstract
- **Sir William Temple and the therapeutic use of moxa for gout in England.**
 Author(s): Rosen G.
 Source: Bulletin of the History of Medicine. 1970 January-February; 44(1): 31-9. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4909173&dopt=Abstract
- **St. Wolfgang and gout.**
 Author(s): Rodnan GP.
 Source: British Medical Journal. 1968 March 2; 1(591): 581. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4868555&dopt=Abstract
- **The anti-inflammatory and anti-hyperuricemic effects of Chinese herbal formula danggui-nian-tong-tang on acute gouty arthritis: a comparative study with indomethacin and allopurinol.**
 Author(s): Chou CT, Kuo SC.
 Source: Am J Chin Med. 1995; 23(3-4): 261-71.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8571922&dopt=Abstract
- **The Filipino and gout.**
 Author(s): Torralba TP, Bayani-Sioson PS.

Source: Seminars in Arthritis and Rheumatism. 1975 May; 4(4): 307-20.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1135632&dopt=Abstract

- **The past four decades of progress in the knowledge of gout, with an assessment of the present status.**

Author(s): Gutman AB.

Source: Arthritis and Rheumatism. 1973 July-August; 16(4): 431-45.
Review. No Abstract Available.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=4147308&dopt=Abstract

- **The role of lead in gout nephropathy.**

Author(s): Batuman V, Maesaka JK, Haddad B, Tepper E, Landy E, Wedeen RP.

Source: The New England Journal of Medicine. 1981 February 26; 304(9): 520-3. No Abstract Available.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6779160&dopt=Abstract

- **The treatment of gout.**

Author(s): Wallace SL.

Source: Arthritis and Rheumatism. 1972 May-June; 15(3): 317-23. No Abstract Available.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=5031616&dopt=Abstract

- **Xanthine oxidase inhibitory activity of northeastern North American plant remedies used for gout.**

Author(s): Owen PL, Johns T.

Source: Journal of Ethnopharmacology. 1999 February; 64(2): 149-60.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10197750&dopt=Abstract

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering CAM and related topics. The following is a representative sample:

- Alternative Medicine Foundation, Inc.: <http://www.herbmed.org/>

- AOL: <http://search.aol.com/cat.adp?id=169&layer=&from=subcats>
- Chinese Medicine: <http://www.newcenturynutrition.com/>
- drkoop.com[®]:
<http://www.drkoop.com/InteractiveMedicine/IndexC.html>
- Family Village: http://www.familyvillage.wisc.edu/med_altn.htm
- Google: <http://directory.google.com/Top/Health/Alternative/>
- Healthnotes: <http://www.thedacare.org/healthnotes/>
- Open Directory Project: <http://dmoz.org/Health/Alternative/>
- TPN.com: <http://www.tnp.com/>
- Yahoo.com: http://dir.yahoo.com/Health/Alternative_Medicine/
- WebMD[®]Health: http://my.webmd.com/drugs_and_herbs
- WellNet: <http://www.wellnet.ca/herbsa-c.htm>
- WholeHealthMD.com:
<http://www.wholehealthmd.com/reflib/0,1529,,00.html>

The following is a specific Web list relating to gout; please note that any particular subject below may indicate either a therapeutic use, or a contraindication (potential danger), and does not reflect an official recommendation:

- **General Overview**

Gout

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Concern/Gout.htm>

Gout

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/InteractiveMedicine/ConsLookups/Uses/gout.html>

Gout

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Gout

Source: Prima Communications, Inc.

Hyperlink: <http://www.personalhealthzone.com/pg000291.html>

- **Alternative Therapy**

Grape Cure

Alternative names: grape diet

Source: The Canoe version of A Dictionary of Alternative-Medicine Methods, by Priorities for Health editor Jack Raso, M.S., R.D.

Hyperlink: <http://www.canoe.ca/AltmedDictionary/g.html>

Tai Chi

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsModalities/TaiChicm.html>

- **Chinese Medicine**

Gouteng

Alternative names: Gambir Plant; Ramulus Uncariae cum Uncis

Source: Chinese Materia Medica

Hyperlink: <http://www.newcenturynutrition.com/>

- **Homeopathy**

Arnica

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Homeo_Homeoix/Arnica.htm

Belladonna

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Homeo_Homeoix/Belladonna.htm

Berberis vulgaris

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Homeo_Homeoix/Berberis_vulgaris.htm

Calcarea fluorica

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Homeo_Homeoix/Calcarea_fluorica.htm

Colchicum

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Homeo_Homeoix/Colchicum.htm

Ledum palustre

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Homeo_Homeoix/Ledum_palustre.htm

Rhododendron

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Homeo_Homeoix/Rhododendron.htm

Rhus toxicodendron

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Homeo_Homeoix/Rhus_toxicodendron.htm

Sulphur

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Homeo_Homeoix/Sulphur.htm

- **Herbs and Supplements**

Acetaminophen

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Acetaminophen

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Bursitiscc.html>

Acetylsalicylic Acid

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Ademetionine

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Ademetionine

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Allopurinol

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Drug/Allopurinol.htm>

Alpha-Linolenic Acid

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Amethopterin

Source: Prima Communications, Inc.

Hyperlink: <http://www.personalhealthzone.com/pg000291.html>

Anti-Inflammatory Drugs

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Anti-Inflammatory Drugs

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Concern/Gout.htm>

Anti-Inflammatory Drugs

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Anti-Inflammatory Drugs

Source: Prima Communications, Inc.

Hyperlink: <http://www.personalhealthzone.com/pg000291.html>

Antioxidants

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Antioxidants

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Arnica

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Arnica montana

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Arthrotec

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Ashwagandha

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Aspirin

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Aspirin

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Aspirin

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Aspirin

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Aspirin

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Bursitiscc.html>

Ayurvedic Herbs

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Azathioprine

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Barberry

Source: The Canadian Internet Directory for Holistic Help, WellNet, Health and Wellness Network; www.wellnet.ca

Hyperlink: <http://www.wellnet.ca/herbsa-c.htm>

Betaine

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Black Cohosh

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Black Cohosh

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Blackberry

Alternative names: *Rubus fruticosus*

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Herb/Blackberry.htm>

Blackberry

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,837,00.html

Boswellia

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Boswellia

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Boswellia

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Bovine Cartilage

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Bromelain

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Bromelain

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Bursitiscc.html>

Bromelain

Source: Prima Communications, Inc.

Hyperlink: <http://www.personalhealthzone.com/pg000117.html>

Bromelain

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,760,00.html

Buchu

Alternative names: Barosma betulina, Agathosma betulina, Agathosma crenulata

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Herb/Buchu.htm>

Capsaicin

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Capsaicin

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Capsaicin

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Celecoxib

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Celery extract

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10014,00.html

Celery Seed

Source: The Canadian Internet Directory for Holistic Help, WellNet, Health and Wellness Network; www.wellnet.ca

Hyperlink: <http://www.wellnet.ca/herbsa-c.htm>

Cetyl Myristoleate

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Chaparral

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Chemotherapy

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Cherry fruit extract

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10015,00.html

Colchicine

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Colchicine

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Concern/Gout.htm>

Colchicine

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Drug/Colchicine.htm>

Comfrey

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Dandelion

Source: Prima Communications, Inc.

Hyperlink: <http://www.personalhealthzone.com/pg000143.html>

Devil's Claw

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Devil's Claw

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Devil's Claw

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Devil's Claw

Source: Prima Communications, Inc.

Hyperlink: <http://www.personalhealthzone.com/pg000145.html>

Diazepam

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Diclofenac

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Diclofenac

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Diclofenac

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

DiFlunisal

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Digestive Enzymes

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Bursitiscc.html>

DL-Phenylalanine

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

DMSO

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

DMSO

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

DMSO

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

D-Phenylalanine

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Etodolac

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Eugenia Clove

Alternative names: Cloves; Eugenia sp.

Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

Hyperlink: <http://www.herbmed.org/>

Evening Primrose

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Flavonoids

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,782,00.html

Flaxseed

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Flaxseed

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Gamma-Linolenic Acid

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Ginger

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Ginger

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Ginger

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Glucosamine

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Glucosamine

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Goldenrod

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Greater Celandine

Alternative names: *Chelidonium majus*

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Herb/Greater_Celandine.htm

Green-Lipped Mussel

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Supp/Green_Lipped_Mussel.htm

Green-Lipped Mussel

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Green-Lipped Mussel

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Gymnema

Alternative names: Gurmar; *Gymnema sylvestre*

Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

Hyperlink: <http://www.herbmed.org/>

Harpagophytum procumbens

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Hawthorn

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Bursitis.html>

Herbal Medicine

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Herbal Medicine

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Horsetail

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Horsetail

Source: Prima Communications, Inc.

Hyperlink: <http://www.personalhealthzone.com/pg000183.html>

Ibuprofen

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Ibuprofen

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Ibuprofen

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Bursitiscc.html>

Indomethacin

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Drug/Indomethacin.htm>

Indomethacin

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Indomethacin

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Indomethacin

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Inosine

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Supp/Inosine.htm>

Jamaican Dogwood

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Bursitiscc.html>

Juniper

Alternative names: *Juniperus communis*

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Herb/Juniper.htm>

Kava

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Ketoprofen

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Meadowsweet

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Bursitiscc.html>

Methionine

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Methylsulfonylmethane

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Motrin

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Nabumetone

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Nabumetone

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Naproxen

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Concern/Gout.htm>

Naproxen

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Naproxen

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Naproxen

Source: Integrative Medicine Communications; www.onemedicine.com
Hyperlink:
<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Nettle

Source: Healthnotes, Inc.; www.healthnotes.com
Hyperlink:
http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Nettle

Source: Healthnotes, Inc.; www.healthnotes.com
Hyperlink:
<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Nettle

Source: Integrative Medicine Communications; www.onemedicine.com
Hyperlink:
<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Non-steroidal Anti-Inflammatory Drugs

Source: Healthnotes, Inc.; www.healthnotes.com
Hyperlink:
http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Non-steroidal Anti-Inflammatory Drugs

Source: Healthnotes, Inc.; www.healthnotes.com
Hyperlink: <http://www.thedacare.org/healthnotes/Drug/NSAIDs.htm>

Nonsteroidal Anti-Inflammatory Drugs

Source: Healthnotes, Inc.; www.healthnotes.com
Hyperlink: <http://www.thedacare.org/healthnotes/Concern/Gout.htm>

Nonsteroidal Anti-Inflammatory Drugs

Source: Integrative Medicine Communications; www.onemedicine.com
Hyperlink:
<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Oxaprozin

Source: Integrative Medicine Communications; www.onemedicine.com
Hyperlink:
<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Phenylalanine

Source: Healthnotes, Inc.; www.healthnotes.com
Hyperlink:
http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Phenylalanine

Source: Healthnotes, Inc.; www.healthnotes.com
Hyperlink:
<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Picrorhiza

Source: Healthnotes, Inc.; www.healthnotes.com
Hyperlink:
http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Piroxicam

Source: Healthnotes, Inc.; www.healthnotes.com
Hyperlink:
<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Piroxicam

Source: Integrative Medicine Communications; www.onemedicine.com
Hyperlink:
<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Prednisone

Source: Healthnotes, Inc.; www.healthnotes.com
Hyperlink:
http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Pregnenolone

Source: Healthnotes, Inc.; www.healthnotes.com
Hyperlink:
<http://www.thedacare.org/healthnotes/Supp/Pregnenolone.htm>

Rofecoxib

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

S-Adenosylmethionine

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

S-Adenosylmethionine

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Salicylates

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Salsalate

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Sarsaparilla

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Sarsaparilla

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Silicon

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Sulindac

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Drug/Sulindac.htm>

Sulindac

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Trace minerals

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10061,00.html

Turmeric

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Turmeric

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Bursitiscc.html>

Turmeric

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Uricosuric Agents

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink: Uricosuric Agents

Urtica

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Urtica

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Urtica dioica

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Urtica dioica

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Valerian

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Bursitiscc.html>

Willow

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Willow

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Willow

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Willow

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Bursitiscc.html>

Willow

Source: The Canadian Internet Directory for Holistic Help, WellNet, Health and Wellness Network; www.wellnet.ca

Hyperlink: <http://www.wellnet.ca/herbsw-z.htm>

Willow Bark

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Willow Bark

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Willow Bark

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Willow Bark

Alternative names: There are several species of willow including *Salix alba*, *Salix nigra*, *Salix fragilis*, *Salix purpurea*, *Salix babylonica*, White Willow, European Willow, Black Willow, Pussy Willow, Crack Willow, Purple Willow, Weeping Willow, Liu-zhi

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsHerbs/WillowBarkch.html>

Yucca

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Yucca

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

- **Related Conditions**

Arthritis, Osteo-

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Blood Pressure, High

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Hypertensioncc.html>

Bone Marrow Disorders

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/MyeloproliferativeDisorderscc.html>

Bursitis

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Bursitiscc.html>

Cholesterol, High

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Hypercholesterolemiaacc.html>

Chronic Myelogenous Leukemia

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/MyeloproliferativeDisorderscc.html>

Cutaneous Drug Reactions

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/CutaneousDrugReactionscc.html>

Drug Reactions, Cutaneous

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/CutaneousDrugReactionscc.html>

Epilepsy

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Epilepsy.htm>

High Blood Pressure

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Hypertensioncc.html>

High Cholesterol

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/High_Cholesterol.htm

High Cholesterol

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Hypercholesterolemiaacc.html>

Hypercholesterolemia

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Hypercholesterolemiaacc.html>

Hypertension

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Hypertensioncc.html>

Myelofibrosis

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/MyeloproliferativeDisorderscc.html>

Myeloproliferative Disorders

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/MyeloproliferativeDisorderscc.html>

Osteoarthritis

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Osteoarthritis

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Polycythemia Vera

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/MyeloproliferativeDisorderscc.html>

Rheumatoid Arthritis

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Skin Disorders, Drug Reactions

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/CutaneousDrugReactionscc.html>

Thrombocytosis

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/MyeloproliferativeDisorderscc.html>

General References

A good place to find general background information on CAM is the National Library of Medicine. It has prepared within the MEDLINEplus system an information topic page dedicated to complementary and alternative medicine. To access this page, go to the MEDLINEplus site at: www.nlm.nih.gov/medlineplus/alternativemedicine.html. This Web site provides a general overview of various topics and can lead to a number of general sources. The following additional references describe, in broad terms, alternative and complementary medicine (sorted alphabetically by title; hyperlinks provide rankings, information, and reviews at Amazon.com):

- **The Arthritis Bible: A Comprehensive Guide to Alternative Therapies and Conventional Treatments for Arthritic Diseases** by Leonid Gordin, Craig Weatherby; Paperback - 244 pages, 1st edition (April 15, 1999), Inner Traditions Int'l Ltd.; ISBN: 0892818255; <http://www.amazon.com/exec/obidos/ASIN/0892818255/icongroupinternerna>
- **Healing Joint Pain Naturally : Safe and Effective Ways to Treat Arthritis, Fibromyalgia, and Other Joint Diseases** by Ellen Hodgson Brown; Paperback - 262 pages (June 2001), Broadway Books; ISBN: 076790561X; <http://www.amazon.com/exec/obidos/ASIN/076790561X/icongroupinternerna>
- **Healthy Bones & Joints: A Natural Approach to Treating Arthritis, Osteoporosis, Tendinitis, Myalgia & Bursitis** by David Hoffmann; Paperback - 128 pages (July 15, 2000), Storey Books; ISBN: 1580172539; <http://www.amazon.com/exec/obidos/ASIN/1580172539/icongroupinternerna>
- **Joint Pains: A Guide to Successful Herbal Remedies** by Penelope Ody; Paperback - 172 pages (April 2002), Souvenir Press Ltd; ISBN: 0285636227;

<http://www.amazon.com/exec/obidos/ASIN/0285636227/icongroupinterna>

- **Living Life Free from Pain: Treating Arthritis, Joint Pain, Muscle Pain, and Fibromyalgia with Maharishi Vedic Medicine** by Kumuda Reddy, et al; Paperback - 350 pages (August 2001), Lantern Books; ISBN: 1930051549;
<http://www.amazon.com/exec/obidos/ASIN/1930051549/icongroupinterna>
- **The Posture Prescription : A Doctor's Rx for Eliminating Back, Muscle, and Joint Pain, Achieving Optimum Strength and Mobility, Living a Life of Fitne** by Arthur White, MD, et al; Paperback - 256 pages, 1st edition (January 8, 2002), Three Rivers Pr; ISBN: 0609806319;
<http://www.amazon.com/exec/obidos/ASIN/0609806319/icongroupinterna>

For additional information on complementary and alternative medicine, ask your doctor or write to:

National Institutes of Health
National Center for Complementary and Alternative Medicine
Clearinghouse
P. O. Box 8218
Silver Spring, MD 20907-8218

Vocabulary Builder

The following vocabulary builder gives definitions of words used in this chapter that have not been defined in previous chapters:

Alkaloid: One of a large group of nitrogenous basis substances found in plants. They are usually very bitter and many are pharmacologically active. Examples are atropine, caffeine, coniine, morphine, nicotine, quinine, strychnine. The term is also applied to synthetic substances (artificial a's) which have structures similar to plant alkaloids, such as procaine. [EU]

Antibacterial: A substance that destroys bacteria or suppresses their growth or reproduction. [EU]

Antiseptic: A substance that inhibits the growth and development of microorganisms without necessarily killing them. [EU]

Biotransformation: The series of chemical alterations of a compound (e.g., a drug) which occur within the body, as by enzymatic activity. [EU]

Circumcision: Excision of the prepuce or part of it. [NIH]

Hepatomegaly: Enlargement of the liver. [EU]

Hepatotoxic: Toxic to liver cells. [EU]

Infertility: The diminished or absent ability to conceive or produce an offspring while sterility is the complete inability to conceive or produce an offspring. [NIH]

Microsomal: Of or pertaining to microsomes : vesicular fragments of endoplasmic reticulum formed after disruption and centrifugation of cells. [EU]

Nervousness: Excessive excitability and irritability, with mental and physical unrest. [EU]

Suction: The removal of secretions, gas or fluid from hollow or tubular organs or cavities by means of a tube and a device that acts on negative pressure. [NIH]

Thrombophlebitis: Inflammation of a vein associated with thrombus formation. [EU]

Veins: The vessels carrying blood toward the heart. [NIH]

APPENDIX C. RESEARCHING NUTRITION

Overview

Since the time of Hippocrates, doctors have understood the importance of diet and nutrition to patients' health and well-being. Since then, they have accumulated an impressive archive of studies and knowledge dedicated to this subject. Based on their experience, doctors and healthcare providers may recommend particular dietary supplements to patients with gout. Any dietary recommendation is based on a patient's age, body mass, gender, lifestyle, eating habits, food preferences, and health condition. It is therefore likely that different patients with gout may be given different recommendations. Some recommendations may be directly related to gout, while others may be more related to the patient's general health. These recommendations, themselves, may differ from what official sources recommend for the average person.

In this chapter we will begin by briefly reviewing the essentials of diet and nutrition that will broadly frame more detailed discussions of gout. We will then show you how to find studies dedicated specifically to nutrition and gout.

Food and Nutrition: General Principles

What Are Essential Foods?

Food is generally viewed by official sources as consisting of six basic elements: (1) fluids, (2) carbohydrates, (3) protein, (4) fats, (5) vitamins, and (6) minerals. Consuming a combination of these elements is considered to be a healthy diet:

- **Fluids** are essential to human life as 80-percent of the body is composed of water. Water is lost via urination, sweating, diarrhea, vomiting, diuretics (drugs that increase urination), caffeine, and physical exertion.
- **Carbohydrates** are the main source for human energy (thermoregulation) and the bulk of typical diets. They are mostly classified as being either simple or complex. Simple carbohydrates include sugars which are often consumed in the form of cookies, candies, or cakes. Complex carbohydrates consist of starches and dietary fibers. Starches are consumed in the form of pastas, breads, potatoes, rice, and other foods. Soluble fibers can be eaten in the form of certain vegetables, fruits, oats, and legumes. Insoluble fibers include brown rice, whole grains, certain fruits, wheat bran and legumes.
- **Proteins** are eaten to build and repair human tissues. Some foods that are high in protein are also high in fat and calories. Food sources for protein include nuts, meat, fish, cheese, and other dairy products.
- **Fats** are consumed for both energy and the absorption of certain vitamins. There are many types of fats, with many general publications recommending the intake of unsaturated fats or those low in cholesterol.

