

# Special Report

Supplement to MAYO CLINIC HEALTH LETTER

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## Arthritis

### Reducing pain, overcoming obstacles and leading an active life

The aches and pains may come from a single joint in just one finger, or from multiple joints throughout your body. But if you're over 60, chances are you've felt the pain of arthritis. And, although the intensity of the pain may rise and fall, it may be an obstacle to performing day-to-day tasks that you once took for granted.

For most types of arthritis, there's no cure. And, even if your pain diminishes, it may never totally go away. However, there are strategies that you and your doctor can use to reduce arthritis pain, possibly slow disease progression and overcome obstacles that arthritis pain may cause.

You can't choose whether you'll get arthritis, but you can take steps to minimize its impact on your life.

#### Two main types

Arthritis occurs in more than 100 forms with varying signs and symptoms. Generally, arthritis refers to a disease of the joints, which can often result in joint pain, swelling, stiffness, or loss of joint function over time.

The two most common types of arthritis are:

- **Osteoarthritis** — Often called degenerative or wear-and-tear arthritis, osteoarthritis usually first appears after age 40 or 50 and develops slowly. Severe trauma to a joint can sometimes cause more rapid development of osteoarthritis. It's thought to be caused by the wearing out of a joint through use or overuse.

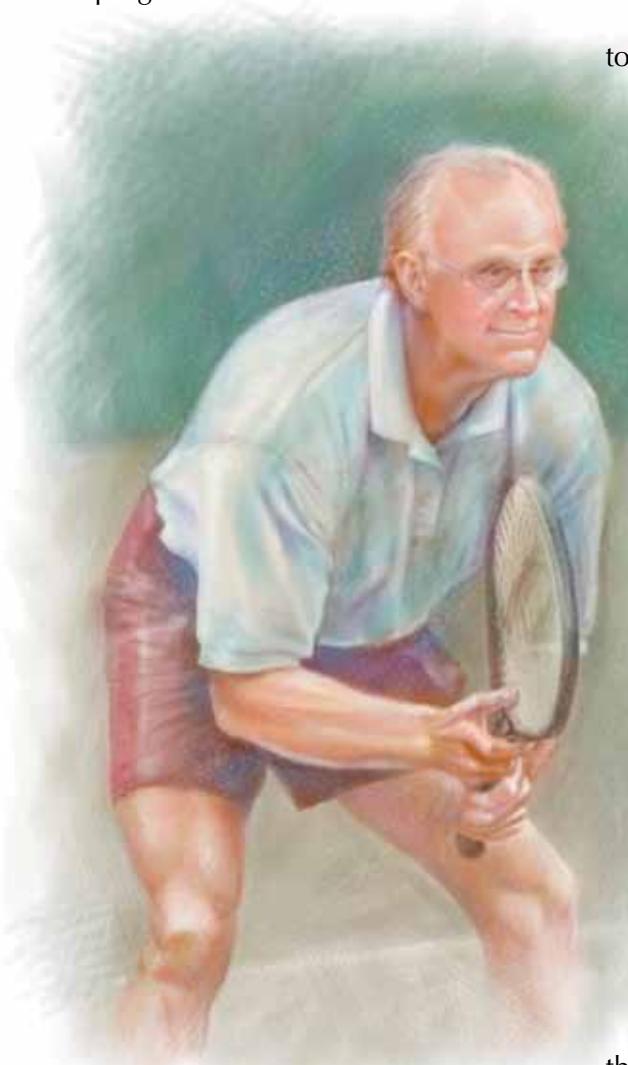
It occurs when cartilage — a tough, smooth, slippery tissue that cushions the bone ends in your joints — deteriorates, causing the normally smooth surfaces to roughen. Eventually, cartilage may wear away to the point where bone ends touch and rub.

The main signs and symptoms of osteoarthritis are pain, stiffness and — occasionally — swelling in a joint. These typically come on slowly with periods of relative calm alternating with flare-ups. The flare-ups often follow activity involving the joint, especially when the joint is overused. Flare-ups may also coincide with a change in the weather.

Osteoarthritis can occur in essentially any joint, but it usually affects only a few joints on one or both sides of the body.

It commonly occurs in the knees and hips, the fingers, the joint at the base of the thumb and the joint at the base of the big toe. In addition, osteoarthritis is commonly found in the spine.

