

*Recognizing*  
The National  
Bone and Joint Decade  
2002-2011

*Questions  
& Answers*  
about . . .

Arthritis  
Pain

*National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)  
National Institutes of Health  
Public Health Service • U.S. Department of Health and Human Services*

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You can also find this booklet on the NIAMS Web site  
at [www.niams.nih.gov/hi/topics/arthritis/arthpain.htm](http://www.niams.nih.gov/hi/topics/arthritis/arthpain.htm).

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## What Is Arthritis?

The word arthritis literally means joint inflammation, but it is often used to refer to a group of more than 100 rheumatic diseases that can cause pain, stiffness, and swelling in the joints. These diseases may affect not only the joints but also other parts of the body, including important supporting structures such as muscles, bones, tendons, and ligaments, as well as some internal organs. This booklet focuses on pain caused by two of the most common forms of arthritis—osteoarthritis and rheumatoid arthritis.

## What Is Pain?

Pain is the body's warning system, alerting you that something is wrong. The International Association for the Study of Pain defines it as an unpleasant experience associated with actual or potential tissue damage to a person's body. Specialized nervous system cells (neurons) that transmit pain signals are found throughout the skin and other body tissues. These cells respond to things such as injury or tissue damage. For example, when a harmful agent such as a sharp knife comes in contact with your skin, chemical signals travel from neurons in the skin through nerves in the spinal cord to your brain, where they are interpreted as pain.

Most forms of arthritis are associated with pain that can be divided into two general categories: acute and chronic. Acute pain is temporary. It can last a few seconds or longer

but wanes as healing occurs. Some examples of things that cause acute pain include burns, cuts, and fractures. Chronic pain, such as that seen in people with osteoarthritis and rheumatoid arthritis, ranges from mild to severe and can last weeks, months, and years to a lifetime.

## **How Many Americans Have Arthritis Pain?**

Chronic pain is a major health problem in the United States and is one of the most weakening effects of arthritis. More than 40 million Americans are affected by some form of arthritis, and many have chronic pain that limits daily activity. Osteoarthritis is by far the most common form of arthritis, affecting over 20 million Americans, while rheumatoid arthritis, which affects about 2.1 million Americans, is the most disabling form of the disease.

## **What Causes Arthritis Pain? Why Is It So Variable?**

The pain of arthritis may come from different sources. These may include inflammation of the synovial membrane (tissue that lines the joints), the tendons, or the ligaments; muscle strain; and fatigue. A combination of these factors contributes to the intensity of the pain.

The pain of arthritis varies greatly from person to person, for reasons that doctors do not yet understand completely. Factors that contribute to the pain include swelling within the joint, the amount of heat or redness present, or damage that

has occurred within the joint. In addition, activities affect pain differently so that some patients note pain in their joints after first getting out of bed in the morning, whereas others develop pain after prolonged use of the joint. Each individual has a different threshold and tolerance for pain, often affected by both physical and emotional factors. These can include depression, anxiety, and even hypersensitivity at the affected sites due to inflammation and tissue injury. This increased sensitivity appears to affect the amount of pain perceived by the individual. Social support networks can make an important contribution to pain management.

## How Do Doctors Measure Arthritis Pain?

Pain is a private, unique experience that cannot be seen. The most common way to measure pain is for the doctor to ask you, the patient, about your difficulties. For example, the doctor may ask you to describe the level of pain you feel on a scale of 1 to 10. You may use words like aching, burning, stinging, or throbbing. These words will give the doctor a clearer picture of the pain you are experiencing.

Since doctors rely on your description of pain to help guide treatment, you may want to keep a pain diary to record your pain sensations. You can begin a week or two before your visit to the doctor. On a daily basis, you can describe the situations that cause or alter the intensity of your pain, the sensations and severity of your pain, and your reactions to the pain. For example: “On Monday night, sharp pains in my

knees produced by housework interfered with my sleep; on Tuesday morning, because of the pain, I had a hard time getting out bed. However, I coped with the pain by taking my medication and applying ice to my knees.” The diary will give the doctor some insight into your pain and may play a critical role in the management of your disease.

## **What Will Happen When You First Visit a Doctor for Your Arthritis Pain?**

The doctor will usually do the following:

- Take your medical history and ask questions such as, How long have you been experiencing pain? How intense is the pain? How often does it occur? What causes it to get worse? What causes it to get better?
- Review the medications you are using
- Conduct a physical examination to determine causes of pain and how this pain is affecting your ability to function
- Take blood and/or urine samples and request necessary laboratory work
- Ask you to get x rays taken or undergo other imaging procedures such as a CAT scan (computerized axial tomography) or MRI (magnetic resonance imaging) to see how much joint damage has been done.