Vitamins and minerals are fundamental to human health, growth, and, in some cases, disease prevention. Most are consumed in your diet (exceptions being vitamins K and D which are produced by intestinal bacteria and sunlight on the skin, respectively). Each vitamin and mineral plays a different role in health. The following outlines essential vitamins:

- **Vitamin A** is important to the health of your eyes, hair, bones, and skin; sources of vitamin A include foods such as eggs, carrots, and cantaloupe.
- **Vitamin B¹**, also known as thiamine, is important for your nervous system and energy production; food sources for thiamine include meat, peas, fortified cereals, bread, and whole grains.
- **Vitamin B²**, also known as riboflavin, is important for your nervous system and muscles, but is also involved in the release of proteins from

nutrients; food sources for riboflavin include dairy products, leafy vegetables, meat, and eggs.

- **Vitamin B³**, also known as niacin, is important for healthy skin and helps the body use energy; food sources for niacin include peas, peanuts, fish, and whole grains
- **Vitamin B⁶**, also known as pyridoxine, is important for the regulation of cells in the nervous system and is vital for blood formation; food sources for pyridoxine include bananas, whole grains, meat, and fish.
- **Vitamin B¹²** is vital for a healthy nervous system and for the growth of red blood cells in bone marrow; food sources for vitamin B¹² include yeast, milk, fish, eggs, and meat.
- **Vitamin C** allows the body's immune system to fight various diseases, strengthens body tissue, and improves the body's use of iron; food sources for vitamin C include a wide variety of fruits and vegetables.
- **Vitamin D** helps the body absorb calcium which strengthens bones and teeth; food sources for vitamin D include oily fish and dairy products.
- **Vitamin E** can help protect certain organs and tissues from various degenerative diseases; food sources for vitamin E include margarine, vegetables, eggs, and fish.
- **Vitamin K** is essential for bone formation and blood clotting; common food sources for vitamin K include leafy green vegetables.
- **Folic Acid** maintains healthy cells and blood and, when taken by a pregnant woman, can prevent her fetus from developing neural tube defects; food sources for folic acid include nuts, fortified breads, leafy green vegetables, and whole grains.

It should be noted that one can overdose on certain vitamins which become toxic if consumed in excess (e.g. vitamin A, D, E and K).

Like vitamins, minerals are chemicals that are required by the body to remain in good health. Because the human body does not manufacture these chemicals internally, we obtain them from food and other dietary sources. The more important minerals include:

- **Calcium** is needed for healthy bones, teeth, and muscles, but also helps the nervous system function; food sources for calcium include dry beans, peas, eggs, and dairy products.
- **Chromium** is helpful in regulating sugar levels in blood; food sources for chromium include egg yolks, raw sugar, cheese, nuts, beets, whole grains, and meat.

- **Fluoride** is used by the body to help prevent tooth decay and to reinforce bone strength; sources of fluoride include drinking water and certain brands of toothpaste.
- **Iodine** helps regulate the body's use of energy by synthesizing into the hormone thyroxine; food sources include leafy green vegetables, nuts, egg yolks, and red meat.
- **Iron** helps maintain muscles and the formation of red blood cells and certain proteins; food sources for iron include meat, dairy products, eggs, and leafy green vegetables.
- **Magnesium** is important for the production of DNA, as well as for healthy teeth, bones, muscles, and nerves; food sources for magnesium include dried fruit, dark green vegetables, nuts, and seafood.
- **Phosphorous** is used by the body to work with calcium to form bones and teeth; food sources for phosphorous include eggs, meat, cereals, and dairy products.
- **Selenium** primarily helps maintain normal heart and liver functions; food sources for selenium include wholegrain cereals, fish, meat, and dairy products.
- **Zinc** helps wounds heal, the formation of sperm, and encourage rapid growth and energy; food sources include dried beans, shellfish, eggs, and nuts.

The United States government periodically publishes recommended diets and consumption levels of the various elements of food. Again, your doctor may encourage deviations from the average official recommendation based on your specific condition. To learn more about basic dietary guidelines, visit the Web site: <http://www.health.gov/dietaryguidelines/>. Based on these guidelines, many foods are required to list the nutrition levels on the food's packaging. Labeling Requirements are listed at the following site maintained by the Food and Drug Administration: <http://www.cfsan.fda.gov/~dms/lab-cons.html>. When interpreting these requirements, the government recommends that consumers become familiar with the following abbreviations before reading FDA literature:⁴⁸

- **DVs (Daily Values):** A new dietary reference term that will appear on the food label. It is made up of two sets of references, DRVs and RDIs.
- **DRVs (Daily Reference Values):** A set of dietary references that applies to fat, saturated fat, cholesterol, carbohydrate, protein, fiber, sodium, and potassium.

⁴⁸ Adapted from the FDA: <http://www.fda.gov/fdac/special/foodlabel/dvs.html>.

- **RDIs (Reference Daily Intakes):** A set of dietary references based on the Recommended Dietary Allowances for essential vitamins and minerals and, in selected groups, protein. The name “RDI” replaces the term “U.S. RDA.”
- **RDAs (Recommended Dietary Allowances):** A set of estimated nutrient allowances established by the National Academy of Sciences. It is updated periodically to reflect current scientific knowledge.

What Are Dietary Supplements?⁴⁹

Dietary supplements are widely available through many commercial sources, including health food stores, grocery stores, pharmacies, and by mail. Dietary supplements are provided in many forms including tablets, capsules, powders, gel-tabs, extracts, and liquids. Historically in the United States, the most prevalent type of dietary supplement was a multivitamin/mineral tablet or capsule that was available in pharmacies, either by prescription or “over the counter.” Supplements containing strictly herbal preparations were less widely available. Currently in the United States, a wide array of supplement products are available, including vitamin, mineral, other nutrients, and botanical supplements as well as ingredients and extracts of animal and plant origin.

The Office of Dietary Supplements (ODS) of the National Institutes of Health is the official agency of the United States which has the expressed goal of acquiring “new knowledge to help prevent, detect, diagnose, and treat disease and disability, from the rarest genetic disorder to the common cold.”⁵⁰ According to the ODS, dietary supplements can have an important impact on the prevention and management of disease and on the maintenance of health.⁵¹ The ODS notes that considerable research on the effects of dietary supplements has been conducted in Asia and Europe where the use of plant products, in particular, has a long tradition. However, the

⁴⁹ This discussion has been adapted from the NIH:
<http://ods.od.nih.gov/whatare/whatare.html>.

⁵⁰ Contact: The Office of Dietary Supplements, National Institutes of Health, Building 31, Room 1B29, 31 Center Drive, MSC 2086, Bethesda, Maryland 20892-2086, Tel: (301) 435-2920, Fax: (301) 480-1845, E-mail: ods@nih.gov.

⁵¹ Adapted from <http://ods.od.nih.gov/about/about.html>. The Dietary Supplement Health and Education Act defines dietary supplements as “a product (other than tobacco) intended to supplement the diet that bears or contains one or more of the following dietary ingredients: a vitamin, mineral, amino acid, herb or other botanical; or a dietary substance for use to supplement the diet by increasing the total dietary intake; or a concentrate, metabolite, constituent, extract, or combination of any ingredient described above; and intended for ingestion in the form of a capsule, powder, softgel, or gelcap, and not represented as a conventional food or as a sole item of a meal or the diet.”

overwhelming majority of supplements have not been studied scientifically. To explore the role of dietary supplements in the improvement of health care, the ODS plans, organizes, and supports conferences, workshops, and symposia on scientific topics related to dietary supplements. The ODS often works in conjunction with other NIH Institutes and Centers, other government agencies, professional organizations, and public advocacy groups.

To learn more about official information on dietary supplements, visit the ODS site at <http://ods.od.nih.gov/whatare/whatare.html>. Or contact:

The Office of Dietary Supplements
National Institutes of Health
Building 31, Room 1B29
31 Center Drive, MSC 2086
Bethesda, Maryland 20892-2086
Tel: (301) 435-2920
Fax: (301) 480-1845
E-mail: ods@nih.gov

Finding Studies on Gout

The NIH maintains an office dedicated to patient nutrition and diet. The National Institutes of Health's Office of Dietary Supplements (ODS) offers a searchable bibliographic database called the IBIDS (International Bibliographic Information on Dietary Supplements). The IBIDS contains over 460,000 scientific citations and summaries about dietary supplements and nutrition as well as references to published international, scientific literature on dietary supplements such as vitamins, minerals, and botanicals.⁵² IBIDS is available to the public free of charge through the ODS Internet page: <http://ods.od.nih.gov/databases/ibids.html>.

After entering the search area, you have three choices: (1) IBIDS Consumer Database, (2) Full IBIDS Database, or (3) Peer Reviewed Citations Only. We recommend that you start with the Consumer Database. While you may not find references for the topics that are of most interest to you, check back periodically as this database is frequently updated. More studies can be

⁵² Adapted from <http://ods.od.nih.gov>. IBIDS is produced by the Office of Dietary Supplements (ODS) at the National Institutes of Health to assist the public, healthcare providers, educators, and researchers in locating credible, scientific information on dietary supplements. IBIDS was developed and will be maintained through an interagency partnership with the Food and Nutrition Information Center of the National Agricultural Library, U.S. Department of Agriculture.

found by searching the Full IBIDS Database. Healthcare professionals and researchers generally use the third option, which lists peer-reviewed citations. In all cases, we suggest that you take advantage of the “Advanced Search” option that allows you to retrieve up to 100 fully explained references in a comprehensive format. Type “gout” (or synonyms) into the search box. To narrow the search, you can also select the “Title” field.

The following information is typical of that found when using the “Full IBIDS Database” when searching using “gout” (or a synonym):

- **A practical approach to gout. Current management of an 'old' disease.**
 Author(s): Division of Rheumatology, UCSF 94143-0633, USA.
 jdavis@medicine.ucsf.edu
 Source: Davis, J C Postgrad-Med. 1999 October 1; 106(4): 115-6, 119-23
 0032-5481
- **A structural approach to pathological crystallizations. Gout: the possible role of albumin in sodium urate crystallization.**
 Author(s): Department of Structural Chemistry, Weizmann Institute of Science, Rehovot, Israel.
 Source: Perl Treves, D Addadi, L Proc-R-Soc-Lond-B-Biol-Sci. 1988
 November 22; 235(1279): 145-59 0080-4649
- **Acute gout of the right sacroiliac joint.**
 Author(s): Department of Dermatology, Reish Polyclinic, Haifa, Israel.
 Source: Abraham, Z Gluck, Z J-Dermatol. 1997 December; 24(12): 781-3
 0385-2407
- **An aberration of fructose metabolism in familial gout identified by 31P magnetic resonance spectroscopy of the liver.**
 Author(s): Department of Biochemistry, John Radcliffe Hospital, Oxford, United Kingdom.
 Source: Seegmiller, J E Dixon, R M Kemp, G J Angus, P W McAlindon, T E Dieppe, P Rajagopalan, B Radda, G K Trans-Assoc-Am-Physicians. 1990; 103298-306 0066-9458
- **An oil rig worker presenting with acute gout.**
 Author(s): Princess Alexandra Hospital Trust, Harlow.
 Source: Hynes, D Wyndham, M Golding, D Practitioner. 1997 May; 241(1574): 239-41, 243-5 0032-6518
- **Antigout medications.**
 Source: Gray, M A Orthop-Nurs. 1993 Jul-August; 12(4): 53-5 0744-6020
- **Case report 599: Secondary oxalosis complicating chronic renal failure (oxalate gout).**
 Author(s): Department of Radiology, University of Michigan Hospitals, Ann Arbor.

Source: Coral, A van Holsbeeck, M Hegg, C Skeletal-Radiol. 1990; 19(2): 147-9 0364-2348

- **Comparative trial of azapropazone and indomethacin plus allopurinol in acute gout and hyperuricaemia.**

Source: Fraser, R C Davis, R H Walker, F S J-R-Coll-Gen-Pract. 1987 September; 37(302): 409-11 0035-8797

- **Concurrent gout and suspected hypovitaminosis A in crocodile hatchlings.**

Author(s): Department of Biomedical and Tropical Veterinary Sciences, James Cook University, Townsville, Queensland.

Source: Ariel, E Ladds, P W Buenviaje, G N Aust-Vet-J. 1997 April; 75(4): 247-9 0005-0423

- **Conquest of the gout.**

Source: Brick, J E W-V-Med-J. 1991 October; 87(10): 470-2 0043-3284

- **Diversity of opinions on the management of gout in France. A survey of 750 rheumatologists.**

Author(s): Department of Rheumatology, Pitie Teaching Hospital, Paris.

Source: Rozenberg, S Lang, T Laatar, A Koeger, A C Orcel, P Bourgerois, P Rev-Rhum-Engl-Ed. 1996 April; 63(4): 255-61 1169-8446

- **Does colchicine work? The results of the first controlled study in acute gout.**

Author(s): Department of Medicine, Flinders University of South Australia.

Source: Ahern, M J Reid, C Gordon, T P McCredie, M Brooks, P M Jones, M Aust-N-Z-J-Med. 1987 June; 17(3): 301-4 0004-8291

- **Gout and hyperuricaemia.**

Source: Faragher, R I Caelli, D J Aust-Fam-Physician. 1987 June; 16(6): 843-4, 848 0300-8495

- **Gout of the spine. Two case reports and a review of the literature.**

Author(s): Department of Radiology, Queen's University, Kingston, Canada.

Source: Fenton, P Young, S Prutis, K J-Bone-Joint-Surg-Am. 1995 May; 77(5): 767-71 0021-9355

- **Intractable gouty arthritis.**

Source: McCarty, D J Hosp-Pract-(Off-Ed). 1987 June 15; 22(6): 191-5, 198, 202-4, 206-9 8750-2836

- **Missed diagnosis of acute arthritic gout in kidney transplant recipients.**

Author(s): Department of Medicine, State University of New York, Health Science Center, Brooklyn 11203.

Source: Daniels, I D Friedman, E A N-Y-State-J-Med. 1993 January; 93(1): 55-7 0028-7628

- **Rational treatment of gout. Stopping an attack and preventing recurrence.**
Author(s): Section of Rheumatology, West Virginia University School of Medicine, Morgantown.
Source: Vawter, R L Antonelli, M A Postgrad-Med. 1992 February 1; 91(2): 115-8, 127 0032-5481
- **Treating gout in the presence of cardiac failure.**
Author(s): Tameside General Hospital, Ashton-under-Lyme, Lancashire.
Source: Jolobe, O Practitioner. 1994 June; 238(1539): 489-90 0032-6518
- **Uric acid nephrolithiasis.**
Author(s): Department of Metabolism, Beilinson Medical Center, Petah Tikva, Israel.
Source: Halabe, A Sperling, O Miner-Electrolyte-Metab. 1994; 20(6): 424-31 0378-0392
- **Withdrawal of longterm antihyperuricemic therapy in tophaceous gout.**
Source: Gast, L F Clin-Rheumatol. 1987 March; 6(1): 70-3 0770-3198

Federal Resources on Nutrition

In addition to the IBIDS, the United States Department of Health and Human Services (HHS) and the United States Department of Agriculture (USDA) provide many sources of information on general nutrition and health. Recommended resources include:

- healthfinder®, HHS's gateway to health information, including diet and nutrition:
<http://www.healthfinder.gov/scripts/SearchContext.asp?topic=238&page=0>
- The United States Department of Agriculture's Web site dedicated to nutrition information: www.nutrition.gov
- The Food and Drug Administration's Web site for federal food safety information: www.foodsafety.gov
- The National Action Plan on Overweight and Obesity sponsored by the United States Surgeon General:
<http://www.surgeongeneral.gov/topics/obesity/>
- The Center for Food Safety and Applied Nutrition has an Internet site sponsored by the Food and Drug Administration and the Department of Health and Human Services: <http://vm.cfsan.fda.gov/>

- Center for Nutrition Policy and Promotion sponsored by the United States Department of Agriculture: <http://www.usda.gov/cnpp/>
- Food and Nutrition Information Center, National Agricultural Library sponsored by the United States Department of Agriculture: <http://www.nal.usda.gov/fnic/>
- Food and Nutrition Service sponsored by the United States Department of Agriculture: <http://www.fns.usda.gov/fns/>

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering food and nutrition. The following is a representative sample:

- AOL: <http://search.aol.com/cat.adp?id=174&layer=&from=subcats>
- Family Village: http://www.familyvillage.wisc.edu/med_nutrition.html
- Google: <http://directory.google.com/Top/Health/Nutrition/>
- Healthnotes: <http://www.thedacare.org/healthnotes/>
- Open Directory Project: <http://dmoz.org/Health/Nutrition/>
- Yahoo.com: <http://dir.yahoo.com/Health/Nutrition/>
- WebMD® Health: <http://my.webmd.com/nutrition>
- WholeHealthMD.com:
<http://www.wholehealthmd.com/reflib/0,1529,,00.html>

The following is a specific Web list relating to gout; please note that any particular subject below may indicate either a therapeutic use, or a contraindication (potential danger), and does not reflect an official recommendation:

- **Vitamins**

- **Folic Acid**

- Source: Healthnotes, Inc.; www.healthnotes.com

- Hyperlink:

- http://www.thedacare.org/healthnotes/Supp/Folic_Acid.htm

- **Niacin**

- Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Niacin

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsSupplements/VitaminB3Niacins.html>

Niacin

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,892,00.html

Niacinamide

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Niacinamide

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Pantothenic Acid

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Vitamin A

Source: Prima Communications, Inc.

Hyperlink: <http://www.personalhealthzone.com/pg000230.html>

Vitamin B

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10067,00.html

Vitamin B12

Source: Prima Communications, Inc.

Hyperlink: <http://www.personalhealthzone.com/pg000134.html>

Vitamin B3

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Supp/Vitamin_B3.htm

Vitamin B3

Source: Prima Communications, Inc.

Hyperlink: <http://www.personalhealthzone.com/pg000188.html>

Vitamin B3 (Niacin)

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsSupplements/VitaminB3Niacins.html>

Vitamin C

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Supp/Vitamin_C.htm

Vitamin C

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,904,00.html

Vitamin E

Source: Prima Communications, Inc.

Hyperlink: <http://www.personalhealthzone.com/pg000092.html>

- **Minerals**

Alpha-Tocopherol

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Boron

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Boron

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Boron

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Calcium

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Calcium

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Chondroitin

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Chondroitin

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Copper

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Copper

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/InteractiveMedicine/ConsSupplements/Interactions/Coppercs.html>

Copper

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsSupplements/Coppercs.html>

Diclofenac Sodium

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Diclofenac Sodium

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Folate

Source: Prima Communications, Inc.

Hyperlink: <http://www.personalhealthzone.com/pg000161.html>

Folate

Source: Prima Communications, Inc.

Hyperlink: <http://www.personalhealthzone.com/pg000291.html>

Glucosamine Hydrochloride

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Glucosamine Hydrochloride

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Iron

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Manganese

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Molybdenum

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Supp/Molybdenum.htm>

Naproxen Sodium

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Nicotinamide

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Phosphatidylcholine

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Quercetin

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Concern/Gout.htm>

Quercetin

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Supp/Quercetin.htm>

Quercetin

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsSupplements/Quercetincs.html>

Quercetin

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10053,00.html

Selenium

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Selenium

Source: Prima Communications, Inc.

Hyperlink: <http://www.personalhealthzone.com/pg000233.html>

Sodium Bicarbonate

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Drug/Sodium_Bicarbonate.htm

- **Food and Diet**

Asparagus

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Beef

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Beer

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Concern/Gout.htm>

Beer

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Berries

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Blackberries

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/foods_view/0,1523,142,00.html

Cartilage

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Cartilage

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Celery

Source: Prima Communications, Inc.

Hyperlink: <http://www.personalhealthzone.com/pg000291.html>

Cherries

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Food_Guide/Cherries.htm

Cherries

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Concern/Gout.htm>

Cherries

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Cherries

Source: Prima Communications, Inc.