Although it's not known exactly what causes osteoarthritis, cartilage damage is a key factor. An abnormality of your joint structure or a previous joint injury may increase your risk of developing cartilage damage. Other risk factors, in addition to getting older, include lack of exercise, excessive weight and certain genetic conditions. ▶



## Staying fit

In addition to helping you feel good and control your weight, exercise can help strengthen muscles that support your joints, reduce joint pain and help you maintain your mobility — when it's done right.

The main precaution to take is to protect your joints from further damage. You may need to minimize or avoid exercise during an arthritis flare-up. You'll also need to listen to your body. Don't force a motion if you feel pain and cut back on the intensity of exercise if your muscles ache for more than an hour or two after exercise — or if you experience increased joint swelling. Your doctor or physical therapist may be able to help you develop an exercise program to suit your needs.

Low-impact activities such as cycling, swimming and moderate strengthening exercises place less stress on your joints than do high-impact activities such as those that involve running, jumping and heavy weightlifting. It's a good idea to:

- Start easy and increase intensity gradually.
- Warm the affected joint with a heat source before exercise and apply ice after exercise.
- Cross-train by alternating between a variety of flexibility, strengthening and aerobic exercises throughout the week.
- Use appropriate equipment, such as proper footwear or a well-adjusted bicycle.

■ *Rheumatoid arthritis* — This usually begins between the ages of 25 and 50, often developing within weeks or months. About 75 percent of those with rheumatoid arthritis are women.

Unlike osteoarthritis, which is primarily associated with wear and tear of a joint or a joint injury, rheumatoid arthritis is considered an autoimmune disease. That means your immune system attacks parts of your body. In the case of rheumatoid arthritis, your immune system primarily attacks joint linings (synovial membranes), which are supposed to protect and lubricate your joints.

When your immune system attacks your synovial membranes, they become inflamed, causing your joints to feel warm, painful and swollen, or to become stiff — particularly in the morning. If inflammation persists, certain chemicals and enzymes may be released that begin to eat away at cartilage and bone, and cause damage to tendons and ligaments around the joint. Over time, muscles surrounding the joint may become weak, and the joint may eventually be destroyed.

Rheumatoid arthritis usually affects corresponding joints on both sides of the body, often starting with the small joints of the hands, wrists and feet. The disease can come on suddenly or gradually. In addition to joint discomfort, you may also have a general feeling of muscle aching and fatigue. Flare-ups may occur unpredictably.

Beyond your joints, the immune reaction that causes rheumatoid arthritis can also cause inflammation in other parts of the body, such as your heart, lungs, nerves, blood vessels, skin and tear or salivary glands.

## Others

Other forms of arthritis that can occur in older adults include:

■ *Gout and pseudogout* — In these diseases, microscopic crystals form in the fluids that lubricate the affected joint. As your body tries to rid the joint of these crystals, inflammation occurs, often causing intense pain and swelling. Gout — caused by crystals of uric acid — often comes on suddenly. It often occurs at the base of the big toe, but other joints can be affected. Pseudogout — caused by crystals from calcium salts — is more likely to occur in your knee, wrist or ankle.

■ *Inflammatory spine arthritis or spondyloarthropathies (spon-duh-lo-ahr-THROP-uh-thees)* — Inflammation of the spine joints is the key characteristic of this group of autoimmune diseases, which includes ankylosing spondylitis and forms of arthritis related to psoriasis, inflammatory bowel diseases and infection.

■ *Polymyalgia rheumatica and giant cell arteritis* — Polymyalgia rheumatica causes moderate to severe muscle aching and joint stiffness, often in the shoulders, hips and neck. It can often be associated with giant cell arteritis, in which the linings of certain arteries become inflamed, especially arteries of the head, neck and arms, causing symptoms of headaches, scalp tenderness, jaw aching when chewing or vision problems. Although there's no known cure for giant cell arteritis, prompt treatment can be critical in preventing the loss of vision that may occur with this disease.

■ *Systemic lupus erythematosus (er-uh-them-uh-TO-sus)* — This autoimmune disease, which affects women more often than men, causes inflammation in the joint lining (synovial membrane). It may

## Risks of pain relievers

Most common types of pain medication are quite safe when taken at or below recommended doses for short periods.

Still, none is risk-free, and the risk of serious side effects climbs when you take higher doses, especially above the recommended dose. (See chart on page 7.) Side effects are also more likely when recommended doses are taken over a long period of time.