Once the doctor has done these things and reviewed the results of any tests or procedures, he or she will discuss the findings with you and design a comprehensive management approach for the pain caused by your osteoarthritis or rheumatoid arthritis.

## Who Can Treat Arthritis Pain?

A number of different specialists may be involved in the care of a patient with arthritis—often a team approach is used. The team may include doctors who treat people with arthritis (rheumatologists), surgeons (orthopaedists), and physical and occupational therapists. Their goal is to treat all aspects of arthritis pain and help you learn to manage your pain. The physician, other health care professionals, and you, the patient, all play an active role in the management of arthritis pain.

## How Is Arthritis Pain Treated?

There is no single treatment that applies to everyone with arthritis, but rather the doctor will develop a management plan designed to minimize your specific pain and improve the function of your joints. A number of treatments can provide short-term pain relief.

## *Short-Term Relief*

- **Medications**—Because people with osteoarthritis have very little inflammation, pain relievers such as acetaminophen (Tylenol\*) may be effective. Patients with rheumatoid arthritis generally have pain caused by inflammation and often benefit from aspirin or other nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen (Motrin or Advil).
- **Heat and cold**—The decision to use either heat or cold for arthritis pain depends on the type of arthritis and should be discussed with your doctor or physical therapist. Moist heat, such as a warm bath or shower, or dry heat, such as a heating pad, placed on the painful area of the joint for about 15 minutes may relieve the pain. An ice pack (or a bag of frozen vegetables) wrapped in a towel and placed on the sore area for about 15 minutes may help to reduce swelling and stop the pain. If you have poor circulation, do not use cold packs.
- **Joint protection**—Using a splint or a brace to allow joints to rest and protect them from injury can be helpful. Your physician or physical therapist can make recommendations.

\* Brand names included in this booklet 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 or imply that the product is unsatisfactory.

- **Transcutaneous electrical nerve stimulation (TENS)**—A small TENS device that directs mild electric pulses to nerve endings that lie beneath the skin in the painful area may relieve some arthritis pain. TENS seems to work by blocking pain messages to the brain and by modifying pain perception.
- **Massage**—In this pain-relief approach, a massage therapist will lightly stroke and/or knead the painful muscle. This may increase blood flow and bring warmth to a stressed area. However, arthritis-stressed joints are very sensitive, so the therapist must be familiar with the problems of the disease.

Osteoarthritis and rheumatoid arthritis are chronic diseases that may last a lifetime. Learning how to manage your pain over the long term is an important factor in controlling the disease and maintaining a good quality of life. Following are some sources of long-term pain relief.

### *Long-Term Relief*

- **Medications**
  - Biological response modifiers**—These new drugs used for the treatment of rheumatoid arthritis reduce inflammation in the joints by blocking the reaction of a substance called tumor necrosis factor, an immune system protein involved in immune system response. These drugs include Enbrel and Remicade.

**Nonsteroidal anti-inflammatory drugs (NSAIDs)**—These are a class of drugs including aspirin and ibuprofen that are used to reduce pain and inflammation and may be used for both short-term and long-term relief in people with osteoarthritis and rheumatoid arthritis. NSAIDs also include Celebrex and Vioxx, so-called COX-2 inhibitors that block an enzyme known to cause an inflammatory response.

**Disease-modifying antirheumatic drugs (DMARDs)**—These are drugs used to treat people with rheumatoid arthritis who have not responded to NSAIDs. Some of these include the new drug Arava and methotrexate, hydroxychloroquine, penicillamine, and gold injections. These drugs are thought to influence and correct abnormalities of the immune system responsible for a disease like rheumatoid arthritis. Treatment with these medications requires careful monitoring by the physician to avoid side effects.

**Corticosteroids**—These are hormones that are very effective in treating arthritis but cause many side effects. Corticosteroids can be taken by mouth or given by injection. Prednisone is the corticosteroid most often given by mouth to reduce the inflammation of rheumatoid arthritis. In both rheumatoid arthritis and osteoarthritis, the doctor also may inject a corticosteroid into the affected joint to stop pain. Because frequent injections may cause damage to the

cartilage, they should be done only once or twice a year.

**Other products**—Hyaluronic acid products like Hyalgan and Synvisc mimic a naturally occurring body substance that lubricates the knee joint and permits flexible joint movement without pain. A blood-filtering device called the ProSORBA Column is used in some health care facilities for filtering out harmful antibodies in people with severe rheumatoid arthritis.