Hyperlink: <http://www.personalhealthzone.com/pg000291.html>

Cherries

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/foods_view/0,1523,49,00.html

Chili

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Chili peppers

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Chondroitin Sulfate

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Chondroitin Sulfate

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Cod

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Coffee

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Cream

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Cream

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Cream

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Diabetes

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Dried peas

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Fasting Diet

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Diet/Fasting_Diet.htm

Fish

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Fish

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Fish

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Concern/Gout.htm>

Fish

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Fish

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Fruit

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Concern/Gout.htm>

Glucosamine Sulfate

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Glucosamine Sulfate

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Goose

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Jarlsberg

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Food_Guide/Jarlsberg.htm

Lentils

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Low-Fat Diet

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Low-Purine Diet

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Diet/Low_Purine_Diet.htm

Mackerel

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Mackerel

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Meat

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Concern/Gout.htm>

Mushrooms

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Mussels

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Nuts

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Bursitiscc.html>

Omega-3 Fatty Acids

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Omega-3 Fatty Acids

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Omega-3 Fatty Acids

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Peas

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Peppers

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Peppers

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Poultry

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Rye

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Salmon

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Sardines

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Concern/Gout.htm>

Seafood

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Seeds

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Bursitis.html>

Soy products

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/foods_view/0,1523,135,00.html

Spinach

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Sugar

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Concern/Gout.htm>

Sugar

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Tea

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Tomatoes

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Vegetables

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Vegetarian Diet

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Walnuts

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Osteoarthritiscc.html>

Water

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Water

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Water

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Bursitiscc.html>

Water

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Weight Loss

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink: <http://www.thedacare.org/healthnotes/Concern/Gout.htm>

Weight Loss

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

<http://www.thedacare.org/healthnotes/Concern/Osteoarthritis.htm>

Weight Loss

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Weight Loss

Source: Integrative Medicine Communications; www.onemedicine.com

Hyperlink:

<http://www.drkoop.com/interactivemedicine/ConsConditions/Goutcc.html>

Wheat

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Zinc Sulfate

Source: Healthnotes, Inc.; www.healthnotes.com

Hyperlink:

http://www.thedacare.org/healthnotes/Concern/Rheumatoid_Arthritis.htm

Vocabulary Builder

The following vocabulary builder defines words used in the references in this chapter that have not been defined in previous chapters:

Dermatology: A medical specialty concerned with the skin, its structure, functions, diseases, and treatment. [NIH]

Electrolyte: A substance that dissociates into ions when fused or in solution, and thus becomes capable of conducting electricity; an ionic solute. [EU]

Hypovitaminosis: A condition due to a deficiency of one or more essential vitamins. [EU]

Overdose: 1. to administer an excessive dose. 2. an excessive dose. [EU]

Potassium: An element that is in the alkali group of metals. It has an atomic symbol K, atomic number 19, and atomic weight 39.10. It is the chief cation in the intracellular fluid of muscle and other cells. Potassium ion is a strong electrolyte and it plays a significant role in the regulation of fluid volume and maintenance of the water-electrolyte balance. [NIH]

Riboflavin: Nutritional factor found in milk, eggs, malted barley, liver, kidney, heart, and leafy vegetables. The richest natural source is yeast. It occurs in the free form only in the retina of the eye, in whey, and in urine; its principal forms in tissues and cells are as FMN and FAD. [NIH]

Selenium: An element with the atomic symbol Se, atomic number 34, and atomic weight 78.96. It is an essential micronutrient for mammals and other animals but is toxic in large amounts. Selenium protects intracellular structures against oxidative damage. It is an essential component of glutathione peroxidase. [NIH]

Thyroxine: An amino acid of the thyroid gland which exerts a stimulating effect on thyroid metabolism. [NIH]

Withdrawal: 1. a pathological retreat from interpersonal contact and social involvement, as may occur in schizophrenia, depression, or schizoid avoidant and schizotypal personality disorders. 2. (DSM III-R) a substance-specific organic brain syndrome that follows the cessation of use or reduction in intake of a psychoactive substance that had been regularly used to induce a state of intoxication. [EU]

APPENDIX D. FINDING MEDICAL LIBRARIES

Overview

At a medical library you can find medical texts and reference books, consumer health publications, specialty newspapers and magazines, as well as medical journals. In this Appendix, we show you how to quickly find a medical library in your area.

Preparation

Before going to the library, highlight the references mentioned in this sourcebook that you find interesting. Focus on those items that are not available via the Internet, and ask the reference librarian for help with your search. He or she may know of additional resources that could be helpful to you. Most importantly, your local public library and medical libraries have Interlibrary Loan programs with the National Library of Medicine (NLM), one of the largest medical collections in the world. According to the NLM, most of the literature in the general and historical collections of the National Library of Medicine is available on interlibrary loan to any library. NLM's interlibrary loan services are only available to libraries. If you would like to access NLM medical literature, then visit a library in your area that can request the publications for you.⁵³

⁵³ Adapted from the NLM: <http://www.nlm.nih.gov/psd/cas/interlibrary.html>.

Finding a Local Medical Library

The quickest method to locate medical libraries is to use the Internet-based directory published by the National Network of Libraries of Medicine (NN/LM). This network includes 4626 members and affiliates that provide many services to librarians, health professionals, and the public. To find a library in your area, simply visit <http://nnlm.gov/members/adv.html> or call 1-800-338-7657.

Medical Libraries Open to the Public

In addition to the NN/LM, the National Library of Medicine (NLM) lists a number of libraries that are generally open to the public and have reference facilities. The following is the NLM's list plus hyperlinks to each library Web site. These Web pages can provide information on hours of operation and other restrictions. The list below is a small sample of libraries recommended by the National Library of Medicine (sorted alphabetically by name of the U.S. state or Canadian province where the library is located):⁵⁴

- **Alabama:** Health InfoNet of Jefferson County (Jefferson County Library Cooperative, Lister Hill Library of the Health Sciences), <http://www.uab.edu/infonet/>
- **Alabama:** Richard M. Scrushy Library (American Sports Medicine Institute), <http://www.asmi.org/LIBRARY.HTM>
- **Arizona:** Samaritan Regional Medical Center: The Learning Center (Samaritan Health System, Phoenix, Arizona), <http://www.samaritan.edu/library/bannerlibs.htm>
- **California:** Kris Kelly Health Information Center (St. Joseph Health System), <http://www.humboldt1.com/~kkhic/index.html>
- **California:** Community Health Library of Los Gatos (Community Health Library of Los Gatos), <http://www.healthlib.org/orgresources.html>
- **California:** Consumer Health Program and Services (CHIPS) (County of Los Angeles Public Library, Los Angeles County Harbor-UCLA Medical Center Library) - Carson, CA, <http://www.colapublib.org/services/chips.html>
- **California:** Gateway Health Library (Sutter Gould Medical Foundation)
- **California:** Health Library (Stanford University Medical Center), <http://www-med.stanford.edu/healthlibrary/>

⁵⁴ Abstracted from <http://www.nlm.nih.gov/medlineplus/libraries.html>.

- **California:** Patient Education Resource Center - Health Information and Resources (University of California, San Francisco), <http://sfghdean.ucsf.edu/barnett/PERC/default.asp>
- **California:** Redwood Health Library (Petaluma Health Care District), <http://www.phcd.org/rdwplib.html>
- **California:** San José PlaneTree Health Library, <http://planetreesanjose.org/>
- **California:** Sutter Resource Library (Sutter Hospitals Foundation), <http://go.sutterhealth.org/comm/resc-library/sac-resources.html>
- **California:** University of California, Davis. Health Sciences Libraries
- **California:** ValleyCare Health Library & Ryan Comer Cancer Resource Center (ValleyCare Health System), <http://www.valleycare.com/library.html>
- **California:** Washington Community Health Resource Library (Washington Community Health Resource Library), <http://www.healthlibrary.org/>
- **Colorado:** William V. Gervasini Memorial Library (Exempla Healthcare), <http://www.exempla.org/conslib.htm>
- **Connecticut:** Hartford Hospital Health Science Libraries (Hartford Hospital), <http://www.harthosp.org/library/>
- **Connecticut:** Healthnet: Connecticut Consumer Health Information Center (University of Connecticut Health Center, Lyman Maynard Stowe Library), <http://library.uchc.edu/departm/hnet/>
- **Connecticut:** Waterbury Hospital Health Center Library (Waterbury Hospital), <http://www.waterburyhospital.com/library/consumer.shtml>
- **Delaware:** Consumer Health Library (Christiana Care Health System, Eugene du Pont Preventive Medicine & Rehabilitation Institute), http://www.christianacare.org/health_guide/health_guide_pmri_health_info.cfm
- **Delaware:** Lewis B. Flinn Library (Delaware Academy of Medicine), <http://www.delamed.org/chls.html>
- **Georgia:** Family Resource Library (Medical College of Georgia), http://cmc.mcg.edu/kids_families/fam_resources/fam_res_lib/frl.htm
- **Georgia:** Health Resource Center (Medical Center of Central Georgia), <http://www.mccg.org/hrc/hrchome.asp>
- **Hawaii:** Hawaii Medical Library: Consumer Health Information Service (Hawaii Medical Library), <http://hml.org/CHIS/>

- **Idaho:** DeArmond Consumer Health Library (Kootenai Medical Center), <http://www.nicon.org/DeArmond/index.htm>
- **Illinois:** Health Learning Center of Northwestern Memorial Hospital (Northwestern Memorial Hospital, Health Learning Center), http://www.nmh.org/health_info/hlc.html
- **Illinois:** Medical Library (OSF Saint Francis Medical Center), <http://www.osfsaintfrancis.org/general/library/>
- **Kentucky:** Medical Library - Services for Patients, Families, Students & the Public (Central Baptist Hospital), <http://www.centralbap.com/education/community/library.htm>
- **Kentucky:** University of Kentucky - Health Information Library (University of Kentucky, Chandler Medical Center, Health Information Library), <http://www.mc.uky.edu/PatientEd/>
- **Louisiana:** Alton Ochsner Medical Foundation Library (Alton Ochsner Medical Foundation), <http://www.ochsner.org/library/>
- **Louisiana:** Louisiana State University Health Sciences Center Medical Library-Shreveport, <http://lib-sh.lsuhscc.edu/>
- **Maine:** Franklin Memorial Hospital Medical Library (Franklin Memorial Hospital), <http://www.fchn.org/fmh/lib.htm>
- **Maine:** Gerrish-True Health Sciences Library (Central Maine Medical Center), <http://www.cmmc.org/library/library.html>
- **Maine:** Hadley Parrot Health Science Library (Eastern Maine Healthcare), <http://www.emh.org/hll/hpl/guide.htm>
- **Maine:** Maine Medical Center Library (Maine Medical Center), <http://www.mmc.org/library/>
- **Maine:** Parkview Hospital, <http://www.parkviewhospital.org/communit.htm#Library>
- **Maine:** Southern Maine Medical Center Health Sciences Library (Southern Maine Medical Center), <http://www.smmc.org/services/service.php3?choice=10>
- **Maine:** Stephens Memorial Hospital Health Information Library (Western Maine Health), http://www.wmhcc.com/hil_frame.html
- **Manitoba, Canada:** Consumer & Patient Health Information Service (University of Manitoba Libraries), <http://www.umanitoba.ca/libraries/units/health/reference/chis.html>
- **Manitoba, Canada:** J.W. Crane Memorial Library (Deer Lodge Centre), <http://www.deerlodge.mb.ca/library/libraryservices.shtml>

- **Maryland:** Health Information Center at the Wheaton Regional Library (Montgomery County, Md., Dept. of Public Libraries, Wheaton Regional Library), <http://www.mont.lib.md.us/healthinfo/hic.asp>
- **Massachusetts:** Baystate Medical Center Library (Baystate Health System), <http://www.baystatehealth.com/1024/>
- **Massachusetts:** Boston University Medical Center Alumni Medical Library (Boston University Medical Center), <http://med-libwww.bu.edu/library/lib.html>
- **Massachusetts:** Lowell General Hospital Health Sciences Library (Lowell General Hospital), <http://www.lowellgeneral.org/library/HomePageLinks/WWW.htm>
- **Massachusetts:** Paul E. Woodard Health Sciences Library (New England Baptist Hospital), http://www.nebh.org/health_lib.asp
- **Massachusetts:** St. Luke's Hospital Health Sciences Library (St. Luke's Hospital), <http://www.southcoast.org/library/>
- **Massachusetts:** Treadwell Library Consumer Health Reference Center (Massachusetts General Hospital), <http://www.mgh.harvard.edu/library/chrcindex.html>
- **Massachusetts:** UMass HealthNet (University of Massachusetts Medical School), <http://healthnet.umassmed.edu/>
- **Michigan:** Botsford General Hospital Library - Consumer Health (Botsford General Hospital, Library & Internet Services), <http://www.botsfordlibrary.org/consumer.htm>
- **Michigan:** Helen DeRoy Medical Library (Providence Hospital and Medical Centers), <http://www.providence-hospital.org/library/>
- **Michigan:** Marquette General Hospital - Consumer Health Library (Marquette General Hospital, Health Information Center), <http://www.mgh.org/center.html>
- **Michigan:** Patient Education Resource Center - University of Michigan Cancer Center (University of Michigan Comprehensive Cancer Center), <http://www.cancer.med.umich.edu/learn/leares.htm>
- **Michigan:** Sladen Library & Center for Health Information Resources - Consumer Health Information, <http://www.sladen.hfhs.org/library/consumer/index.html>
- **Montana:** Center for Health Information (St. Patrick Hospital and Health Sciences Center), <http://www.saintpatrick.org/chi/librarydetail.php3?ID=41>

- **National:** Consumer Health Library Directory (Medical Library Association, Consumer and Patient Health Information Section), <http://caphis.mlanet.org/directory/index.html>
- **National:** National Network of Libraries of Medicine (National Library of Medicine) - provides library services for health professionals in the United States who do not have access to a medical library, <http://nmlm.gov/>
- **National:** NN/LM List of Libraries Serving the Public (National Network of Libraries of Medicine), <http://nmlm.gov/members/>
- **Nevada:** Health Science Library, West Charleston Library (Las Vegas Clark County Library District), http://www.lvccld.org/special_collections/medical/index.htm
- **New Hampshire:** Dartmouth Biomedical Libraries (Dartmouth College Library), <http://www.dartmouth.edu/~biomed/resources.html#conshealth.html#/>
- **New Jersey:** Consumer Health Library (Rahway Hospital), <http://www.rahwayhospital.com/library.htm>
- **New Jersey:** Dr. Walter Phillips Health Sciences Library (Englewood Hospital and Medical Center), <http://www.Englewoodhospital.com/links/index.htm>
- **New Jersey:** Meland Foundation (Englewood Hospital and Medical Center), <http://www.geocities.com/ResearchTriangle/9360/>
- **New York:** Choices in Health Information (New York Public Library) - NLM Consumer Pilot Project participant, <http://www.nypl.org/branch/health/links.html>
- **New York:** Health Information Center (Upstate Medical University, State University of New York), <http://www.upstate.edu/library/hic/>
- **New York:** Health Sciences Library (Long Island Jewish Medical Center), <http://www.lij.edu/library/library.html>
- **New York:** ViaHealth Medical Library (Rochester General Hospital), <http://www.nyam.org/library/>
- **Ohio:** Consumer Health Library (Akron General Medical Center, Medical & Consumer Health Library), <http://www.akrongeneral.org/hwlibrary.htm>
- **Oklahoma:** Saint Francis Health System Patient/Family Resource Center (Saint Francis Health System), <http://www.sfh-tulsa.com/patientfamilycenter/default.asp>

- **Oregon:** Planetree Health Resource Center (Mid-Columbia Medical Center), <http://www.mcmc.net/phrc/>
- **Pennsylvania:** Community Health Information Library (Milton S. Hershey Medical Center), <http://www.hmc.psu.edu/commhealth/>
- **Pennsylvania:** Community Health Resource Library (Geisinger Medical Center), <http://www.geisinger.edu/education/commlib.shtml>
- **Pennsylvania:** HealthInfo Library (Moses Taylor Hospital), <http://www.mth.org/healthwellness.html>
- **Pennsylvania:** Hopwood Library (University of Pittsburgh, Health Sciences Library System), <http://www.hslls.pitt.edu/chi/hhrcinfo.html>
- **Pennsylvania:** Koop Community Health Information Center (College of Physicians of Philadelphia), <http://www.collphyphil.org/koopp1.shtml>
- **Pennsylvania:** Learning Resources Center - Medical Library (Susquehanna Health System), <http://www.shscares.org/services/lrc/index.asp>
- **Pennsylvania:** Medical Library (UPMC Health System), <http://www.upmc.edu/passavant/library.htm>
- **Quebec, Canada:** Medical Library (Montreal General Hospital), <http://ww2.mcgill.ca/mghlib/>
- **South Dakota:** Rapid City Regional Hospital - Health Information Center (Rapid City Regional Hospital, Health Information Center), <http://www.rcrh.org/education/LibraryResourcesConsumers.htm>
- **Texas:** Houston HealthWays (Houston Academy of Medicine-Texas Medical Center Library), <http://hww.library.tmc.edu/>
- **Texas:** Matustik Family Resource Center (Cook Children's Health Care System), http://www.cookchildrens.com/Matustik_Library.html
- **Washington:** Community Health Library (Kittitas Valley Community Hospital), <http://www.kvch.com/>
- **Washington:** Southwest Washington Medical Center Library (Southwest Washington Medical Center), <http://www.swmedctr.com/Home/>

APPENDIX E. YOUR RIGHTS AND INSURANCE

Overview

Any patient with gout faces a series of issues related more to the healthcare industry than to the medical condition itself. This appendix covers two important topics in this regard: your rights and responsibilities as a patient, and how to get the most out of your medical insurance plan.

Your Rights as a Patient

The President's Advisory Commission on Consumer Protection and Quality in the Healthcare Industry has created the following summary of your rights as a patient.⁵⁵

Information Disclosure

Consumers have the right to receive accurate, easily understood information. Some consumers require assistance in making informed decisions about health plans, health professionals, and healthcare facilities. Such information includes:

- **Health plans.** Covered benefits, cost-sharing, and procedures for resolving complaints, licensure, certification, and accreditation status, comparable measures of quality and consumer satisfaction, provider network composition, the procedures that govern access to specialists and emergency services, and care management information.

⁵⁵Adapted from Consumer Bill of Rights and Responsibilities:
<http://www.hcqualitycommission.gov/press/cbor.html#head1>.

- **Health professionals.** Education, board certification, and recertification, years of practice, experience performing certain procedures, and comparable measures of quality and consumer satisfaction.
- **Healthcare facilities.** Experience in performing certain procedures and services, accreditation status, comparable measures of quality, worker, and consumer satisfaction, and procedures for resolving complaints.
- **Consumer assistance programs.** Programs must be carefully structured to promote consumer confidence and to work cooperatively with health plans, providers, payers, and regulators. Desirable characteristics of such programs are sponsorship that ensures accountability to the interests of consumers and stable, adequate funding.

Choice of Providers and Plans

Consumers have the right to a choice of healthcare providers that is sufficient to ensure access to appropriate high-quality healthcare. To ensure such choice, the Commission recommends the following:

- **Provider network adequacy.** All health plan networks should provide access to sufficient numbers and types of providers to assure that all covered services will be accessible without unreasonable delay -- including access to emergency services 24 hours a day and 7 days a week. If a health plan has an insufficient number or type of providers to provide a covered benefit with the appropriate degree of specialization, the plan should ensure that the consumer obtains the benefit outside the network at no greater cost than if the benefit were obtained from participating providers.
- **Women's health services.** Women should be able to choose a qualified provider offered by a plan -- such as gynecologists, certified nurse midwives, and other qualified healthcare providers -- for the provision of covered care necessary to provide routine and preventative women's healthcare services.
- **Access to specialists.** Consumers with complex or serious medical conditions who require frequent specialty care should have direct access to a qualified specialist of their choice within a plan's network of providers. Authorizations, when required, should be for an adequate number of direct access visits under an approved treatment plan.
- **Transitional care.** Consumers who are undergoing a course of treatment for a chronic or disabling condition (or who are in the second or third trimester of a pregnancy) at the time they involuntarily change health

plans or at a time when a provider is terminated by a plan for other than cause should be able to continue seeing their current specialty providers for up to 90 days (or through completion of postpartum care) to allow for transition of care.

- ***Choice of health plans.*** Public and private group purchasers should, wherever feasible, offer consumers a choice of high-quality health insurance plans.

Access to Emergency Services

Consumers have the right to access emergency healthcare services when and where the need arises. Health plans should provide payment when a consumer presents to an emergency department with acute symptoms of sufficient severity--including severe pain--such that a "prudent layperson" could reasonably expect the absence of medical attention to result in placing that consumer's health in serious jeopardy, serious impairment to bodily functions, or serious dysfunction of any bodily organ or part.