In addition to stomach and bleeding risks (see "Preventing stomach problems," page 8), recent studies have shown that nonsteroidal anti-inflammatory drugs (NSAIDs) carry some cardiovascular risks. And from a cardiovascular standpoint, aspirin is among the safest pain relievers.

Based on limited studies, naproxen (Aleve, Naprosyn, others) and the aspirin related drugs (salsalate and choline magnesium trisalicylate) appear to be in an intermediate group for heart risk. Ibuprofen may be somewhat higher risk than these drugs. On the high risk end of the scale is the COX-2 inhibitor celecoxib (Celebrex), and the NSAID diclofenac (Cataflam, Voltaren, others), which you may want to avoid if you have cardiovascular risks.

Long-term use of any type of NSAID or COX-2 inhibitor can contribute to kidney damage, high blood pressure, fluid retention and heart failure.

If you're taking NSAIDs or a COX-2 inhibitor, have your kidney function and blood pressure checked regularly.

## Normal joint

**Joint capsule** — This tough, fibrous material encapsulates and helps stabilize your joints.

**Synovial membrane and fluid** — The synovial membrane is the inner lining of the joint capsule. It releases synovial fluid into the joint cavity to aid in lubrication.

**Cartilage** — Bones in your joints are capped with shock-absorbing cartilage, a tough, slippery material that reduces friction during movement.

**Bursa** — A tiny fluid-filled sac that helps lubricate and cushion pressure points between your bones and your muscles and tendons.

also affect other parts of your body, including your skin, kidneys, blood cells, heart, lungs and brain.

■ **Infectious arthritis** — Your joints can become infected by any germ that enters your bloodstream. Signs and symptoms may include a sudden intense pain, usually in a single joint. The affected joint may become warm and swollen, and there's often an accompanying fever.

A number of other autoimmune diseases are also associated with arthritis and joint pain. These include scleroderma; Sjogren's syndrome, which primarily affects tear and salivary glands causing dryness of the eyes and mouth; and polymyositis and dermatomyositis, which primarily affect your muscles, causing muscle weakness.

To make a diagnosis, it's likely your doctor will examine your affected joints for signs of inflammation. Imaging of your joints, such as with X-ray or magnetic resonance imaging (MRI), may be done to look for changes in the joint structure. In addition, your doctor may order blood tests or withdraw (aspirate) fluid from inside your joints and have it analyzed. A number of blood and joint fluid tests are used to diagnose rheumatoid arthritis and other, less common, forms of arthritis. Even if your doctor suspects osteoarthritis, these tests may still be done to rule out other forms of arthritis.

## Controlling pain: Lifestyle matters

Millions of Americans live with some form of arthritis, with varying levels of severity. But even among people with similar signs and symptoms, not everyone copes the same way. Some may view themselves as fairly helpless against a disease that causes pain and limits abilities. Others focus on what they can do, and try not to dwell on limitations.

Research has shown that people with a positive, proactive attitude are likely to experience less pain and limitation from their arthritis than

## What's safest?

Acetaminophen (Tylenol, others) is one of the safest non-prescription drugs on the market.

The current recommended maximum dose per day, in doses taken six hours apart, is not to exceed 4,000 milligrams (mg). If you drink alcohol or have liver problems, it may be safer not to exceed 3,250 mg.

Carefully read product labels. Some compound medicines contain acetaminophen in combination with other drugs. The effectiveness of all nonsteroidal anti-inflammatory and COX-2 inhibitors is about the same.

## Coexisting disease

If you have rheumatoid arthritis, your risk of developing osteoporosis, heart disease and certain infections greatly increases. Ask your doctor about:

- Osteoporosis prevention, which may include adequate calcium and vitamin D intake, exercise and strengthening, certain medications and bone density testing.

- Preventing heart disease by not smoking, managing your cholesterol and blood pressure, eating a healthy diet and maintaining a healthy weight.

- Avoiding serious infection with appropriate immunizations and seeking prompt treatment if infections occur. However, people on significant doses of oral steroids or disease-modifying biologic therapy shouldn't get live vaccines such as the nasal spray influenza vaccine or the shingles vaccine.

are those who are more negative. In addition, when you feel you're in control, you're more likely to utilize your medical options effectively. You're also more likely to adopt healthy lifestyle measures, such as:

- *Reducing stress* — A result of stress is muscle tension, which can worsen arthritis pain. Keeping a journal of events that cause you to feel stressed may help you change or avoid those situations — or change your reaction to them.