- **Weight reduction**—Excess pounds put extra stress on weight-bearing joints such as the knees or hips. Studies have shown that overweight women who lost an average of 11 pounds substantially reduced the development of osteoarthritis in their knees. In addition, if osteoarthritis has already affected one knee, weight reduction will reduce the chance of it occurring in the other knee.
- **Exercise**—Swimming, walking, low-impact aerobic exercise, and range-of-motion exercises may reduce joint pain and stiffness. In addition, stretching exercises are helpful. A physical therapist can help plan an exercise program that will give you the most benefit.\*

\* The National Institute of Arthritis and Musculoskeletal and Skin Diseases Information Clearinghouse has a separate booklet on arthritis and exercise. See the end of this booklet for contact information.

- **Surgery**—In select patients with arthritis, surgery may be necessary. The surgeon may perform an operation to remove the synovium (synovectomy), realign the joint (osteotomy), or in advanced cases replace the damaged joint with an artificial one (arthroplasty). Total joint replacement has provided not only dramatic relief from pain but also improvement in motion for many people with arthritis.

## What Alternative Therapies May Relieve Arthritis Pain?

Many people seek other ways of treating their disease, such as special diets or supplements. Although these methods may not be harmful in and of themselves, no research to date shows that they help. Some people have tried acupuncture, in which thin needles are inserted at specific points in the body. Others have tried glucosamine and chondroitin sulfate, two natural substances found in and around cartilage cells, for osteoarthritis of the knee.

Some alternative or complementary approaches may help you to cope with or reduce some of the stress of living with a chronic illness. It is important to inform your doctor if you are using alternative therapies. If the doctor feels the approach has value and will not harm you, it can be incorporated into your treatment plan. However, it is important not to neglect your regular health care or treatment of serious symptoms.

## How Can You Cope With Arthritis Pain?

The long-term goal of pain management is to help you cope with a chronic, often disabling disease. You may be caught in a cycle of pain, depression, and stress. To break out of this cycle, you need to be an active participant with the doctor and other health care professionals in managing your pain. This may include physical therapy, cognitive-behavioral therapy, occupational therapy, biofeedback, relaxation techniques (for example, deep breathing and meditation), and family counseling therapy.

The Multipurpose Arthritis and Musculoskeletal Diseases Center at Stanford University, supported by the National Institute of Arthritis and Musculoskeletal and Skin Diseases

### Things You Can Do To Manage Arthritis Pain

- Eat a healthy diet.
- Get 8 to 10 hours of sleep at night.
- Keep a daily diary of pain and mood changes to share with your physician.
- Choose a caring physician.
- Join a support group.
- Stay informed about new research on managing arthritis pain.

(NIAMS), has developed an Arthritis Self-Help Course that teaches people with arthritis how to take a more active part in their arthritis care. The Arthritis Self-Help Course is taught by the Arthritis Foundation and consists of a 12- to 15-hour program that includes lectures on osteoarthritis and rheumatoid arthritis, exercise, pain management, nutrition, medication, doctor-patient relationships, and nontraditional treatment.

You may want to contact some of the organizations listed at the end of this booklet for additional information on the Arthritis Self-Help Course and on coping with pain, as well as for information on support groups in your area.

## **What Research Is Being Conducted on Arthritis Pain?**

The NIAMS, part of the National Institutes of Health, is sponsoring research that will increase understanding of the specific ways to diagnose, treat, and possibly prevent arthritis pain. As part of its commitment to pain research, the Institute joined with many other NIH institutes and offices in 1998 in a special announcement to encourage more studies on pain.

At the Specialized Center of Research in Osteoarthritis at Rush-Presbyterian-St. Luke's Medical Center in Chicago, Illinois, researchers are studying the human knee and analyzing how injury in one joint may affect other joints. In addition, they are analyzing the effect of pain and analgesics



on gait (walking) and comparing pain and gait before and after surgical treatment for knee osteoarthritis.

At the University of Maryland Pain Center in Baltimore, NIAMS researchers are evaluating the use of acupuncture on patients with osteoarthritis of the knee. Preliminary findings suggest that traditional Chinese acupuncture is both safe and effective as an additional therapy for osteoarthritis, and it significantly reduces pain and improves physical function.

At Duke University in Durham, North Carolina, NIAMS researchers have developed cognitive-behavioral therapy (CBT) involving both patients and their spouses. The goal of CBT for arthritis pain is to help patients cope more effectively with the long-term demands of a chronic and potentially disabling disease. Researchers are studying whether aerobic fitness, coping abilities, and spousal responses to pain behaviors diminish the patient's pain and disability.