Participation in Treatment Decisions

Consumers have the right and responsibility to fully participate in all decisions related to their healthcare. Consumers who are unable to fully participate in treatment decisions have the right to be represented by parents, guardians, family members, or other conservators. Physicians and other health professionals should:

- Provide patients with sufficient information and opportunity to decide among treatment options consistent with the informed consent process.
- Discuss all treatment options with a patient in a culturally competent manner, including the option of no treatment at all.
- Ensure that persons with disabilities have effective communications with members of the health system in making such decisions.
- Discuss all current treatments a consumer may be undergoing.
- Discuss all risks, benefits, and consequences to treatment or nontreatment.
- Give patients the opportunity to refuse treatment and to express preferences about future treatment decisions.

- Discuss the use of advance directives -- both living wills and durable powers of attorney for healthcare -- with patients and their designated family members.
- Abide by the decisions made by their patients and/or their designated representatives consistent with the informed consent process.

Health plans, health providers, and healthcare facilities should:

- Disclose to consumers factors -- such as methods of compensation, ownership of or interest in healthcare facilities, or matters of conscience -- that could influence advice or treatment decisions.
- Assure that provider contracts do not contain any so-called "gag clauses" or other contractual mechanisms that restrict healthcare providers' ability to communicate with and advise patients about medically necessary treatment options.
- Be prohibited from penalizing or seeking retribution against healthcare professionals or other health workers for advocating on behalf of their patients.

Respect and Nondiscrimination

Consumers have the right to considerate, respectful care from all members of the healthcare industry at all times and under all circumstances. An environment of mutual respect is essential to maintain a quality healthcare system. To assure that right, the Commission recommends the following:

- Consumers must not be discriminated against in the delivery of healthcare services consistent with the benefits covered in their policy, or as required by law, based on race, ethnicity, national origin, religion, sex, age, mental or physical disability, sexual orientation, genetic information, or source of payment.
- Consumers eligible for coverage under the terms and conditions of a health plan or program, or as required by law, must not be discriminated against in marketing and enrollment practices based on race, ethnicity, national origin, religion, sex, age, mental or physical disability, sexual orientation, genetic information, or source of payment.

Confidentiality of Health Information

Consumers have the right to communicate with healthcare providers in confidence and to have the confidentiality of their individually identifiable

healthcare information protected. Consumers also have the right to review and copy their own medical records and request amendments to their records.

Complaints and Appeals

Consumers have the right to a fair and efficient process for resolving differences with their health plans, healthcare providers, and the institutions that serve them, including a rigorous system of internal review and an independent system of external review. A free copy of the Patient's Bill of Rights is available from the American Hospital Association.⁵⁶

Patient Responsibilities

Treatment is a two-way street between you and your healthcare providers. To underscore the importance of finance in modern healthcare as well as your responsibility for the financial aspects of your care, the President's Advisory Commission on Consumer Protection and Quality in the Healthcare Industry has proposed that patients understand the following "Consumer Responsibilities."⁵⁷ In a healthcare system that protects consumers' rights, it is reasonable to expect and encourage consumers to assume certain responsibilities. Greater individual involvement by the consumer in his or her care increases the likelihood of achieving the best outcome and helps support a quality-oriented, cost-conscious environment. Such responsibilities include:

- Take responsibility for maximizing healthy habits such as exercising, not smoking, and eating a healthy diet.
- Work collaboratively with healthcare providers in developing and carrying out agreed-upon treatment plans.
- Disclose relevant information and clearly communicate wants and needs.
- Use your health insurance plan's internal complaint and appeal processes to address your concerns.
- Avoid knowingly spreading disease.

⁵⁶ To order your free copy of the Patient's Bill of Rights, telephone 312-422-3000 or visit the American Hospital Association's Web site: <http://www.aha.org>. Click on "Resource Center," go to "Search" at bottom of page, and then type in "Patient's Bill of Rights." The Patient's Bill of Rights is also available from Fax on Demand, at 312-422-2020, document number 471124.

⁵⁷ Adapted from <http://www.hcqualitycommission.gov/press/cbor.html#head1>.

- Recognize the reality of risks, the limits of the medical science, and the human fallibility of the healthcare professional.
- Be aware of a healthcare provider's obligation to be reasonably efficient and equitable in providing care to other patients and the community.
- Become knowledgeable about your health plan's coverage and options (when available) including all covered benefits, limitations, and exclusions, rules regarding use of network providers, coverage and referral rules, appropriate processes to secure additional information, and the process to appeal coverage decisions.
- Show respect for other patients and health workers.
- Make a good-faith effort to meet financial obligations.
- Abide by administrative and operational procedures of health plans, healthcare providers, and Government health benefit programs.

Choosing an Insurance Plan

There are a number of official government agencies that help consumers understand their healthcare insurance choices.⁵⁸ The U.S. Department of Labor, in particular, recommends ten ways to make your health benefits choices work best for you.⁵⁹

1. Your options are important. There are many different types of health benefit plans. Find out which one your employer offers, then check out the plan, or plans, offered. Your employer's human resource office, the health plan administrator, or your union can provide information to help you match your needs and preferences with the available plans. The more information you have, the better your healthcare decisions will be.

2. Reviewing the benefits available. Do the plans offered cover preventive care, well-baby care, vision or dental care? Are there deductibles? Answers to these questions can help determine the out-of-pocket expenses you may face. Matching your needs and those of your family members will result in the best possible benefits. Cheapest may not always be best. Your goal is high quality health benefits.

⁵⁸ More information about quality across programs is provided at the following AHRQ Web site:

<http://www.ahrq.gov/consumer/qntascii/qnthplan.htm>.

⁵⁹ Adapted from the Department of Labor:

<http://www.dol.gov/dol/pwba/public/pubs/health/top10-text.html>.

3. Look for quality. The quality of healthcare services varies, but quality can be measured. You should consider the quality of healthcare in deciding among the healthcare plans or options available to you. Not all health plans, doctors, hospitals and other providers give the highest quality care. Fortunately, there is quality information you can use right now to help you compare your healthcare choices. Find out how you can measure quality. Consult the U.S. Department of Health and Human Services publication "Your Guide to Choosing Quality Health Care" on the Internet at www.ahcpr.gov/consumer.

4. Your plan's summary plan description (SPD) provides a wealth of information. Your health plan administrator can provide you with a copy of your plan's SPD. It outlines your benefits and your legal rights under the Employee Retirement Income Security Act (ERISA), the federal law that protects your health benefits. It should contain information about the coverage of dependents, what services will require a co-pay, and the circumstances under which your employer can change or terminate a health benefits plan. Save the SPD and all other health plan brochures and documents, along with memos or correspondence from your employer relating to health benefits.

5. Assess your benefit coverage as your family status changes. Marriage, divorce, childbirth or adoption, and the death of a spouse are all life events that may signal a need to change your health benefits. You, your spouse and dependent children may be eligible for a special enrollment period under provisions of the Health Insurance Portability and Accountability Act (HIPAA). Even without life-changing events, the information provided by your employer should tell you how you can change benefits or switch plans, if more than one plan is offered. If your spouse's employer also offers a health benefits package, consider coordinating both plans for maximum coverage.

6. Changing jobs and other life events can affect your health benefits. Under the Consolidated Omnibus Budget Reconciliation Act (COBRA), you, your covered spouse, and your dependent children may be eligible to purchase extended health coverage under your employer's plan if you lose your job, change employers, get divorced, or upon occurrence of certain other events. Coverage can range from 18 to 36 months depending on your situation. COBRA applies to most employers with 20 or more workers and requires your plan to notify you of your rights. Most plans require eligible individuals to make their COBRA election within 60 days of the plan's notice. Be sure to follow up with your plan sponsor if you don't receive notice, and make sure you respond within the allotted time.

7. HIPAA can also help if you are changing jobs, particularly if you have a medical condition. HIPAA generally limits pre-existing condition exclusions to a maximum of 12 months (18 months for late enrollees). HIPAA also requires this maximum period to be reduced by the length of time you had prior “creditable coverage.” You should receive a certificate documenting your prior creditable coverage from your old plan when coverage ends.

8. Plan for retirement. Before you retire, find out what health benefits, if any, extend to you and your spouse during your retirement years. Consult with your employer's human resources office, your union, the plan administrator, and check your SPD. Make sure there is no conflicting information among these sources about the benefits you will receive or the circumstances under which they can change or be eliminated. With this information in hand, you can make other important choices, like finding out if you are eligible for Medicare and Medigap insurance coverage.

9. Know how to file an appeal if your health benefits claim is denied. Understand how your plan handles grievances and where to make appeals of the plan's decisions. Keep records and copies of correspondence. Check your health benefits package and your SPD to determine who is responsible for handling problems with benefit claims. Contact PWBA for customer service assistance if you are unable to obtain a response to your complaint.

10. You can take steps to improve the quality of the healthcare and the health benefits you receive. Look for and use things like Quality Reports and Accreditation Reports whenever you can. Quality reports may contain consumer ratings -- how satisfied consumers are with the doctors in their plan, for instance-- and clinical performance measures -- how well a healthcare organization prevents and treats illness. Accreditation reports provide information on how accredited organizations meet national standards, and often include clinical performance measures. Look for these quality measures whenever possible. Consult “Your Guide to Choosing Quality Health Care” on the Internet at www.ahcpr.gov/consumer.

Medicare and Medicaid

Illness strikes both rich and poor families. For low-income families, Medicaid is available to defer the costs of treatment. The Health Care Financing Administration (HCFA) administers Medicare, the nation's largest health insurance program, which covers 39 million Americans. In the following pages, you will learn the basics about Medicare insurance as well as useful

contact information on how to find more in-depth information about Medicaid.⁶⁰

Who is Eligible for Medicare?

Generally, you are eligible for Medicare if you or your spouse worked for at least 10 years in Medicare-covered employment and you are 65 years old and a citizen or permanent resident of the United States. You might also qualify for coverage if you are under age 65 but have a disability or End-Stage Renal disease (permanent kidney failure requiring dialysis or transplant). Here are some simple guidelines:

You can get Part A at age 65 without having to pay premiums if:

- You are already receiving retirement benefits from Social Security or the Railroad Retirement Board.
- You are eligible to receive Social Security or Railroad benefits but have not yet filed for them.
- You or your spouse had Medicare-covered government employment.

If you are under 65, you can get Part A without having to pay premiums if:

- You have received Social Security or Railroad Retirement Board disability benefit for 24 months.
- You are a kidney dialysis or kidney transplant patient.

Medicare has two parts:

- Part A (Hospital Insurance). Most people do not have to pay for Part A.
- Part B (Medical Insurance). Most people pay monthly for Part B.

Part A (Hospital Insurance)

Helps Pay For: Inpatient hospital care, care in critical access hospitals (small facilities that give limited outpatient and inpatient services to people in rural areas) and skilled nursing facilities, hospice care, and some home healthcare.

⁶⁰ This section has been adapted from the Official U.S. Site for Medicare Information: <http://www.medicare.gov/Basics/Overview.asp>.

Cost: Most people get Part A automatically when they turn age 65. You do not have to pay a monthly payment called a premium for Part A because you or a spouse paid Medicare taxes while you were working.

If you (or your spouse) did not pay Medicare taxes while you were working and you are age 65 or older, you still may be able to buy Part A. If you are not sure you have Part A, look on your red, white, and blue Medicare card. It will show "Hospital Part A" on the lower left corner of the card. You can also call the Social Security Administration toll free at 1-800-772-1213 or call your local Social Security office for more information about buying Part A. If you get benefits from the Railroad Retirement Board, call your local RRB office or 1-800-808-0772. For more information, call your Fiscal Intermediary about Part A bills and services. The phone number for the Fiscal Intermediary office in your area can be obtained from the following Web site: <http://www.medicare.gov/Contacts/home.asp>.

Part B (Medical Insurance)

Helps Pay For: Doctors, services, outpatient hospital care, and some other medical services that Part A does not cover, such as the services of physical and occupational therapists, and some home healthcare. Part B helps pay for covered services and supplies when they are medically necessary.

Cost: As of 2001, you pay the Medicare Part B premium of \$50.00 per month. In some cases this amount may be higher if you did not choose Part B when you first became eligible at age 65. The cost of Part B may go up 10% for each 12-month period that you were eligible for Part B but declined coverage, except in special cases. You will have to pay the extra 10% cost for the rest of your life.

Enrolling in Part B is your choice. You can sign up for Part B anytime during a 7-month period that begins 3 months before you turn 65. Visit your local Social Security office, or call the Social Security Administration at 1-800-772-1213 to sign up. If you choose to enroll in Part B, the premium is usually taken out of your monthly Social Security, Railroad Retirement, or Civil Service Retirement payment. If you do not receive any of the above payments, Medicare sends you a bill for your part B premium every 3 months. You should receive your Medicare premium bill in the mail by the 10th of the month. If you do not, call the Social Security Administration at 1-800-772-1213, or your local Social Security office. If you get benefits from the Railroad Retirement Board, call your local RRB office or 1-800-808-0772. For more information, call your Medicare carrier about bills and services. The

phone number for the Medicare carrier in your area can be found at the following Web site: <http://www.medicare.gov/Contacts/home.asp>. You may have choices in how you get your healthcare including the Original Medicare Plan, Medicare Managed Care Plans (like HMOs), and Medicare Private Fee-for-Service Plans.

Medicaid

Medicaid is a joint federal and state program that helps pay medical costs for some people with low incomes and limited resources. Medicaid programs vary from state to state. People on Medicaid may also get coverage for nursing home care and outpatient prescription drugs which are not covered by Medicare. You can find more information about Medicaid on the HCFA.gov Web site at <http://www.hcfa.gov/medicaid/medicaid.htm>.

States also have programs that pay some or all of Medicare's premiums and may also pay Medicare deductibles and coinsurance for certain people who have Medicare and a low income. To qualify, you must have:

- Part A (Hospital Insurance),
- Assets, such as bank accounts, stocks, and bonds that are not more than \$4,000 for a single person, or \$6,000 for a couple, and
- A monthly income that is below certain limits.

For more information on these programs, look at the Medicare Savings Programs brochure,
<http://www.medicare.gov/Library/PDFNavigation/PDFInterim.asp?Language=English&Type=Pub&PubID=10126>. There are also Prescription Drug Assistance Programs available. Find information on these programs which offer discounts or free medications to individuals in need at <http://www.medicare.gov/Prescription/Home.asp>.

NORD's Medication Assistance Programs

Finally, the National Organization for Rare Disorders, Inc. (NORD) administers medication programs sponsored by humanitarian-minded pharmaceutical and biotechnology companies to help uninsured or under-insured individuals secure life-saving or life-sustaining drugs.⁶¹ NORD

⁶¹ Adapted from NORD: http://www.rarediseases.org/cgi-bin/nord/progserv#patient?id=rPIzL9oD&mv_pc=30.

programs ensure that certain vital drugs are available “to those individuals whose income is too high to qualify for Medicaid but too low to pay for their prescribed medications.” The program has standards for fairness, equity, and unbiased eligibility. It currently covers some 14 programs for nine pharmaceutical companies. NORD also offers early access programs for investigational new drugs (IND) under the approved “Treatment INDs” programs of the Food and Drug Administration (FDA). In these programs, a limited number of individuals can receive investigational drugs that have yet to be approved by the FDA. These programs are generally designed for rare diseases or disorders. For more information, visit www.rarediseases.org.

Additional Resources

In addition to the references already listed in this chapter, you may need more information on health insurance, hospitals, or the healthcare system in general. The NIH has set up an excellent guidance Web site that addresses these and other issues. Topics include:⁶²

- Health Insurance:
<http://www.nlm.nih.gov/medlineplus/healthinsurance.html>
- Health Statistics:
<http://www.nlm.nih.gov/medlineplus/healthstatistics.html>
- HMO and Managed Care:
<http://www.nlm.nih.gov/medlineplus/managedcare.html>
- Hospice Care: <http://www.nlm.nih.gov/medlineplus/hospicecare.html>
- Medicaid: <http://www.nlm.nih.gov/medlineplus/medicaid.html>
- Medicare: <http://www.nlm.nih.gov/medlineplus/medicare.html>
- Nursing Homes and Long-term Care:
<http://www.nlm.nih.gov/medlineplus/nursinghomes.html>
- Patient's Rights, Confidentiality, Informed Consent, Ombudsman Programs, Privacy and Patient Issues:
<http://www.nlm.nih.gov/medlineplus/patientissues.html>

⁶² You can access this information at:

<http://www.nlm.nih.gov/medlineplus/healthsystem.html>.

APPENDIX F. MORE ON RHEUMATIC DISEASES AND ARTHRITIS

Overview

There are more than 100 rheumatic diseases. These diseases may cause pain, stiffness, and swelling in joints and other supporting structures of the body such as muscles, tendons, ligaments, and bones. Some rheumatic diseases can also affect other parts of the body, including various internal organs.

The following discussion was prepared by the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). It covers the basics of rheumatic diseases and arthritis.

What Are Rheumatic Diseases and What Is Arthritis?⁶³

Many people use the word “arthritis” to refer to all rheumatic diseases. However, the word literally means joint inflammation; that is, swelling, redness, heat, and pain caused by tissue injury or disease in the joint. The many different kinds of arthritis comprise just a portion of the rheumatic diseases. Some rheumatic diseases are described as connective tissue diseases because they affect the body’s connective tissue—the supporting framework of the body and its internal organs. Others are known as autoimmune diseases because they are caused by a problem in which the immune system harms the body’s own healthy tissues. Examples of some rheumatic diseases include:

⁶³ Adapted from The National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS): <http://www.niams.nih.gov/hi/topics/arthritis/artreu.htm>.

Examples of Rheumatic Diseases

Osteoarthritis

Also known as degenerative joint disease, osteoarthritis is the most common type of arthritis, affecting an estimated 20.7 million adults in the United States. Osteoarthritis primarily affects cartilage, which is the tissue that cushions the ends of bones within the joint. Osteoarthritis occurs when cartilage begins to fray, wear, and decay. In extreme cases, the cartilage may wear away entirely, leaving a bone-on-bone joint. Bony spurs (pointy bulges of bone) may form at the edges of the joint. Osteoarthritis can cause joint pain, reduced joint motion, loss of function, and disability. Disability results most often when the disease affects the spine and the weight-bearing joints (the knees and hips).

Rheumatoid Arthritis

Rheumatoid arthritis is an inflammatory disease of the synovium, or lining of the joint, that results in pain, stiffness, swelling, deformity, and loss of function in the joints. Inflammation most often affects joints of the hands and feet and tends to be symmetrical (occurring equally on both sides of the body). This symmetry helps distinguish rheumatoid arthritis from other types of arthritis. About 1 percent of the U.S. population (about 2.1 million people) has rheumatoid arthritis.

Fibromyalgia

Fibromyalgia is a chronic disorder that causes pain and stiffness throughout the tissues that support and move the bones and joints. Pain and localized tender points occur in the muscles and tendons, particularly those of the neck, spine, shoulders, and hips. Patients may experience widespread pain, fatigue, and sleep disturbances.

Systemic Lupus Erythematosus

Systemic lupus erythematosus (also known as lupus and SLE) is an autoimmune disease in which the immune system harms the body's own healthy cells and tissues. In SLE, this can result in inflammation of and damage to the joints, skin, kidneys, heart, lungs, blood vessels, and brain.

Scleroderma

Also known as systemic sclerosis, the word scleroderma means “hard skin.” It refers to several diseases that almost always affect the skin, blood vessels, and joints. A more serious form also affects internal organs such as the lungs and kidneys. In scleroderma, there is an abnormal and excessive production of collagen (a fiber-like protein) in the skin or internal organs.

Juvenile Rheumatoid Arthritis

This is the most common form of arthritis in childhood, causing pain, stiffness, swelling, and loss of function in the joints. The arthritis may be associated with rashes or fevers, or may affect other parts of the body.

Ankylosing Spondylitis

This type of arthritis primarily affects the spine, but may also cause arthritis in the hips, shoulders, and knees. The tendons and ligaments around the bones and joints in the spine become inflamed, resulting in pain and stiffness, especially in the lower back. Ankylosing spondylitis tends to affect people in late adolescence or early adulthood.

Gout

This type of arthritis results from deposits of needle-like crystals of uric acid in the connective tissue, joint spaces, or both. Uric acid is a normal breakdown product of purines, which are present in body tissues and in many foods. Usually, uric acid passes through the kidney into urine and is eliminated. If the concentration of uric acid in the blood rises above normal levels, sodium urate crystals may form in the tendons, ligaments, and cartilage of the joints. These needle-like crystals cause inflammation, swelling, and pain in the affected joint. The joint most commonly affected is the big toe.