- *Losing excess weight* — Maintaining a healthy weight is critical, especially for reducing pain in your lower limbs.

- *Taking time to relax* — Meditation, prayer and guided imagery are all techniques that people use to calm their minds. Massage, slow and deep breathing, or simply tightening and releasing different muscle groups throughout your body may help relax your muscles. Certain forms of exercise, such as yoga or tai chi, often emphasize relaxation.

- *Understanding your pain* — Learn the difference between pain associated with general joint discomfort and that caused by joint overuse. A damaged joint may cause pain even when it's not inflamed and you're not overdoing an activity. Drugs may not totally relieve pain from joint damage. However, when pain with a particular activity is excessive, comes on quickly or lasts for more than an hour or two afterward, chances are you're overdoing it or doing an inappropriate activity.

- *Knowing when to rest* — The feeling of fatigued joints may be a signal to back off or change activities. Painful, inflamed joints may temporarily require total rest or even an immobilizing splint. Whole-body rest is also important. If you have trouble getting a good night's sleep, talk to your doctor about strategies to improve your rest. During the day, learn to rest before you become too tired. From time to time, find a place to put your feet up and relax for 10 to 15 minutes. In addition, plan 10 minutes of rest for every hour of physical exertion.

- *Using assistive devices* — Many products, such as jar openers, specially designed kitchen knives, devices to extend your reach and aids to help you dress may make common daily tasks less harmful to your joints. Some people avoid these devices because they view them as a form of weakness. Instead, think of them this way — our lives are full of assistive devices such as cars, washing machines and microwaves. Assistive devices for arthritis are just one more tool you can use to help preserve function of your joints for as long as possible.

## Treating pain without medications

Although pain-relieving medications are usually the mainstay of arthritis pain relief, the following techniques may also be helpful:

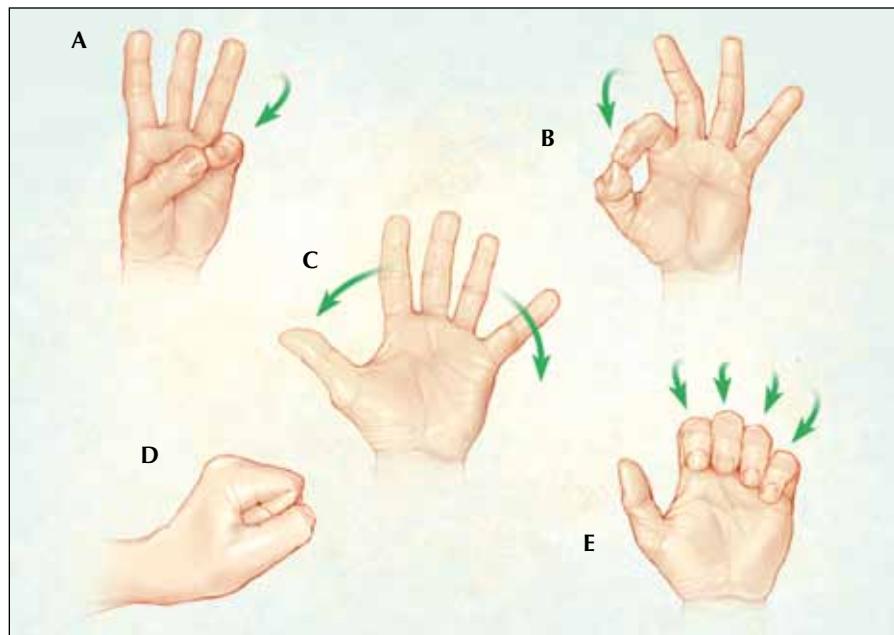
- *Cold and heat* — Applying cold for occasional pain flare-ups may dull the sensation of pain and reduce swelling and inflammation. You can apply cold several times a day with ice packs, ice massage with an ice cube or by soaking the affected joint in cold water.

Applying heat to a joint may be done with a hot pack or heating pad, by taking a hot shower or bath, or by using a heat lamp or warm paraffin wax bath for your hands. For joints that are sore — but not inflamed or swollen — heat can ease your pain, relax tense, painful muscles and increase blood flow to the affected region. Be careful to avoid frostbite and burns.