NIAMS-supported research on arthritis pain also includes projects in the Institute's Multipurpose Arthritis and Musculoskeletal Diseases Centers. At the University of California at San Francisco, researchers are studying stress factors, including pain, that are associated with rheumatoid arthritis. Findings from this study will be used to develop patient education programs that will improve a person's ability to deal with rheumatoid arthritis and enhance quality of life. At the Indiana University School of Medicine in Indianapolis, health care professionals are looking at the causes of pain

and joint disability in patients with osteoarthritis. The goal of the project is to improve doctor-patient communication about pain management and increase patient satisfaction.

The list of pain studies continues. A NIAMS-funded project at Stanford University in California is evaluating the effects of a patient education program that uses a book and videotape to control chronic pain. At Indiana University in Indianapolis, Institute-supported scientists are determining whether strength training can diminish the risk of severe pain from knee osteoarthritis. And a multicenter study funded by the National Center for Complementary and Alternative Medicine and NIAMS, and coordinated by the University of Utah School of Medicine, is investigating the effects of the dietary supplements glucosamine and chondroitin sulfate for knee osteoarthritis.

## Where Can You Find More Information on Arthritis Pain?

- **National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)**  
National Institutes of Health  
1 AMS Circle  
Bethesda, MD 20892-3675  
Phone: 301-495-4484 or  
877-22-NIAMS (226-4267) (free of charge)  
TTY: 301-565-2966  
Fax: 301-718-6366  
E-mail: [NIAMSInfo@mail.nih.gov](mailto:NIAMSInfo@mail.nih.gov)  
[www.niams.nih.gov](http://www.niams.nih.gov)

NIAMS provides information about various forms of arthritis and rheumatic disease and bone, muscle, joint, and skin diseases. It distributes patient and professional education materials and refers people to other sources of information. Additional information and updates can also be found on the NIAMS Web site.

- **American Academy of Orthopaedic Surgeons**

P.O. Box 2058

Des Plaines, IL 60017

Phone: 800-824-BONE (2663) (free of charge)

[www.aaos.org](http://www.aaos.org)

The academy provides education and practice management services for orthopaedic surgeons and allied health professionals. It also serves as an advocate for improved patient care and informs the public about the science of orthopaedics. The orthopaedist's scope of practice includes disorders of the body's bones, joints, ligaments, muscles, and tendons. For a single copy of an AAOS brochure, send a self-addressed stamped envelope to the address above or visit the AAOS Web site.

- **American College of Rheumatology**

1800 Century Place, Suite 250

Atlanta, GA 30345

Phone: 404-633-3777

Fax: 404-633-1870

[www.rheumatology.org](http://www.rheumatology.org)

This association provides referrals to doctors and health professionals who work on arthritis, rheumatic diseases, and related conditions. It also provides educational materials and guidelines.

- **American Physical Therapy Association**

1111 North Fairfax Street

Alexandria, VA 22314-1488

Phone: 703-684-2782 or

800-999-2782, ext. 3395 (free of charge)

[www.apta.org](http://www.apta.org)

This association is a national professional organization representing physical therapists, allied personnel, and students. Its objectives are to improve research, public understanding, and education in the physical therapies.

- **Arthritis Foundation**

1330 West Peachtree Street

Atlanta, GA 30309

Phone: 404-872-7100 or 800-283-7800 (free of charge)  
or call your local chapter (listed in the telephone directory)

[www.arthritis.org](http://www.arthritis.org)

This is the major voluntary organization devoted to arthritis. The foundation publishes a free brochure, *Coping With Pain*, and a monthly magazine for members that provides up-to-date information on all forms of arthritis. The foundation also can provide addresses and phone numbers for local chapters and physician and clinic referrals.

- **American Chronic Pain Association**

P.O. Box 850

Rocklin, CA 95677

Phone: 916-632-0922

[www.theacpa.org](http://www.theacpa.org)

This association provides information on positive ways to deal with chronic pain and can provide guidelines on selecting a pain management center.

- **American Pain Society**  
4700 West Lake Avenue  
Glenview, IL 60025–1485  
Phone: 847–375–4715  
www.ampainsoc.org

This society provides general information to the public and maintains a directory of resources, including referrals to pain centers.

- **National Chronic Pain Outreach Association, Inc.**  
7979 Old Georgetown Road, Suite 100  
Bethesda, MD 20814–2429  
Phone: 301–652–4948  
Fax: 301–907–0745  
neurosurgery.mgh.harvard.edu/ncpainoa.htm

This association operates an information clearinghouse offering publications and cassette tapes for people with pain. It also publishes a newsletter that includes information on pain management techniques, coping strategies, book reviews, and support groups.

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The mission of the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), a part of the Department of Health and Human Services' 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. Additional information can be found on the NIAMS Web site at [www.niams.nih.gov](http://www.niams.nih.gov).



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