Infectious Arthritis

This is a general term used to describe forms of arthritis that are caused by infectious agents, such as bacteria or viruses. Parvovirus arthritis, gonococcal arthritis, and Lyme disease are examples of infectious arthritis. In those cases

caused by bacteria, early diagnosis and treatment with antibiotics relieve the arthritis symptoms and cure the disease.

Reactive Arthritis

This form of arthritis develops after an infection involving the lower urinary tract, bowel, or other organs. It is commonly associated with eye problems, skin rashes, and mouth sores. Reiter's syndrome is an example of reactive arthritis.

Psoriatic Arthritis

This form of arthritis occurs in some patients with psoriasis, a common scaling skin disorder. Psoriatic arthritis often affects the joints at the ends of the fingers and is accompanied by changes in the fingernails and toenails. Some people also have spinal involvement.

Bursitis

This condition involves inflammation of the bursae, small, fluid-filled sacs that help reduce friction between bones and other moving structures in the joints. The inflammation may result from arthritis in the joint or injury or infection of the bursae. Bursitis produces pain and tenderness and may limit the movement of nearby joints.

Tendinitis (Tendonitis)

This refers to inflammation of tendons (tough cords of tissue that connect muscle to bone) caused by overuse, injury, or related rheumatic conditions. Tendinitis produces pain and tenderness and may restrict movement of nearby joints.

What Causes Rheumatic Disease?

The causes of rheumatic diseases vary depending on the type of disease. Researchers have pinpointed the cause or causes of some rheumatic diseases, such as infectious arthritis and gout.

The causes of most rheumatic diseases are still under investigation. In osteoarthritis, excessive stress on the joint, from repeated injury or inherited cartilage weakness, may play a role. In lupus, rheumatoid arthritis, and scleroderma, the combination of genetic factors that determine susceptibility, the influence of certain hormones, and environmental triggers are believed to be important.

Scientists are also studying the risk factors that determine why some people develop rheumatic diseases and others do not. For example, being overweight increases the likelihood that a person will develop osteoarthritis. The chance of developing osteoarthritis also increases with age. Genes and family history play a role in many rheumatic diseases including gout, rheumatoid arthritis, lupus, ankylosing spondylitis, scleroderma, and some others.

Certain rheumatic conditions, such as lupus, rheumatoid arthritis, scleroderma, and fibromyalgia, are more common among women. This indicates that hormones or other male-female differences play a role in the development of these conditions.

Who Is Affected by Arthritis and Rheumatic Conditions?

An estimated 40 million people in the United States have arthritis or other rheumatic conditions. By the year 2020, this number is expected to reach 59 million. Rheumatic diseases are the leading cause of disability among adults age 65 and older.

Rheumatic diseases affect people of all races and ages. Some rheumatic conditions are more common among certain populations. For example:

- Rheumatoid arthritis occurs two to three times more often in women than in men.
- Scleroderma is more common in women than in men.
- Nine out of 10 people who have lupus are women.
- Nine out of 10 people who have fibromyalgia are women.
- Gout is more common in men than in women.
- Lupus is three times more common in African-American women than in Caucasian women.
- Ankylosing spondylitis is more common in men than in women.

What Are the Symptoms of Arthritis?

Different types of arthritis have different symptoms. In general, people who have arthritis have pain and stiffness in the joints. Some of the more common symptoms are listed below. Early diagnosis and treatment help decrease further joint damage and help control symptoms of arthritis and many other rheumatic diseases.

Common symptoms of arthritis include:

- Swelling in one or more joints
- Stiffness around the joints that lasts for at least 1 hour in the early morning
- Constant or recurring pain or tenderness in a joint
- Difficulty using or moving a joint normally
- Warmth and redness in a joint

How Are Rheumatic Diseases Diagnosed?

Diagnosing rheumatic diseases can be difficult because some symptoms and signs are common to many different diseases. A general practitioner or family doctor may be able to evaluate a patient or refer him or her to a rheumatologist: a doctor who specializes in treating arthritis and other rheumatic diseases.

The doctor will review the patient's medical history, conduct a physical examination, and obtain laboratory tests and X rays or other imaging tests. The doctor may need to see the patient more than once to make an accurate diagnosis.

Medical History

It is vital for people with joint pain to give the doctor a complete medical history. Answers to the following questions will help the doctor make an accurate diagnosis:

- Is the pain in one or more joints?
- When does the pain occur?
- How long does the pain last?

- When did you first notice the pain?
- What were you doing when you first noticed the pain?
- Does activity make the pain better or worse?
- Have you had any illnesses or accidents that may account for the pain?
- Is there a family history of any arthritis or rheumatic diseases?
- What medicine(s) are you taking?

It may be helpful for people to keep a daily journal that describes the pain. Patients should write down what the affected joint looks like, how it feels, how long the pain lasts, and what they were doing when the pain started.

Physical Examination and Laboratory Tests

The doctor will examine all of the patient's joints for redness, warmth, deformity, ease of movement, and tenderness. Because some forms of arthritis, such as lupus, may affect other organs, a complete physical examination including the heart, lungs, abdomen, nervous system, and eyes, ears, and throat may be necessary. The doctor may order some laboratory tests to help confirm a diagnosis.

Common Laboratory Tests

- Antinuclear antibody (ANA) – This test checks blood levels of antibodies that are often present in people who have connective tissue diseases or other autoimmune disorders, such as lupus. Since the antibodies react with material in the cell's nucleus (control center), they are referred to as antinuclear antibodies. There are also tests for individual types of ANA's that may be more specific to people with certain autoimmune disorders. ANA's are also sometimes found in healthy people. Therefore, having ANA's in the blood does not necessarily mean that a person has a disease.
- Arthrocentesis – Arthrocentesis or joint aspiration is done to obtain a sample of synovial fluid. The doctor injects a local anesthetic, inserts a thin, hollow needle into the joint, and removes the synovial fluid into a syringe. The test provides important diagnostic information. For example, the test allows the doctor to see whether crystals (found in patients with gout or other types of crystal-induced arthritis) or bacteria or viruses (found in patients with infectious arthritis) are present in the joint.

- Complement—This test measures the level of complement, a group of proteins in the blood. Complement helps destroy foreign substances, such as germs, that enter the body. A low blood level of complement is common in people who have active lupus.
- Complete blood count (CBC)—This test determines the number of white blood cells, red blood cells, and platelets present in a sample of blood. Some rheumatic conditions or drugs used to treat arthritis are associated with a low white blood count (leukopenia), low red blood count (anemia), or low platelet count (thrombocytopenia). When doctors prescribe medications that affect the CBC, they periodically test the patient's blood.
- Creatinine—This blood test is commonly ordered in patients who have rheumatic diseases to monitor for underlying kidney disease.
- Erythrocyte sedimentation rate (sed rate)—This blood test is used to detect inflammation in the body. Higher sed rates indicate the presence of inflammation and are typical of many forms of arthritis, such as rheumatoid arthritis and ankylosing spondylitis, and many of the connective tissue diseases.
- Hematocrit (PCV, packed cell volume)—This test and the test for hemoglobin (a substance in the red blood cells that carries oxygen through the body) measure the number of red blood cells present in a sample of blood. A decrease in the number of red blood cells (anemia) is common in people with inflammatory arthritis and rheumatic diseases.
- Rheumatoid factor—This test determines whether rheumatoid factor is present in the blood. Rheumatoid factor is an antibody found in the blood of most (but not all) people who have rheumatoid arthritis. Rheumatoid factor may be found in many other diseases besides rheumatoid arthritis, and sometimes in normal, healthy people.
- Urinalysis—In this test, a urine sample is studied for protein, red blood cells, white blood cells, or casts. These abnormalities indicate kidney disease, which may be seen in several rheumatic diseases such as lupus or vasculitis. Some medications used to treat arthritis can also cause abnormal findings on urinalysis.
- White blood cell count (WBC)—This test determines the number of white blood cells present in a sample of blood. The number may increase as a result of infection or decrease in response to certain medications, or with certain diseases, such as lupus. Low numbers of white blood cells increase a person's risk of infections.

Work With Your Doctor To Limit Your Pain

The role you play in developing your treatment plan is very important. It is vital for you to have a good relationship with your doctor so that you can work together. You should not be afraid to ask questions about your condition or treatment. You must understand the treatment plan and tell the doctor whether or not it is helping you. Studies have shown that patients who are well informed and participate actively in their own care experience less pain and make fewer visits to the doctor than other patients do.

X Rays and Other Imaging Procedures

To see what the joint looks like inside, the doctor may order X rays or other imaging procedures. X rays provide an image of the bones, but they do not show the cartilage, muscles, and ligaments. Other noninvasive imaging methods such as computed tomography (CT or CAT), magnetic resonance imaging (MRI), and arthrography (joint X ray) show the whole joint. The doctor may also use an arthroscope (a small, flexible tube that transmits the image of the inside of a joint to a video screen) to examine damage to a joint. The arthroscope is inserted into the affected joint through a very small incision in the skin. This procedure, called arthroscopy, allows the doctor to see inside the joint. Doctors also use arthroscopy to perform surgery for some types of joint injury.

What Are the Treatments?

Treatments for arthritis include rest and relaxation, exercise, proper diet, medication, and instruction about the proper use of joints and ways to conserve energy. Other treatments include the use of pain relief methods and assistive devices, such as splints or braces. In severe cases, surgery may be necessary. The doctor and the patient work together to develop a treatment plan that helps the patient maintain or improve his or her lifestyle. Treatment plans usually combine several types of treatment and vary depending on the rheumatic condition and the patient.

Rest, Exercise, and Diet

People who have a rheumatic disease should develop a comfortable balance between rest and activity. One sign of many rheumatic conditions is fatigue. Patients must pay attention to signals from their bodies. For example, when

experiencing pain or fatigue, it is important to take a break and rest. Too much rest, however, may cause muscles and joints to become stiff.

Physical exercise can reduce joint pain and stiffness and increase flexibility, muscle strength, and endurance. It also helps with weight reduction and contributes to an improved sense of well-being. Before starting any exercise program, people with arthritis should talk with their doctor. People with arthritis can participate in a variety of sports and exercise programs. Exercises that doctors often recommend include:

- Range-of-motion exercises to help maintain normal joint movement, maintain or increase flexibility, and relieve stiffness.
- Strengthening exercises to maintain or increase muscle strength. Strong muscles help support and protect joints affected by arthritis.
- Aerobic or endurance exercises to improve cardiovascular fitness, help control weight, and improve overall well-being. Studies show that aerobic exercise can also reduce inflammation in some joints.

Another important part of a treatment program is a well-balanced diet. Along with exercise, a well-balanced diet helps people manage their body weight and stay healthy. Weight control is important to people who have arthritis because extra weight puts extra pressure on some joints and can aggravate many types of arthritis. Diet is especially important for people who have gout. People with gout should avoid alcohol and foods that are high in purines, such as organ meats (liver, kidney), sardines, anchovies, and gravy.

Medications

A variety of medications are used to treat rheumatic diseases. The type of medication depends on the rheumatic disease and on the individual patient. At this time, the medications used to treat most rheumatic diseases do not provide a cure, but rather limit the symptoms of the disease. The one exception is treatments for infectious arthritis. If caught early enough, arthritis associated with an infection (such as Lyme disease) can usually be cured with antibiotics.

Medications commonly used to treat rheumatic diseases provide relief from pain and inflammation. In some cases, the medication may slow the course of the disease and prevent further damage to joints or other parts of the body. This fact sheet describes the medications most commonly used to treat pain and inflammation.

The doctor may delay using medications until a definite diagnosis is made, because medications can hide important symptoms (such as fever and swelling) and thereby interfere with diagnosis. Patients taking any medication, either prescription or over-the-counter, should always follow the doctor's instructions. The doctor should be notified immediately if the medicine is making the symptoms worse or causing other problems, such as an upset stomach, nausea, or headache. The doctor may be able to change the dosage or medicine to reduce these side effects.

Analgesics (pain relievers) such as aspirin; other nonsteroidal anti-inflammatory drugs (NSAID's) such as ibuprofen (Motrin,¹ Advil, Nuprin); and acetaminophen (Tylenol) are used to reduce the pain caused by many rheumatic conditions. Aspirin and NSAID's have the added benefit of decreasing the inflammation associated with arthritis. Certain analgesics, such as aspirin and NSAID's, can have side effects, such as stomach irritation, that can be reduced by changing the dosage or the medication. The dosage will vary depending on the particular illness and the overall health of the patient. The doctor and patient must work together to determine which analgesic to use and the appropriate amount. If analgesics do not ease the pain, the doctor may use other medications, depending on the diagnosis.

Corticosteroids, such as prednisone, cortisone, solumedrol, and hydrocortisone, are used to treat many rheumatic conditions because they decrease inflammation and suppress the immune system. The dosage of these medications will vary depending on the diagnosis and the patient; again, the patient and doctor must work together to determine what dose is best for the patient.

Corticosteroids can be given by mouth, in creams applied to the skin, or by injection. Short-term side effects of corticosteroids include swelling, increased appetite, weight gain, and emotional ups and downs. These side effects generally stop when the drug is stopped. It can be dangerous to stop taking corticosteroids suddenly, so it is very important that the doctor and patient work together when changing the corticosteroid dose. Side effects that may occur after long-term use of corticosteroids include stretch marks, excessive hair growth, osteoporosis, high blood pressure, damage to the arteries, high blood sugar, infections, and cataracts.

Although some rheumatic diseases respond to analgesics and corticosteroids, others may not. Rheumatoid arthritis, gout, lupus, scleroderma, and fibromyalgia are some of the rheumatic diseases that routinely require other medications; these are prescribed to slow the course of the disease or to treat disease-specific symptoms.

Heat and Cold Therapies

Heat and cold can both be used to reduce the pain and inflammation of arthritis. Both therapies come in different forms, and the patient and doctor can determine which form works best. Studies have shown heat and cold therapies to be equally effective in reducing pain, although they are usually avoided in acute gout.

Heat therapy increases blood flow, tolerance for pain, and flexibility. Heat therapy can involve treatment with paraffin wax, microwaves, ultrasound, or moist heat. Physical therapists are needed to apply paraffin wax, or use microwave or ultrasound therapy, but patients can apply moist heat themselves. Some ways to apply moist heat include placing warm towels or hot packs on the inflamed joint or taking a warm bath or shower.

Cold therapy numbs the nerves around the joint (which reduces pain) and relieves inflammation and muscle spasms. Cold therapy can involve cold packs, ice massage, soaking in cold water, or over-the-counter sprays and ointments that cool the skin and joints.

Hydrotherapy, Mobilization Therapy, and Relaxation Therapy

Hydrotherapy involves exercising or relaxing in warm water, which helps relax tense muscles and relieve pain. Exercising in a large pool is easier because water takes some weight off painful joints. This type of exercise improves muscle strength and joint movement.

Mobilization therapies include traction (gentle, steady pulling), massage, and manipulation (using the hands to restore normal movement to stiff joints). When done by a trained professional, these methods can help control pain, increase joint motion, and improve muscle and tendon flexibility.

Relaxation therapy helps reduce pain by teaching people various ways to release muscle tension throughout the body. In one method of relaxation therapy, known as progressive relaxation, the patient tightens a muscle group and then slowly releases the tension. Doctors and physical therapists can teach patients progressive relaxation and other relaxation techniques.

Assistive Devices

The most common assistive devices for treating arthritis pain are splints and braces, which are used to support weakened joints or allow them to rest. Some of these devices prevent the joint from moving; others allow some movement. A splint or brace should be used only when recommended by a doctor or therapist, who will show the patient the correct way to put the device on, ensure that it fits properly, and explain when and for how long it should be worn. The incorrect use of a splint or brace can cause joint damage, stiffness, and pain.

A person with arthritis can use other kinds of devices to ease the pain. For example, the use of a cane when walking can reduce some of the weight placed on an arthritic knee or hip. A shoe insert (orthotic) can ease the pain of walking caused by arthritis of the foot or knee.

Surgery

Surgery may be required to repair damage to a joint after trauma (a torn meniscus, for example) or to restore function or relieve pain in a joint damaged by arthritis. The doctor may recommend arthroscopic surgery, bone fusion (surgery in which bones in the joint are fused or joined together), or arthroplasty (also known as total joint replacement, in which the damaged joint is removed and replaced with an artificial one).

Myths about Treating Arthritis

At this time, the only type of arthritis that can be cured is that caused by infections. Although symptoms of other types of arthritis can be effectively managed with rest, exercise, and medication, there are no cures. Some people claim to have been cured by treatment with herbs, oils, chemicals, special diets, radiation, or other products. However, there is no scientific evidence that such treatments are helpful in patients with arthritis and, moreover, they may actually cause harm with the development of side effects. Patients should talk to their doctor before using any therapy that has not been prescribed or recommended by the health care team caring for the patient.

What Can Be Done to Help?

Studies show that an estimated 18 percent of Americans who have arthritis or other rheumatic conditions believe that their condition limits their activities. People with arthritis may find that they can no longer participate in some of their favorite activities, which can affect their overall well-being. Even when arthritis impairs only one joint, a person may have to change many daily activities to protect that joint from further damage and reduce pain. When arthritis affects the entire body, as it does in people with rheumatoid arthritis or fibromyalgia, many daily activities have to be changed to deal with pain, fatigue, and other symptoms.

Changes in the home may help a person with chronic arthritis continue to live safely, productively, and with less pain. People with arthritis may become weak, lose their balance, or fall in the bathroom. Installing grab bars in the tub or shower and by the toilet, placing a secure seat in the tub, and raising the height of the toilet seat can help. Special kitchen utensils can accommodate arthritic hands to make meal preparation easier. An occupational therapist can help people who have rheumatic conditions identify and make adjustments in their homes to create a safer, less painful, and more efficient environment.

Friends and family can help a patient with a rheumatic condition by learning about that condition and understanding how it affects the patient's life. Friends and family can provide emotional and physical assistance. Their support, as well as support from other people who have the same disease, can make it easier to cope. The Arthritis Foundation (see the list of resources at the end of this fact sheet) has a wealth of information to help people with arthritis.

What Is Some of the Current Research Being Done on Arthritis?

The National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), a part of the National Institutes of Health (NIH), leads the Federal medical research effort in arthritis and rheumatic diseases. The NIAMS sponsors research and research training on the NIH campus in Bethesda, Maryland, and at universities and medical centers throughout the United States.

The NIAMS supports three types of centers: Multipurpose Arthritis and Musculoskeletal Diseases Centers (MAMDC's), Specialized Centers of Research (SCOR's), and Core Centers.

The MAMDC's foster a multidisciplinary approach to the many problems of arthritis and musculoskeletal diseases and develop new capabilities for research into other diseases. Centers develop and carry out research in basic or laboratory and clinical science, professional and patient education, and epidemiology and health services.

Each SCOR focuses on a single disease: currently, rheumatoid arthritis, systemic lupus erythematosus, osteoarthritis, osteoporosis, and scleroderma. By doing laboratory and clinical studies under one roof, these centers aim to speed up basic research on the causes of these diseases and to hasten transfer of advances from the laboratory to the bedside and improve patient care.

Core Centers promote interdisciplinary collaborative efforts among scientists engaged in high-quality research related to a common theme. By providing funding for facilities, pilot and feasibility studies, and program enrichment activities at the Core Center, the Institute reinforces and amplifies investigations already ongoing in NIAMS program areas. Core Centers are currently targeted for skin diseases (Skin Disease Research Core Centers) and for musculoskeletal disorders (Core Centers for Musculoskeletal Disorders).

Some current NIAMS research efforts in rheumatoid arthritis, osteoarthritis, lupus, and scleroderma are outlined below.

Rheumatoid Arthritis

Researchers are trying to identify the causes of rheumatoid arthritis in the hope that understanding the cause will lead to new treatments. They are examining the role that the endocrine (hormonal), nervous, and immune systems play, and the ways in which these systems interact with environmental and genetic factors in the development of rheumatoid arthritis. Some scientists are trying to determine whether an infectious agent triggers rheumatoid arthritis. Others are studying the role of certain enzymes (specialized proteins in the body that carry out biochemical reactions) in breaking down cartilage. Researchers are also trying to identify the genetic factors that place some people at higher risk than others for developing rheumatoid arthritis.