## Breakdown

Arthritis may occur in more than 100 different forms. Below is the estimated prevalence in the United States of certain forms of arthritis:

- *Osteoarthritis* — 27 million
- *Rheumatoid arthritis* — 1.3 million adults
  - *Gout* — 3 million to 6 million
  - *Systemic lupus erythematosus* — 322,000
  - *Polymyalgia rheumatica* — 711,000
  - *Ankylosing spondylitis and related conditions* — 0.6 million to 2.4 million



**Hand exercises can help maintain normal joint function and relieve stiffness.** These might include making an O by touching each of your fingertips in turn to your thumb (such as in A and B); stretching your fingers wide (C); making a fist by bending each joint as much as possible (D), or bending the end and middle joints of your fingers (E). Repeat these several times each day, but don't force a motion if you feel pain.

## Topical nonsteroidal anti-inflammatory drugs

A topical nonsteroidal anti-inflammatory drug (NSAID) called diclofenac sodium (Voltaren Gel) has been approved for use by the Food and Drug Administration. Others are likely to follow.

Topical NSAIDs contain an agent that allows an NSAID drug — such as diclofenac — to penetrate the skin. This spares the rest of your body up to 95 percent of the drug exposure that would occur if the same drug had been taken orally. However, side effects are still possible.

Mayo Clinic experts say the verdict isn't fully in on whether topical NSAIDs are as effective as oral NSAIDs — or any more effective than are common, non-prescription arthritis creams or gels. It's also not clear whether they pose the same risk of kidney or heart problems as do oral NSAIDs.

- *Topical creams, gels or sprays* — These nonprescription products, which produce a warm or cool sensation, come with varying active ingredients. Salicylate products (BenGay, Aspercreme, Sportscreme) may reduce inflammation in muscles and joints. Products containing capsaicin (Capzasin-P, Zostrix) may help relieve pain from joints.

- *Transcutaneous electrical nerve stimulation (TENS)* — Electrodes are taped to your skin to deliver a small, painless electrical current to the joint area, which may reduce pain. Not everyone benefits from TENS therapy. However, if you do, your doctor may be able to prescribe a small take-home unit for you to use on a regular basis.

- *Visco-supplementation* — This involves injecting a form of hyaluronic acid, a natural substance found in healthy joint fluid, into knee joints that are painful due to osteoarthritis. It's usually used for people who have osteoarthritis only after more conventional pain relief methods have failed. The injections are given in a series over several weeks. When successful, pain relief can last for six months or longer.

- *Physical and occupational therapies* — A physical therapist can teach you exercises to help you maximize your physical abilities with less pain. An occupational therapist can help you maximize your abilities at home and at work with adaptations and assistive devices. In conjunction with your doctor, therapists may be able to fit you with custom devices — such as wrist splints, shoe inserts, knee braces or a cane.

- *Psychological therapies* — A psychologist or psychiatrist may be able to help you identify thoughts or behaviors that intensify your arthritis pain. The goal might be to help you make positive changes, such as adjusting your thoughts about your pain, improving your ability to cope with stress or setbacks, or helping you learn relaxation techniques.

## Alternative medicine

A large government sponsored study of two nutritional supplements used for knee osteoarthritis pain failed to provide clear proof of whether the supplements are effective.

This study, of glucosamine and chondroitin, was reported in 2006 in the New England Journal of Medicine. In general, the study found no benefit for those who took either of the supplements alone, or for those who took them in combination.

However, a small number of people who had moderate to severe knee pain and who were taking a combination of the two supplements, did find some relief, prompting the study's authors to recommend more research to better understand any potential roles of these supplements.

Since that study, recent reviews have suggested if there is a benefit, it may be from one type of glucosamine — glucosamine sulfate — taken at 1,500 milligrams once a day. So far, this has shown to be of help for people who have osteoarthritis of the knee.

## SAM-e and arthritis

S-adenosylmethionine (SAM-e) is a compound that occurs naturally in the body.

A synthetic version has become a popular nonprescription treatment for osteoarthritis. However, long-term benefits and risks are still unknown, and an optimal dose hasn't been determined.