Moreover, scientists are looking at new ways to treat rheumatoid arthritis. They are experimenting with new drugs and “biologic agents” that selectively block certain immune system activities associated with inflammation. Recent studies suggest that these represent promising approaches to treatment. Other investigators have shown that minocycline and doxycycline, two antibiotic medications in the tetracycline family, have a modest benefit for people with rheumatoid arthritis.

Osteoarthritis

Researchers are working to understand what role certain enzymes play in the breakdown of joint cartilage in osteoarthritis and are testing drugs that block the action of these enzymes. In addition, a gene that may be linked to an inherited form of osteoarthritis has recently been discovered.

Systemic Lupus Erythematosus

Researchers are looking at how genetic, environmental, and hormonal factors influence the development of systemic lupus erythematosus. They are trying to find out why lupus is more common in certain populations. There has been very promising progress in identifying the genes that may be responsible for lupus. Promising areas of treatment research include biologic agents; newer, more selective drugs that suppress the immune system; and efforts to correct immune abnormalities with bone marrow transplantation. Clinical studies are underway to determine the safety of estrogens for hormone replacement therapy and birth control in women with lupus. Contrary to the widely held belief that estrogens can make the disease worse, recent data suggest that these drugs may be safe for some women with lupus.

Scleroderma

Current studies on scleroderma are focusing on three areas of the disease: overproduction of collagen, blood vessel injury, and abnormal immune system activity. Researchers hope to discover how these three elements interact with each other to cause and promote scleroderma. In one recent study, researchers found evidence of fetal cells within the blood and skin lesions of women who had been pregnant years before developing scleroderma. The study suggests that fetal cells may play a role in

scleroderma by maturing immune cells that promote the overproduction of collagen. Scientists are continuing to study the implications of this finding.

Where Can I Find More Information about Arthritis?

For more information, contact:

Arthritis Foundation

1330 West Peachtree Street

Atlanta, GA 30309

404/872-7100

800/283-7800, or call your local chapter (listed in the telephone directory)

<http://www.arthritis.org/>

This is the main voluntary organization devoted to arthritis. The foundation publishes free pamphlets on many types of arthritis and a monthly magazine for members that provides up-to-date information on arthritis. The foundation also can provide physician and clinic referrals.

American College of Rheumatology/Association of Rheumatology

Health Professionals

1800 Century Place, Suite 250

Atlanta, GA 30345-4300

404/633-3777

Fax: 404/633-1870

World Wide Web address: **<http://www.rheumatology.org/>**

This association provides referrals to rheumatologists and physical and occupational therapists who have experience working with people who have rheumatic diseases. The organization also provides educational materials and guidelines about many different rheumatic diseases.

National Arthritis and Musculoskeletal and Skin Diseases Information Clearinghouse (NAMSI)

National Institutes of Health

1 AMS Circle

Bethesda, Maryland 20892-3675

301/495-4484

TTY: 301/565-2966

Fax: 301/718-6366

<http://www.niams.nih.gov>

This clearinghouse, a public service sponsored by the NIAMS, provides information about various forms of arthritis and rheumatic disease. The

clearinghouse distributes patient and professional education materials and also refers people to other sources of information.

Vocabulary Builder

Adolescence: The period of life beginning with the appearance of secondary sex characteristics and terminating with the cessation of somatic growth. The years usually referred to as adolescence lie between 13 and 18 years of age. [NIH]

Aerobic: 1. having molecular oxygen present. 2. growing, living, or occurring in the presence of molecular oxygen. 3. requiring oxygen for respiration. [EU]

Antibiotics: Substances produced by microorganisms that can inhibit or suppress the growth of other microorganisms. [NIH]

Arteries: The vessels carrying blood away from the heart. [NIH]

Arthroplasty: Surgical reconstruction of a joint to relieve pain or restore motion. [NIH]

Arthroscopy: Endoscopic examination, therapy and surgery of the joint. [NIH]

Doxycycline: A synthetic tetracycline derivative with a range of antimicrobial activity and mode of action similar to that of tetracycline, but more effective against many species. Animal studies suggest that it may cause less tooth staining than other tetracyclines. [NIH]

Estrogens: A class of sex hormones associated with the development and maintenance of secondary female sex characteristics and control of the cyclical changes in the reproductive cycle. They are also required for pregnancy maintenance and have an anabolic effect on protein metabolism and water retention. [NIH]

Fatigue: The state of weariness following a period of exertion, mental or physical, characterized by a decreased capacity for work and reduced efficiency to respond to stimuli. [NIH]

Friction: Surface resistance to the relative motion of one body against the rubbing, sliding, rolling, or flowing of another with which it is in contact. [NIH]

Hematocrit: Measurement of the volume of packed red cells in a blood specimen by centrifugation. The procedure is performed using a tube with graduated markings or with automated blood cell counters. It is used as an indicator of erythrocyte status in disease. For example, anemia shows a low hematocrit, polycythemia, high values. [NIH]

Ligament: A band of fibrous tissue that connects bones or cartilages, serving

to support and strengthen joints. [EU]

Minocycline: A semisynthetic antibiotic effective against tetracycline-resistant staphylococcus infections. [NIH]

Mobilization: The process of making a fixed part or stored substance mobile, as by separating a part from surrounding structures to make it accessible for an operative procedure or by causing release into the circulation for body use of a substance stored in the body. [EU]

Paraffin: A mixture of solid hydrocarbons obtained from petroleum. It has a wide range of uses including as a stiffening agent in ointments, as a lubricant, and as a topical anti-inflammatory. It is also commonly used as an embedding material in histology. [NIH]

Prednisone: A synthetic anti-inflammatory glucocorticoid derived from cortisone. It is biologically inert and converted to prednisolone in the liver. [NIH]

Radiography: The making of film records (radiographs) of internal structures of the body by passage of x-rays or gamma rays through the body to act on specially sensitized film. [EU]

Shoulder Pain: Unilateral or bilateral pain of the shoulder. It is often caused by physical activities such as work or sports participation, but may also be pathologic in origin. [NIH]

Tachycardia: Excessive rapidity in the action of the heart; the term is usually applied to a heart rate above 100 per minute and may be qualified as atrial, junctional (nodal), or ventricular, and as paroxysmal. [EU]

Tetracycline: An antibiotic originally produced by *Streptomyces viridifaciens*, but used mostly in synthetic form. It is an inhibitor of aminoacyl-tRNA binding during protein synthesis. [NIH]

Urinalysis: Examination of urine by chemical, physical, or microscopic means. Routine urinalysis usually includes performing chemical screening tests, determining specific gravity, observing any unusual color or odor, screening for bacteriuria, and examining the sediment microscopically. [NIH]

Viruses: Minute infectious agents whose genomes are composed of DNA or RNA, but not both. They are characterized by a lack of independent metabolism and the inability to replicate outside living host cells. [NIH]

ONLINE GLOSSARIES

The Internet provides access to a number of free-to-use medical dictionaries and glossaries. The National Library of Medicine has compiled the following list of online dictionaries:

- ADAM Medical Encyclopedia (A.D.A.M., Inc.), comprehensive medical reference: <http://www.nlm.nih.gov/medlineplus/encyclopedia.html>
- MedicineNet.com Medical Dictionary (MedicineNet, Inc.):
<http://www.medterms.com/Script/Main/hp.asp>
- Merriam-Webster Medical Dictionary (Inteli-Health, Inc.):
<http://www.intelihealth.com/IH/>
- Multilingual Glossary of Technical and Popular Medical Terms in Eight European Languages (European Commission) - Danish, Dutch, English, French, German, Italian, Portuguese, and Spanish:
<http://allserv.rug.ac.be/~rvdstich/eugloss/welcome.html>
- On-line Medical Dictionary (CancerWEB):
<http://www.graylab.ac.uk/omd/>
- Technology Glossary (National Library of Medicine) - Health Care Technology: <http://www.nlm.nih.gov/nichsr/ta101/ta10108.htm>
- Terms and Definitions (Office of Rare Diseases):
http://rarediseases.info.nih.gov/ord/glossary_a-e.html

Beyond these, MEDLINEplus contains a very user-friendly encyclopedia covering every aspect of medicine (licensed from A.D.A.M., Inc.). The ADAM Medical Encyclopedia Web site address is <http://www.nlm.nih.gov/medlineplus/encyclopedia.html>. ADAM is also available on commercial Web sites such as Web MD (http://my.webmd.com/adam/asset/adam_disease_articles/a_to_z/a) and drkoop.com (<http://www.drkoop.com/>). Topics of interest can be researched by using keywords before continuing elsewhere, as these basic definitions and concepts will be useful in more advanced areas of research. You may choose to print various pages specifically relating to gout and keep them on file. The NIH, in particular, suggests that patients with gout visit the following Web sites in the ADAM Medical Encyclopedia:

- **Basic Guidelines for Gout**

Acute gouty arthritis

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/000422.htm>

Chronic gouty arthritis

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/000424.htm>

Infectious arthritis

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/000430.htm>

- **Signs & Symptoms for Gout**

Ankle pain

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003167.htm>

Chills

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003091.htm>

Elbow pain

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003172.htm>

Fever

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003090.htm>

Foot pain

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003183.htm>

Hip pain

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003179.htm>

Joint pain

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003261.htm>

Joint swelling

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003262.htm>

Knee pain

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003187.htm>

Nodules

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003230.htm>

Obesity

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003101.htm>

Shoulder pain

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003171.htm>

Skin lump

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003279.htm>

Stress

<http://www.nlm.nih.gov/medlineplus/ency/article/003211.htm>

Swelling

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003103.htm>

Tachycardia

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003077.htm>

Wrist pain

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003175.htm>

- **Diagnostics and Tests for Gout**

ALT

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003473.htm>

Blood differential

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003657.htm>

ESR

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003638.htm>

Joint X-rays

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003810.htm>

Radiography

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003337.htm>

Synovial biopsy

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003922.htm>

Synovial fluid analysis

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003629.htm>

Uric acid

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003476.htm>

Uric acid, urine

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003616.htm>

White blood cell count

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003643.htm>

X-ray

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/003337.htm>

- **Background Topics for Gout**

Acute

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002215.htm>

Alcohol consumption

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/001944.htm>

Analgesics

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002123.htm>

Arthritis - support group

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002183.htm>

Asymptomatic

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002217.htm>

Chronic

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002312.htm>

Enzyme

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002353.htm>

Incidence

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002387.htm>

Kidney disease

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/000457.htm>

Metabolism

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002257.htm>

Physical examination

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002274.htm>

Precipitating

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002275.htm>

Renal

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002289.htm>

Support group

Web site:

<http://www.nlm.nih.gov/medlineplus/ency/article/002150.htm>

Online Dictionary Directories

The following are additional online directories compiled by the National Library of Medicine, including a number of specialized medical dictionaries and glossaries:

- Medical Dictionaries: Medical & Biological (World Health Organization):
<http://www.who.int/hlt/virtuallibrary/English/diction.htm#Medical>
- MEL-Michigan Electronic Library List of Online Health and Medical Dictionaries (Michigan Electronic Library):
<http://mel.lib.mi.us/health/health-dictionaries.html>
- Patient Education: Glossaries (DMOZ Open Directory Project):
http://dmoz.org/Health/Education/Patient_Education/Glossaries/
- Web of Online Dictionaries (Bucknell University):
<http://www.yourdictionary.com/diction5.html#medicine>

GOUT GLOSSARY

The following is a complete glossary of terms used in this sourcebook. The definitions are derived from official public sources including the National Institutes of Health [NIH] and the European Union [EU]. After this glossary, we list a number of additional hardbound and electronic glossaries and dictionaries that you may wish to consult.

Abdomen: That portion of the body that lies between the thorax and the pelvis. [NIH]

Aberrant: Wandering or deviating from the usual or normal course. [EU]

Acetaminophen: Analgesic antipyretic derivative of acetanilide. It has weak anti-inflammatory properties and is used as a common analgesic, but may cause liver, blood cell, and kidney damage. [NIH]

Acidity: L. aciditas) the quality of being acid or sour; containing acid (hydrogen ions). [EU]

Adenosine: A nucleoside that is composed of adenine and d-ribose. Adenosine or adenosine derivatives play many important biological roles in addition to being components of DNA and RNA. Adenosine itself is a neurotransmitter. [NIH]

Adjuvant: A substance which aids another, such as an auxiliary remedy; in immunology, nonspecific stimulator (e.g., BCG vaccine) of the immune response. [EU]

Adolescence: The period of life beginning with the appearance of secondary sex characteristics and terminating with the cessation of somatic growth. The years usually referred to as adolescence lie between 13 and 18 years of age. [NIH]

Aerobic: 1. having molecular oxygen present. 2. growing, living, or occurring in the presence of molecular oxygen. 3. requiring oxygen for respiration. [EU]

Alkaloid: One of a large group of nitrogenous basis substances found in plants. They are usually very bitter and many are pharmacologically active. Examples are atropine, caffeine, coniine, morphine, nicotine, quinine, strychnine. The term is also applied to synthetic substances (artificial a's) which have structures similar to plant alkaloids, such as procaine. [EU]

Allopurinol: A xanthine oxidase inhibitor that decreases uric acid production. [NIH]

Alveolitis: Inflammation of an alveolus. Called also odontobothritis. [EU]

Analgesic: An agent that alleviates pain without causing loss of

consciousness. [EU]

Anemia: A reduction in the number of circulating erythrocytes or in the quantity of hemoglobin. [NIH]

Angioplasty: Endovascular reconstruction of an artery, which may include the removal of atheromatous plaque and/or the endothelial lining as well as simple dilatation. These are procedures performed by catheterization. When reconstruction of an artery is performed surgically, it is called endarterectomy. [NIH]

Antibacterial: A substance that destroys bacteria or suppresses their growth or reproduction. [EU]

Antibiotic: A chemical substance produced by a microorganism which has the capacity, in dilute solutions, to inhibit the growth of or to kill other microorganisms. Antibiotics that are sufficiently nontoxic to the host are used as chemotherapeutic agents in the treatment of infectious diseases of man, animals and plants. [EU]

Antibody: An immunoglobulin molecule that has a specific amino acid sequence by virtue of which it interacts only with the antigen that induced its synthesis in cells of the lymphoid series (especially plasma cells), or with antigen closely related to it. Antibodies are classified according to their mode of action as agglutinins, bacteriolysins, haemolysins, opsonins, precipitins, etc. [EU]

Antidepressant: An agent that stimulates the mood of a depressed patient, including tricyclic antidepressants and monoamine oxidase inhibitors. [EU]

Antihypertensive: An agent that reduces high blood pressure. [EU]

Antioxidant: One of many widely used synthetic or natural substances added to a product to prevent or delay its deterioration by action of oxygen in the air. Rubber, paints, vegetable oils, and prepared foods commonly contain antioxidants. [EU]

Antiseptic: A substance that inhibits the growth and development of microorganisms without necessarily killing them. [EU]

Apnea: A transient absence of spontaneous respiration. [NIH]

Arteries: The vessels carrying blood away from the heart. [NIH]

Arthrography: Roentgenography of a joint, usually after injection of either positive or negative contrast medium. [NIH]

Arthropathy: Any joint disease. [EU]

Arthroplasty: Surgical reconstruction of a joint to relieve pain or restore motion. [NIH]

Arthroscopy: Endoscopic examination, therapy and surgery of the joint. [NIH]

Assay: Determination of the amount of a particular constituent of a mixture,

or of the biological or pharmacological potency of a drug. [EU]

Asymptomatic: Showing or causing no symptoms. [EU]

Bacteria: Unicellular prokaryotic microorganisms which generally possess rigid cell walls, multiply by cell division, and exhibit three principal forms: round or coccial, rodlike or bacillary, and spiral or spirochetal. [NIH]

Baths: The immersion or washing of the body or any of its parts in water or other medium for cleansing or medical treatment. It includes bathing for personal hygiene as well as for medical purposes with the addition of therapeutic agents, such as alkalines, antiseptics, oil, etc. [NIH]

Benign: Not malignant; not recurrent; favourable for recovery. [EU]

Benzbromarone: Uricosuric that acts by increasing uric acid clearance. It is used in the treatment of gout. [NIH]

Biochemical: Relating to biochemistry; characterized by, produced by, or involving chemical reactions in living organisms. [EU]

Biotransformation: The series of chemical alterations of a compound (e.g., a drug) which occur within the body, as by enzymatic activity. [EU]

Blister: Visible accumulations of fluid within or beneath the epidermis. [NIH]

Bronchiectasis: Chronic dilatation of the bronchi marked by fetid breath and paroxysmal coughing, with the expectoration of mucopurulent matter. It may effect the tube uniformly (cylindric b.), or occur in irregular pockets (sacculated b.) or the dilated tubes may have terminal bulbous enlargements (fusiform b.). [EU]

Bronchiolitis: Inflammation of the bronchioles. [NIH]

Bronchitis: Inflammation of one or more bronchi. [EU]

Bumetanide: A sulfamyl diuretic. [NIH]

Bursitis: Inflammation of a bursa, occasionally accompanied by a calcific deposit in the underlying supraspinatus tendon; the most common site is the subdeltoid bursa. [EU]

Capsules: Hard or soft soluble containers used for the oral administration of medicine. [NIH]

Carbohydrate: An aldehyde or ketone derivative of a polyhydric alcohol, particularly of the pentahydric and hexahydric alcohols. They are so named because the hydrogen and oxygen are usually in the proportion to form water, (CH₂O)_n. The most important carbohydrates are the starches, sugars, celluloses, and gums. They are classified into mono-, di-, tri-, poly- and heterosaccharides. [EU]

Cataract: An opacity, partial or complete, of one or both eyes, on or in the lens or capsule, especially an opacity impairing vision or causing blindness. The many kinds of cataract are classified by their morphology (size, shape,

location) or etiology (cause and time of occurrence). [EU]

Cellulitis: An acute, diffuse, and suppurative inflammation of loose connective tissue, particularly the deep subcutaneous tissues, and sometimes muscle, which is most commonly seen as a result of infection of a wound, ulcer, or other skin lesions. [NIH]

Cerebral: Of or pertaining of the cerebrum or the brain. [EU]

Chelation: Combination with a metal in complexes in which the metal is part of a ring. [EU]

Chemotherapy: The treatment of disease by means of chemicals that have a specific toxic effect upon the disease - producing microorganisms or that selectively destroy cancerous tissue. [EU]

Cholelithiasis: The presence or formation of gallstones. [EU]

Cholesterol: The principal sterol of all higher animals, distributed in body tissues, especially the brain and spinal cord, and in animal fats and oils. [NIH]

Chronic: Persisting over a long period of time. [EU]

Circumcision: Excision of the prepuce or part of it. [NIH]

Cirrhosis: Liver disease characterized pathologically by loss of the normal microscopic lobular architecture, with fibrosis and nodular regeneration. The term is sometimes used to refer to chronic interstitial inflammation of any organ. [EU]

Clubfoot: A deformed foot in which the foot is plantarflexed, inverted and adducted. [NIH]

Coagulation: 1. the process of clot formation. 2. in colloid chemistry, the solidification of a sol into a gelatinous mass; an alteration of a disperse phase or of a dissolved solid which causes the separation of the system into a liquid phase and an insoluble mass called the clot or curd. Coagulation is usually irreversible. 3. in surgery, the disruption of tissue by physical means to form an amorphous residuum, as in electrocoagulation and photocoagulation. [EU]

Colic: Paroxysms of pain. This condition usually occurs in the abdominal region but may occur in other body regions as well. [NIH]

Colitis: Inflammation of the colon. [EU]

Collagen: The protein substance of the white fibres (collagenous fibres) of skin, tendon, bone, cartilage, and all other connective tissue; composed of molecules of tropocollagen (q.v.), it is converted into gelatin by boiling. collagenous pertaining to collagen; forming or producing collagen. [EU]

Constipation: Infrequent or difficult evacuation of the feces. [EU]

Contracture: A condition of fixed high resistance to passive stretch of a muscle, resulting from fibrosis of the tissues supporting the muscles or the joints, or from disorders of the muscle fibres. [EU]

Coronary: Encircling in the manner of a crown; a term applied to vessels; nerves, ligaments, etc. The term usually denotes the arteries that supply the heart muscle and, by extension, a pathologic involvement of them. [EU]

Cortex: The outer layer of an organ or other body structure, as distinguished from the internal substance. [EU]

Crystallization: The formation of crystals; conversion to a crystalline form. [EU]

Cytotoxic: Pertaining to or exhibiting cytotoxicity. [EU]

Degenerative: Undergoing degeneration : tending to degenerate; having the character of or involving degeneration; causing or tending to cause degeneration. [EU]

Dehydration: The condition that results from excessive loss of body water. Called also anhydration, deaquation and hypohydration. [EU]

Deoxyguanosine: A nucleoside consisting of the base guanine and the sugar deoxyribose. [NIH]

Dermatology: A medical specialty concerned with the skin, its structure, functions, diseases, and treatment. [NIH]

Diarrhea: Passage of excessively liquid or excessively frequent stools. [NIH]

Diathesis: A constitution or condition of the body which makes the tissues react in special ways to certain extrinsic stimuli and thus tends to make the person more than usually susceptible to certain diseases. [EU]

Discoid: Shaped like a disk. [EU]

Diverticulitis: Inflammation of a diverticulum, especially inflammation related to colonic diverticula, which may undergo perforation with abscess formation. Sometimes called left-sided or L-sides appendicitis. [EU]

Doxycycline: A synthetic tetracycline derivative with a range of antimicrobial activity and mode of action similar to that of tetracycline, but more effective against many species. Animal studies suggest that it may cause less tooth staining than other tetracyclines. [NIH]

Dysentery: Any of various disorders marked by inflammation of the intestines, especially of the colon, and attended by pain in the abdomen, tenesmus, and frequent stools containing blood and mucus. Causes include chemical irritants, bacteria, protozoa, or parasitic worms. [EU]

Dysplasia: Abnormality of development; in pathology, alteration in size, shape, and organization of adult cells. [EU]

Dystrophy: Any disorder arising from defective or faulty nutrition, especially the muscular dystrophies. [EU]

Edema: Excessive amount of watery fluid accumulated in the intercellular spaces, most commonly present in subcutaneous tissue. [NIH]

Electrolyte: A substance that dissociates into ions when fused or in solution, and thus becomes capable of conducting electricity; an ionic solute. [EU]

Emphysema: A pathological accumulation of air in tissues or organs; applied especially to such a condition of the lungs. [EU]

Enteritis: Inflammation of the intestine, applied chiefly to inflammation of the small intestine; see also enterocolitis. [EU]

Enzyme: A protein molecule that catalyses chemical reactions of other substances without itself being destroyed or altered upon completion of the reactions. Enzymes are classified according to the recommendations of the Nomenclature Committee of the International Union of Biochemistry. Each enzyme is assigned a recommended name and an Enzyme Commission (EC) number. They are divided into six main groups; oxidoreductases, transferases, hydrolases, lyases, isomerases, and ligases. [EU]

Epidemiological: Relating to, or involving epidemiology. [EU]

Epinephrine: The active sympathomimetic hormone from the adrenal medulla in most species. It stimulates both the alpha- and beta- adrenergic systems, causes systemic vasoconstriction and gastrointestinal relaxation, stimulates the heart, and dilates bronchi and cerebral vessels. It is used in asthma and cardiac failure and to delay absorption of local anesthetics. [NIH]

Erysipelas: An acute superficial form of cellulitis involving the dermal lymphatics, usually caused by infection with group A streptococci, and chiefly characterized by a peripherally spreading hot, bright red, edematous, brawny, infiltrated, and sharply circumscribed plaque with a raised indurated border. Formerly called St. Anthony's fire. [EU]

Estrogens: A class of sex hormones associated with the development and maintenance of secondary female sex characteristics and control of the cyclical changes in the reproductive cycle. They are also required for pregnancy maintenance and have an anabolic effect on protein metabolism and water retention. [NIH]

Ethacrynic Acid: A compound that inhibits symport of sodium, potassium, and chloride primarily in the ascending limb of Henle, but also in the proximal and distal tubules. This pharmacological action results in excretion of these ions, increased urinary output, and reduction in extracellular fluid. This compound has been classified as a loop or high ceiling diuretic. [NIH]

Ethnopharmacology: The study of the actions and properties of drugs, usually derived from medicinal plants, indigenous to a population or ethnic group. [NIH]

Extremity: A limb; an arm or leg (membrum); sometimes applied specifically to a hand or foot. [EU]

Fatal: Causing death, deadly; mortal; lethal. [EU]

Fatigue: The state of weariness following a period of exertion, mental or physical, characterized by a decreased capacity for work and reduced efficiency to respond to stimuli. [NIH]

Fibroblasts: Connective tissue cells which secrete an extracellular matrix rich in collagen and other macromolecules. [NIH]

Fibrosis: The formation of fibrous tissue; fibroid or fibrous degeneration [EU]

Fissure: Any cleft or groove, normal or otherwise; especially a deep fold in the cerebral cortex which involves the entire thickness of the brain wall. [EU]

Flatulence: The presence of excessive amounts of air or gases in the stomach or intestine, leading to distention of the organs. [EU]

Flurbiprofen: An anti-inflammatory analgesic and antipyretic of the phenylalkynoic acid series. It has been shown to reduce bone resorption in periodontal disease by inhibiting carbonic anhydrase. [NIH]

Friction: Surface resistance to the relative motion of one body against the rubbing, sliding, rolling, or flowing of another with which it is in contact. [NIH]

Fungus: A general term used to denote a group of eukaryotic protists, including mushrooms, yeasts, rusts, moulds, smuts, etc., which are characterized by the absence of chlorophyll and by the presence of a rigid cell wall composed of chitin, mannans, and sometimes cellulose. They are usually of simple morphological form or show some reversible cellular specialization, such as the formation of pseudoparenchymatous tissue in the fruiting body of a mushroom. The dimorphic fungi grow, according to environmental conditions, as moulds or yeasts. [EU]

Furunculosis: 1. the persistent sequential occurrence of furuncles over a period of weeks or months. 2. the simultaneous occurrence of a number of furuncles. [EU]

Gangrene: Death of tissue, usually in considerable mass and generally associated with loss of vascular (nutritive) supply and followed by bacterial invasion and putrefaction. [EU]

Gastritis: Inflammation of the stomach. [EU]

Gastroenteritis: An acute inflammation of the lining of the stomach and intestines, characterized by anorexia, nausea, diarrhoea, abdominal pain, and weakness, which has various causes, including food poisoning due to infection with such organisms as *Escherichia coli*, *Staphylococcus aureus*, and *Salmonella* species; consumption of irritating food or drink; or psychological factors such as anger, stress, and fear. Called also enterogastritis. [EU]

Gastrointestinal: Pertaining to or communicating with the stomach and intestine, as a gastrointestinal fistula. [EU]

Gingivitis: Inflammation of the gingivae. Gingivitis associated with bony changes is referred to as periodontitis. Called also oulitis and ulitis. [EU]

Glomerulonephritis: A variety of nephritis characterized by inflammation of the capillary loops in the glomeruli of the kidney. It occurs in acute, subacute, and chronic forms and may be secondary to haemolytic streptococcal infection. Evidence also supports possible immune or autoimmune mechanisms. [EU]

Glucose: D-glucose, a monosaccharide (hexose), $C_6H_{12}O_6$, also known as dextrose (q.v.), found in certain foodstuffs, especially fruits, and in the normal blood of all animals. It is the end product of carbohydrate metabolism and is the chief source of energy for living organisms, its utilization being controlled by insulin. Excess glucose is converted to glycogen and stored in the liver and muscles for use as needed and, beyond that, is converted to fat and stored as adipose tissue. Glucose appears in the urine in diabetes mellitus. [EU]

Gout: Hereditary metabolic disorder characterized by recurrent acute arthritis, hyperuricemia and deposition of sodium urate in and around the joints, sometimes with formation of uric acid calculi. [NIH]

Heartburn: Substernal pain or burning sensation, usually associated with regurgitation of gastric juice into the esophagus. [NIH]

Helminthiasis: Infestation with parasitic worms of the helminth class. [NIH]

Hematocrit: Measurement of the volume of packed red cells in a blood specimen by centrifugation. The procedure is performed using a tube with graduated markings or with automated blood cell counters. It is used as an indicator of erythrocyte status in disease. For example, anemia shows a low hematocrit, polycythemia, high values. [NIH]

Hemoglobinopathies: A group of inherited disorders characterized by structural alterations within the hemoglobin molecule. [NIH]

Hemorrhage: Bleeding or escape of blood from a vessel. [NIH]

Hemorrhoids: Varicosities of the hemorrhoidal venous plexuses. [NIH]

Heredity: 1. the genetic transmission of a particular quality or trait from parent to offspring. 2. the genetic constitution of an individual. [EU]

Hernia: (he protrusion of a loop or knuckle of an organ or tissue through an abnormal opening. [EU]

Herpes: Any inflammatory skin disease caused by a herpesvirus and characterized by the formation of clusters of small vesicles. When used alone, the term may refer to herpes simplex or to herpes zoster. [EU]

Homologous: Corresponding in structure, position, origin, etc., as (a) the feathers of a bird and the scales of a fish, (b) antigen and its specific

antibody, (c) allelic chromosomes. [EU]

Hormonal: Pertaining to or of the nature of a hormone. [EU]

Hormones: Chemical substances having a specific regulatory effect on the activity of a certain organ or organs. The term was originally applied to substances secreted by various endocrine glands and transported in the bloodstream to the target organs. It is sometimes extended to include those substances that are not produced by the endocrine glands but that have similar effects. [NIH]

Hypercholesterolemia: Abnormally high levels of cholesterol in the blood. [NIH]

Hyperlipidemia: An excess of lipids in the blood. [NIH]

Hyperlipoproteinemia: Metabolic disease characterized by elevated plasma cholesterol and/or triglyceride levels. The inherited form is attributed to a single gene mechanism. [NIH]

Hyperostosis: Hypertrophy of bone; exostosis. [EU]

Hypersensitivity: A state of altered reactivity in which the body reacts with an exaggerated immune response to a foreign substance. Hypersensitivity reactions are classified as immediate or delayed, types I and IV, respectively, in the Gell and Coombs classification (q.v.) of immune responses. [EU]

Hypertension: Persistently high arterial blood pressure. Various criteria for its threshold have been suggested, ranging from 140 mm. Hg systolic and 90 mm. Hg diastolic to as high as 200 mm. Hg systolic and 110 mm. Hg diastolic. Hypertension may have no known cause (essential or idiopathic h.) or be associated with other primary diseases (secondary h.). [EU]

Hyperuricaemia: Excess of uric acid or urates in the blood; it is a prerequisite for the development of gout and may lead to renal disease. Called also uricacidaemia and, formerly, lithemia. [EU]

Hypovitaminosis: A condition due to a deficiency of one or more essential vitamins. [EU]

Ibuprofen: A nonsteroidal anti-inflammatory agent with analgesic properties used in the therapy of rheumatism and arthritis. [NIH]

Idiopathic: Of the nature of an idiopathy; self-originated; of unknown causation. [EU]

Immunity: The condition of being immune; the protection against infectious disease conferred either by the immune response generated by immunization or previous infection or by other nonimmunologic factors (innate i.). [EU]

Incision: 1. cleft, cut, gash. 2. an act or action of incising. [EU]

Indapamide: A sulfamyl diuretic with about 16x the effect of furosemide. It

has also been shown to be an effective antihypertensive agent in the clinic. [NIH]

Infarction: 1. the formation of an infarct. 2. an infarct. [EU]

Infertility: The diminished or absent ability to conceive or produce an offspring while sterility is the complete inability to conceive or produce an offspring. [NIH]

Infiltration: The diffusion or accumulation in a tissue or cells of substances not normal to it or in amounts of the normal. Also, the material so accumulated. [EU]

Inflammation: A pathological process characterized by injury or destruction of tissues caused by a variety of cytologic and chemical reactions. It is usually manifested by typical signs of pain, heat, redness, swelling, and loss of function. [NIH]

Influenza: An acute viral infection involving the respiratory tract. It is marked by inflammation of the nasal mucosa, the pharynx, and conjunctiva, and by headache and severe, often generalized, myalgia. [NIH]

Ingestion: The act of taking food, medicines, etc., into the body, by mouth. [EU]

Inhalation: The drawing of air or other substances into the lungs. [EU]

Insulin: A protein hormone secreted by beta cells of the pancreas. Insulin plays a major role in the regulation of glucose metabolism, generally promoting the cellular utilization of glucose. It is also an important regulator of protein and lipid metabolism. Insulin is used as a drug to control insulin-dependent diabetes mellitus. [NIH]

Intermittent: Occurring at separated intervals; having periods of cessation of activity. [EU]

Interstitial: Pertaining to or situated between parts or in the interspaces of a tissue. [EU]

Intoxication: Poisoning, the state of being poisoned. [EU]

Iodine: A nonmetallic element of the halogen group that is represented by the atomic symbol I, atomic number 53, and atomic weight of 126.90. It is a nutritionally essential element, especially important in thyroid hormone synthesis. In solution, it has anti-infective properties and is used topically. [NIH]

Iritis: Inflammation of the iris, usually marked by pain, congestion in the ciliary region, photophobia, contraction of the pupil, and discoloration of the iris. [EU]

Ischemia: Deficiency of blood in a part, due to functional constriction or actual obstruction of a blood vessel. [EU]

Jaundice: A clinical manifestation of hyperbilirubinemia, consisting of

deposition of bile pigments in the skin, resulting in a yellowish staining of the skin and mucous membranes. [NIH]

Klebsiella: A genus of gram-negative, facultatively anaerobic, rod-shaped bacteria whose organisms arrange singly, in pairs, or short chains. This genus is commonly found in the intestinal tract and is an opportunistic pathogen that can give rise to bacteremia, pneumonia, urinary tract and several other types of human infection. [NIH]

Lesion: Any pathological or traumatic discontinuity of tissue or loss of function of a part. [EU]

Leukaemia: An acute or chronic disease of unknown cause in man and other warm-blooded animals that involves the blood-forming organs, is characterized by an abnormal increase in the number of leucocytes in the tissues of the body with or without a corresponding increase of those in the circulating blood, and is classified according of the type leucocyte most prominently involved. [EU]

Leukapheresis: The preparation of leukocyte concentrates with the return of red cells and leukocyte-poor plasma to the donor. [NIH]

Levodopa: The naturally occurring form of dopa and the immediate precursor of dopamine. Unlike dopamine itself, it can be taken orally and crosses the blood-brain barrier. It is rapidly taken up by dopaminergic neurons and converted to dopamine. It is used for the treatment of parkinsonism and is usually given with agents that inhibit its conversion to dopamine outside of the central nervous system. [NIH]

Ligament: A band of fibrous tissue that connects bones or cartilages, serving to support and strengthen joints. [EU]

Lipophilic: Having an affinity for fat; pertaining to or characterized by lipophilia. [EU]

Lipoprotein: Any of the lipid-protein complexes in which lipids are transported in the blood; lipoprotein particles consist of a spherical hydrophobic core of triglycerides or cholesterol esters surrounded by an amphipathic monolayer of phospholipids, cholesterol, and apolipoproteins; the four principal classes are high-density, low-density, and very-low-density lipoproteins and chylomicrons. [EU]

Lithotripsy: The destruction of a calculus of the kidney, ureter, bladder, or gallbladder by physical forces, including crushing with a lithotripter through a catheter. Focused percutaneous ultrasound and focused hydraulic shock waves may be used without surgery. Lithotripsy does not include the dissolving of stones by acids or litholysis. Lithotripsy by laser is lithotripsy, laser. [NIH]

Lupus: A form of cutaneous tuberculosis. It is seen predominantly in

women and typically involves the nasal, buccal, and conjunctival mucosa. [NIH]

Lymphocytic: Pertaining to, characterized by, or of the nature of lymphocytes. [EU]

Malabsorption: Impaired intestinal absorption of nutrients. [EU]

Malformation: A morphologic defect resulting from an intrinsically abnormal developmental process. [EU]

Malignant: Tending to become progressively worse and to result in death. Having the properties of anaplasia, invasion, and metastasis; said of tumours. [EU]

Masticatory: 1. subserving or pertaining to mastication; affecting the muscles of mastication. 2. a remedy to be chewed but not swallowed. [EU]

Mediator: An object or substance by which something is mediated, such as (1) a structure of the nervous system that transmits impulses eliciting a specific response; (2) a chemical substance (transmitter substance) that induces activity in an excitable tissue, such as nerve or muscle; or (3) a substance released from cells as the result of the interaction of antigen with antibody or by the action of antigen with a sensitized lymphocyte. [EU]

Menopause: Cessation of menstruation in the human female, occurring usually around the age of 50. [EU]

Methotrexate: An antineoplastic antimetabolite with immunosuppressant properties. It is an inhibitor of dihydrofolate reductase and prevents the formation of tetrahydrofolate, necessary for synthesis of thymidylate, an essential component of DNA. [NIH]

Metolazone: A potent, long acting diuretic useful in chronic renal disease. It also tends to lower blood pressure and increase potassium loss. [NIH]

Microorganism: A microscopic organism; those of medical interest include bacteria, viruses, fungi and protozoa. [EU]

Microscopy: The application of microscope magnification to the study of materials that cannot be properly seen by the unaided eye. [NIH]

Microsomal: Of or pertaining to microsomes : vesicular fragments of endoplasmic reticulum formed after disruption and centrifugation of cells. [EU]

Mineralization: The action of mineralizing; the state of being mineralized. [EU]

Minocycline: A semisynthetic antibiotic effective against tetracycline-resistant staphylococcus infections. [NIH]

Mobility: Capability of movement, of being moved, or of flowing freely. [EU]

Mobilization: The process of making a fixed part or stored substance mobile, as by separating a part from surrounding structures to make it

accessible for an operative procedure or by causing release into the circulation for body use of a substance stored in the body. [EU]

Molecular: Of, pertaining to, or composed of molecules : a very small mass of matter. [EU]

Mucosa: A mucous membrane, or tunica mucosa. [EU]

Myasthenia: Muscular debility; any constitutional anomaly of muscle. [EU]

Naproxen: An anti-inflammatory agent with analgesic and antipyretic properties. Both the acid and its sodium salt are used in the treatment of rheumatoid arthritis and other rheumatic or musculoskeletal disorders, dysmenorrhea, and acute gout. [NIH]

Narcotic: 1. pertaining to or producing narcosis. 2. an agent that produces insensibility or stupor, applied especially to the opioids, i.e. to any natural or synthetic drug that has morphine-like actions. [EU]

Nasal: Pertaining to the nose. [EU]

Nausea: An unpleasant sensation, vaguely referred to the epigastrium and abdomen, and often culminating in vomiting. [EU]

Neoplasms: New abnormal growth of tissue. Malignant neoplasms show a greater degree of anaplasia and have the properties of invasion and metastasis, compared to benign neoplasms. [NIH]

Neoplastic: Pertaining to or like a neoplasm (= any new and abnormal growth); pertaining to neoplasia (= the formation of a neoplasm). [EU]

Nephropathy: Disease of the kidneys. [EU]

Nervousness: Excessive excitability and irritability, with mental and physical unrest. [EU]

Neural: 1. pertaining to a nerve or to the nerves. 2. situated in the region of the spinal axis, as the neural arch. [EU]

Neuropathy: A general term denoting functional disturbances and/or pathological changes in the peripheral nervous system. The etiology may be known e.g. arsenical n., diabetic n., ischemic n., traumatic n.) or unknown. Encephalopathy and myelopathy are corresponding terms relating to involvement of the brain and spinal cord, respectively. The term is also used to designate noninflammatory lesions in the peripheral nervous system, in contrast to inflammatory lesions (neuritis). [EU]

Neutrophil: Having an affinity for neutral dyes. [EU]

Niacin: Water-soluble vitamin of the B complex occurring in various animal and plant tissues. Required by the body for the formation of coenzymes NAD and NADP. Has pellagra-curative, vasodilating, and antilipemic properties. [NIH]

Nizatidine: A histamine H₂ receptor antagonist with low toxicity that

inhibits gastric acid secretion. The drug is used for the treatment of duodenal ulcers. [NIH]

Oedema: The presence of abnormally large amounts of fluid in the intercellular tissue spaces of the body; usually applied to demonstrable accumulation of excessive fluid in the subcutaneous tissues. Edema may be localized, due to venous or lymphatic obstruction or to increased vascular permeability, or it may be systemic due to heart failure or renal disease. Collections of edema fluid are designated according to the site, e.g. ascites (peritoneal cavity), hydrothorax (pleural cavity), and hydropericardium (pericardial sac). Massive generalized edema is called anasarca. [EU]

Ointments: Semisolid preparations used topically for protective emollient effects or as a vehicle for local administration of medications. Ointment bases are various mixtures of fats, waxes, animal and plant oils and solid and liquid hydrocarbons. [NIH]

Orthopaedic: Pertaining to the correction of deformities of the musculoskeletal system; pertaining to orthopaedics. [EU]

Osteoarthritis: Noninflammatory degenerative joint disease occurring chiefly in older persons, characterized by degeneration of the articular cartilage, hypertrophy of bone at the margins, and changes in the synovial membrane. It is accompanied by pain and stiffness, particularly after prolonged activity. [EU]

Osteogenesis: The histogenesis of bone including ossification. It occurs continuously but particularly in the embryo and child and during fracture repair. [NIH]

Osteomalacia: A condition marked by softening of the bones (due to impaired mineralization, with excess accumulation of osteoid), with pain, tenderness, muscular weakness, anorexia, and loss of weight, resulting from deficiency of vitamin D and calcium. [EU]

Osteomyelitis: Inflammation of bone caused by a pyogenic organism. It may remain localized or may spread through the bone to involve the marrow, cortex, cancellous tissue, and periosteum. [EU]

Osteonecrosis: Death of a bone or part of a bone, either atraumatic or posttraumatic. [NIH]

Osteopetrosis: Excessive formation of dense trabecular bone leading to pathological fractures, osteitis, splenomegaly with infarct, anemia, and extramedullary hemopoiesis. [NIH]

Osteoporosis: Reduction in the amount of bone mass, leading to fractures after minimal trauma. [EU]

Otolaryngology: A surgical specialty concerned with the study and treatment of disorders of the ear, nose, and throat. [NIH]

Overdosage: 1. the administration of an excessive dose. 2. the condition resulting from an excessive dose. [EU]

Overdose: 1. to administer an excessive dose. 2. an excessive dose. [EU]

Oxypurinol: A xanthine oxidase inhibitor. [NIH]

Pancreatitis: Acute or chronic inflammation of the pancreas, which may be asymptomatic or symptomatic, and which is due to autodigestion of a pancreatic tissue by its own enzymes. It is caused most often by alcoholism or biliary tract disease; less commonly it may be associated with hyperlipaemia, hyperparathyroidism, abdominal trauma (accidental or operative injury), vasculitis, or uraemia. [EU]

Paraffin: A mixture of solid hydrocarbons obtained from petroleum. It has a wide range of uses including as a stiffening agent in ointments, as a lubricant, and as a topical anti-inflammatory. It is also commonly used as an embedding material in histology. [NIH]

Parvovirus: A genus of the family parvoviridae, subfamily parvovirinae, infecting a variety of vertebrates including humans. Parvoviruses are responsible for a number of important diseases but also can be non-pathogenic in certain hosts. The type species is mice minute virus. [NIH]

Pelvic: Pertaining to the pelvis. [EU]

Percutaneous: Performed through the skin, as injection of radiopaque material in radiological examination, or the removal of tissue for biopsy accomplished by a needle. [EU]

Pharmacologic: Pertaining to pharmacology or to the properties and reactions of drugs. [EU]

Phenotype: The outward appearance of the individual. It is the product of interactions between genes and between the genotype and the environment. This includes the killer phenotype, characteristic of YEASTS. [NIH]

Phosphorylase: An enzyme of the transferase class that catalyzes the phosphorylysis of a terminal alpha-1,4-glycosidic bond at the non-reducing end of a glycogen molecule, releasing a glucose 1-phosphate residue. Phosphorylase should be qualified by the natural substance acted upon. EC 2.4.1.1. [NIH]

Pneumonia: Inflammation of the lungs with consolidation. [EU]

Podiatry: A specialty concerned with the diagnosis and treatment of foot disorders and injuries and anatomic defects of the foot. [NIH]

Poisoning: A condition or physical state produced by the ingestion, injection or inhalation of, or exposure to a deleterious agent. [NIH]

Polyarthritis: An inflammation of several joints together. [EU]

Porphyria: A pathological state in man and some lower animals that is often

due to genetic factors, is characterized by abnormalities of porphyrin metabolism, and results in the excretion of large quantities of porphyrins in the urine and in extreme sensitivity to light. [EU]

Postmenopausal: Occurring after the menopause. [EU]

Postoperative: Occurring after a surgical operation. [EU]

Potassium: An element that is in the alkali group of metals. It has an atomic symbol K, atomic number 19, and atomic weight 39.10. It is the chief cation in the intracellular fluid of muscle and other cells. Potassium ion is a strong electrolyte and it plays a significant role in the regulation of fluid volume and maintenance of the water-electrolyte balance. [NIH]

Predisposition: A latent susceptibility to disease which may be activated under certain conditions, as by stress. [EU]

Prednisone: A synthetic anti-inflammatory glucocorticoid derived from cortisone. It is biologically inert and converted to prednisolone in the liver. [NIH]

Prevalence: The total number of cases of a given disease in a specified population at a designated time. It is differentiated from incidence, which refers to the number of new cases in the population at a given time. [NIH]

Probenecid: The prototypical uricosuric agent. It inhibits the renal excretion of organic anions and reduces tubular reabsorption of urate. Probenecid has also been used to treat patients with renal impairment, and, because it reduces the renal tubular excretion of other drugs, has been used as an adjunct to antibacterial therapy. [NIH]

Progressive: Advancing; going forward; going from bad to worse; increasing in scope or severity. [EU]

Prophylaxis: The prevention of disease; preventive treatment. [EU]

Protease: Proteinase (= any enzyme that catalyses the splitting of interior peptide bonds in a protein). [EU]

Proteins: Polymers of amino acids linked by peptide bonds. The specific sequence of amino acids determines the shape and function of the protein. [NIH]

Psoriasis: A common genetically determined, chronic, inflammatory skin disease characterized by rounded erythematous, dry, scaling patches. The lesions have a predilection for nails, scalp, genitalia, extensor surfaces, and the lumbosacral region. Accelerated epidermopoiesis is considered to be the fundamental pathologic feature in psoriasis. [NIH]

Psychosomatic: Pertaining to the mind-body relationship; having bodily symptoms of psychic, emotional, or mental origin; called also psychophysiological. [EU]

Pulse: The rhythmical expansion and contraction of an artery produced by

waves of pressure caused by the ejection of blood from the left ventricle of the heart as it contracts. [NIH]

Purines: A series of heterocyclic compounds that are variously substituted in nature and are known also as purine bases. They include adenine and guanine, constituents of nucleic acids, as well as many alkaloids such as caffeine and theophylline. Uric acid is the metabolic end product of purine metabolism. [NIH]

Pyrazinamide: A pyrazine that is used therapeutically as an antitubercular agent. [NIH]

Radiography: The making of film records (radiographs) of internal structures of the body by passage of x-rays or gamma rays through the body to act on specially sensitized film. [EU]

Radiology: A specialty concerned with the use of x-ray and other forms of radiant energy in the diagnosis and treatment of disease. [NIH]

Recombinant: 1. a cell or an individual with a new combination of genes not found together in either parent; usually applied to linked genes. [EU]

Reconstitution: 1. a type of regeneration in which a new organ forms by the rearrangement of tissues rather than from new formation at an injured surface. 2. the restoration to original form of a substance previously altered for preservation and storage, as the restoration to a liquid state of blood serum or plasma that has been dried and stored. [EU]

Rectal: Pertaining to the rectum (= distal portion of the large intestine). [EU]

Recurrence: The return of a sign, symptom, or disease after a remission. [NIH]

Reflex: 1; reflected. 2. a reflected action or movement; the sum total of any particular involuntary activity. [EU]

Reflux: A backward or return flow. [EU]

Remission: A diminution or abatement of the symptoms of a disease; also the period during which such diminution occurs. [EU]

Respiratory: Pertaining to respiration. [EU]

Rheumatoid: Resembling rheumatism. [EU]

Rheumatology: A subspecialty of internal medicine concerned with the study of inflammatory or degenerative processes and metabolic derangement of connective tissue structures which pertain to a variety of musculoskeletal disorders, such as arthritis. [NIH]

Riboflavin: Nutritional factor found in milk, eggs, malted barley, liver, kidney, heart, and leafy vegetables. The richest natural source is yeast. It occurs in the free form only in the retina of the eye, in whey, and in urine; its principal forms in tissues and cells are as FMN and FAD. [NIH]

Ribose: A pentose active in biological systems usually in its D-form. [NIH]

Rickets: A condition caused by deficiency of vitamin D, especially in infancy and childhood, with disturbance of normal ossification. The disease is marked by bending and distortion of the bones under muscular action, by the formation of nodular enlargements on the ends and sides of the bones, by delayed closure of the fontanelles, pain in the muscles, and sweating of the head. Vitamin D and sunlight together with an adequate diet are curative, provided that the parathyroid glands are functioning properly. [EU]

Rifabutin: A broad-spectrum antibiotic that is being used as prophylaxis against disseminated Mycobacterium avium complex infection in HIV-positive patients. [NIH]

Salicylates: The salts, esters of salicylic acids, or salicylate esters of an organic acid. Some of these have analgesic, antipyretic, and anti-inflammatory activities by inhibiting prostaglandin synthesis. [NIH]

Sarcoidosis: An idiopathic systemic inflammatory granulomatous disorder comprised of epithelioid and multinucleated giant cells with little necrosis. It usually invades the lungs with fibrosis and may also involve lymph nodes, skin, liver, spleen, eyes, phalangeal bones, and parotid glands. [NIH]

Sclerosis: A induration, or hardening; especially hardening of a part from inflammation and in diseases of the interstitial substance. The term is used chiefly for such a hardening of the nervous system due to hyperplasia of the connective tissue or to designate hardening of the blood vessels. [EU]

Secretion: 1. the process of elaborating a specific product as a result of the activity of a gland; this activity may range from separating a specific substance of the blood to the elaboration of a new chemical substance. 2. any substance produced by secretion. [EU]

Sedimentation: The act of causing the deposit of sediment, especially by the use of a centrifugal machine. [EU]

Seizures: Clinical or subclinical disturbances of cortical function due to a sudden, abnormal, excessive, and disorganized discharge of brain cells. Clinical manifestations include abnormal motor, sensory and psychic phenomena. Recurrent seizures are usually referred to as epilepsy or "seizure disorder." [NIH]

Selenium: An element with the atomic symbol Se, atomic number 34, and atomic weight 78.96. It is an essential micronutrient for mammals and other animals but is toxic in large amounts. Selenium protects intracellular structures against oxidative damage. It is an essential component of glutathione peroxidase. [NIH]

Septic: Produced by or due to decomposition by microorganisms; putrefactive. [EU]

Serum: The clear portion of any body fluid; the clear fluid moistening

serous membranes. 2. blood serum; the clear liquid that separates from blood on clotting. 3. immune serum; blood serum from an immunized animal used for passive immunization; an antiserum; antitoxin, or antivenin. [EU]

Shoulder Pain: Unilateral or bilateral pain of the shoulder. It is often caused by physical activities such as work or sports participation, but may also be pathologic in origin. [NIH]

Spectrum: A charted band of wavelengths of electromagnetic vibrations obtained by refraction and diffraction. By extension, a measurable range of activity, such as the range of bacteria affected by an antibiotic (antibacterial s.) or the complete range of manifestations of a disease. [EU]

Spondylitis: Inflammation of the vertebrae. [EU]

Staphylococcus: A genus of gram-positive, facultatively anaerobic, coccoid bacteria. Its organisms occur singly, in pairs, and in tetrads and characteristically divide in more than one plane to form irregular clusters. Natural populations of *Staphylococcus* are membranes of warm-blooded animals. Some species are opportunistic pathogens of humans and animals. [NIH]

Stimulant: 1. producing stimulation; especially producing stimulation by causing tension on muscle fibre through the nervous tissue. 2. an agent or remedy that produces stimulation. [EU]

Stomach: An organ of digestion situated in the left upper quadrant of the abdomen between the termination of the esophagus and the beginning of the duodenum. [NIH]

Substrate: A substance upon which an enzyme acts. [EU]

Suction: The removal of secretions, gas or fluid from hollow or tubular organs or cavities by means of a tube and a device that acts on negative pressure. [NIH]

Sulfinpyrazone: A uricosuric drug that is used to reduce the serum urate levels in gout therapy. It lacks anti-inflammatory, analgesic, and diuretic properties. [NIH]

Sulindac: A sulfinylindene derivative whose sulfinyl moiety is converted in vivo to an active anti-inflammatory analgesic that undergoes enterohepatic circulation to maintain constant blood levels without causing gastrointestinal side effects. [NIH]

Surgical: Of, pertaining to, or correctable by surgery. [EU]

Synergistic: Acting together; enhancing the effect of another force or agent. [EU]

Synovial: Of pertaining to, or secreting synovia. [EU]

Synovitis: Inflammation of a synovial membrane. It is usually painful, particularly on motion, and is characterized by a fluctuating swelling due to

effusion within a synovial sac. Synovitis is qualified as fibrinous, gonorrhoeal, hyperplastic, lipomatous, metritic, puerperal, rheumatic, scarlatinal, syphilitic, tuberculous, urethral, etc. [EU]

Systemic: Pertaining to or affecting the body as a whole. [EU]

Tachycardia: Excessive rapidity in the action of the heart; the term is usually applied to a heart rate above 100 per minute and may be qualified as atrial, junctional (nodal), or ventricular, and as paroxysmal. [EU]

Tacrolimus: A macrolide isolated from the culture broth of a strain of *Streptomyces tsukubaensis* that has strong immunosuppressive activity in vivo and prevents the activation of T-lymphocytes in response to antigenic or mitogenic stimulation in vitro. [NIH]

Tendinitis: Inflammation of tendons and of tendon-muscle attachments. [EU]

Tenosynovitis: Inflammation of a tendon sheath. [EU]

Tetracycline: An antibiotic originally produced by *Streptomyces viridifaciens*, but used mostly in synthetic form. It is an inhibitor of aminoacyl-tRNA binding during protein synthesis. [NIH]

Thermoregulation: Heat regulation. [EU]

Thoracic: Pertaining to or affecting the chest. [EU]

Thrombocytopenia: Decrease in the number of blood platelets. [EU]

Thrombocytosis: Increased numbers of platelets in the peripheral blood. [EU]

Thrombophlebitis: Inflammation of a vein associated with thrombus formation. [EU]

Thyroxine: An amino acid of the thyroid gland which exerts a stimulating effect on thyroid metabolism. [NIH]

Tomography: The recording of internal body images at a predetermined plane by means of the tomograph; called also body section roentgenography. [EU]

Tophus: A chalky deposit of sodium urate occurring in gout; tophi form most often around joints in cartilage, bone, bursae, and subcutaneous tissue and in the external ear, producing a chronic foreign-body inflammatory response. [EU]

Topical: Pertaining to a particular surface area, as a topical anti-infective applied to a certain area of the skin and affecting only the area to which it is applied. [EU]

Toxicity: The quality of being poisonous, especially the degree of virulence of a toxic microbe or of a poison. [EU]

Toxin: A poison; frequently used to refer specifically to a protein produced by some higher plants, certain animals, and pathogenic bacteria, which is highly toxic for other living organisms. Such substances are differentiated

from the simple chemical poisons and the vegetable alkaloids by their high molecular weight and antigenicity. [EU]

Transplantation: The grafting of tissues taken from the patient's own body or from another. [EU]

Tryptophan: An essential amino acid that is necessary for normal growth in infants and for nitrogen balance in adults. It is a precursor serotonin and niacin. [NIH]

Tuberculosis: Any of the infectious diseases of man and other animals caused by species of mycobacterium. [NIH]

Tubulin: A microtubule subunit protein found in large quantities in mammalian brain. It has also been isolated from sperm flagella, cilia, and other sources. Structurally, the protein is a dimer with a molecular weight of approximately 120,000 and a sedimentation coefficient of 5.8S. It binds to colchicine, vincristine, and vinblastine. [NIH]

Uricosuric: 1. pertaining to, characterized by, or promoting uricosuria (= the excretion of uric acid in the urine). 2. an agent that promotes uricosuria. [EU]

Urinalysis: Examination of urine by chemical, physical, or microscopic means. Routine urinalysis usually includes performing chemical screening tests, determining specific gravity, observing any unusual color or odor, screening for bacteriuria, and examining the sediment microscopically. [NIH]

Urinary: Pertaining to the urine; containing or secreting urine. [EU]

Vasculitis: Inflammation of a vessel, angiitis. [EU]

Vegetarianism: Dietary practice of consuming only vegetables, grains, and nuts. [NIH]

Veins: The vessels carrying blood toward the heart. [NIH]

Viral: Pertaining to, caused by, or of the nature of virus. [EU]

Viruses: Minute infectious agents whose genomes are composed of DNA or RNA, but not both. They are characterized by a lack of independent metabolism and the inability to replicate outside living host cells. [NIH]

Warts: Benign epidermal proliferations or tumors; some are viral in origin. [NIH]

Withdrawal: 1. a pathological retreat from interpersonal contact and social involvement, as may occur in schizophrenia, depression, or schizoid avoidant and schizotypal personality disorders. 2. (DSM III-R) a substance-specific organic brain syndrome that follows the cessation of use or reduction in intake of a psychoactive substance that had been regularly used to induce a state of intoxication. [EU]

General Dictionaries and Glossaries

While the above glossary is essentially complete, the dictionaries listed here cover virtually all aspects of medicine, from basic words and phrases to more advanced terms (sorted alphabetically by title; hyperlinks provide rankings, information and reviews at Amazon.com):

- **Dictionary of Medical Acronyms & Abbreviations** by Stanley Jablonski (Editor), Paperback, 4th edition (2001), Lippincott Williams & Wilkins Publishers, ISBN: 1560534605,
<http://www.amazon.com/exec/obidos/ASIN/1560534605/icongroupinterna>
- **Dictionary of Medical Terms : For the Nonmedical Person (Dictionary of Medical Terms for the Nonmedical Person, Ed 4)** by Mikel A. Rothenberg, M.D, et al, Paperback - 544 pages, 4th edition (2000), Barrons Educational Series, ISBN: 0764112015,
<http://www.amazon.com/exec/obidos/ASIN/0764112015/icongroupinterna>
- **A Dictionary of the History of Medicine** by A. Sebastian, CD-Rom edition (2001), CRC Press-Parthenon Publishers, ISBN: 185070368X,
<http://www.amazon.com/exec/obidos/ASIN/185070368X/icongroupinterna>
- **Dorland's Illustrated Medical Dictionary (Standard Version)** by Dorland, et al, Hardcover - 2088 pages, 29th edition (2000), W B Saunders Co, ISBN: 0721662544,
<http://www.amazon.com/exec/obidos/ASIN/0721662544/icongroupinterna>
- **Dorland's Electronic Medical Dictionary** by Dorland, et al, Software, 29th Book & CD-Rom edition (2000), Harcourt Health Sciences, ISBN: 0721694934,
<http://www.amazon.com/exec/obidos/ASIN/0721694934/icongroupinterna>
- **Dorland's Pocket Medical Dictionary (Dorland's Pocket Medical Dictionary, 26th Ed)** Hardcover - 912 pages, 26th edition (2001), W B Saunders Co, ISBN: 0721682812,
<http://www.amazon.com/exec/obidos/ASIN/0721682812/icongroupinterna/103-4193558-7304618>
- **Melloni's Illustrated Medical Dictionary (Melloni's Illustrated Medical Dictionary, 4th Ed)** by Melloni, Hardcover, 4th edition (2001), CRC Press-Parthenon Publishers, ISBN: 85070094X,
<http://www.amazon.com/exec/obidos/ASIN/85070094X/icongroupinterna>
- **Stedman's Electronic Medical Dictionary Version 5.0 (CD-ROM for Windows and Macintosh, Individual)** by Stedmans, CD-ROM edition (2000), Lippincott Williams & Wilkins Publishers, ISBN: 0781726328,
<http://www.amazon.com/exec/obidos/ASIN/0781726328/icongroupinterna>

- **Stedman's Medical Dictionary** by Thomas Lathrop Stedman, Hardcover - 2098 pages, 27th edition (2000), Lippincott, Williams & Wilkins, ISBN: 068340007X,
<http://www.amazon.com/exec/obidos/ASIN/068340007X/icongroupinterna>
- **Tabers Cyclopedic Medical Dictionary (Thumb Index)** by Donald Venes (Editor), et al, Hardcover - 2439 pages, 19th edition (2001), F A Davis Co, ISBN: 0803606540,
<http://www.amazon.com/exec/obidos/ASIN/0803606540/icongroupinterna>

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