## Drugs to curb pain

The goal in prescribing arthritis medications is to find the lowest effective dose that has the fewest health risks. This may require you to work closely with your doctor. But even when medication is effective, it's only one aspect of a successful treatment plan. Depending on your situation, lifestyle changes, counseling or other self-care measures may help reduce or eliminate your need for medicines. If you have osteoarthritis or an autoimmune arthritis, such as rheumatoid arthritis, your doctor will likely recommend one or more of the drugs listed on the next page to help reduce pain and, in some cases, inflammation.

With rheumatoid arthritis, as well as other forms of autoimmune arthritis, a group of medications called disease-modifying antirheumatic drugs (DMARDs) are typically used to slow or stop the disease process and save joints and other tissues from permanent damage. The goal of DMARD therapy is to suppress the parts of your immune system that are driving joint inflammation, thereby reducing or eliminating joint swelling and tenderness — and allowing a return to full body function.

Therapy with a single DMARD often starts as soon as possible after diagnosis. It may take weeks or months for relief of signs and symptoms to begin. For this reason, oral corticosteroids and other anti-inflammatory drugs are often used as a bridge until the DMARD takes full effect. If active disease is still present after the DMARD takes effect, your doctor may progressively increase your doses, change your drug or add another drug to your regimen until your arthritis is under control.

Most DMARDs require careful monitoring — often including frequent blood tests — to guard against uncommon, but potentially severe side effects. These side effects vary widely from drug to drug and may include susceptibility to infection and liver, kidney, eye or bone marrow damage. DMARDs may cause other side effects such as rashes, stomach distress, diarrhea or fever, as well. In addition, factors such as previous kidney or liver damage, alcohol use or plans for pregnancy may rule out the use of certain DMARDs.

For rheumatoid arthritis, one of the most common forms of autoimmune arthritis, the three main drug groups include:

■ **DMARDs/immunomodulators** — These are often used as the first-line treatment for rheumatoid arthritis. The most commonly used drug is methotrexate (Rheumatrex, Trexall, others). Other drugs, which may be used instead of or in addition to methotrexate include hydroxychloroquine (Plaquenil) and sulfasalazine (Azulfidine). Minocycline (Minocin, Dynacin, others) and gold salts were commonly used in the past but are infrequently used today. Immunomodulators that are also considered DMARDs include azathioprine (Imuran, others), cyclosporine (Neoral, Sandimmune, others) and leflunomide (Arava). These may be used when classic DMARDs or biologic response modifiers aren't appropriate or enough to control the disease.

■ **Biologic response modifiers** — At present, these recently developed drugs are typically added to the mix only after classic DMARDs have proved inadequate. They're drugs that bind to and block the action of certain proteins that promote inflammation in rheumatoid arthritis. Drugs that block the cytokine called tumor necrosis factor-alpha include adalimumab (Humira), etanercept (Enbrel) and infliximab (Remicade), as well as two more recently approved drugs, certolizumab (Cimzia) and golimumab.

<b>Anti-inflammatories</b>	<b>Brands include</b>	<b>Advantages</b>	<b>Key risks</b>
Traditional nonsteroidal anti-inflammatory drugs (NSAIDs)	Ibuprofen (Advil, Motrin IB, others); naproxen (Aleve, Naprosyn, others); ketoprofen (Orudis KT, Oruvail, others); numerous others by prescription.	As effective as COX-2 inhibitors for pain relief.	Stomach ulcers and bleeding; kidney problems and worsening of high blood pressure or heart failure. Evidence also suggests a possible increase in heart attack and stroke risk, depending on which drug is taken.
COX-2 inhibitors	Celecoxib (Celebrex).	Less risk of stomach bleeding than with traditional NSAIDs on a short-term basis. With longer use, risks may increase.	May increase heart attack and stroke risk. Can also cause kidney problems and worsening of high blood pressure or heart failure.
Aspirin	Bayer, Bufferin, others.	Helps reduce risk of heart attack and stroke by making your blood less able to clot.	Stomach ulcers and bleeding. High doses can cause ringing in the ears.
Corticosteroid injection into affected joint	Triamcinolone (Kenalog, Aristocort, Aristospan); methylprednisolone (Depo-Medrol); others.	Often dramatically reduces pain and inflammation for weeks to several months.	Can cause various side effects, especially with frequent use. It's best to limit injections in the same joint to three or four a year.

<b>Pain relievers</b>	<b>Brands include</b>	<b>Advantages</b>	<b>Key risks</b>
Acetaminophen	Tylenol, others.	Safe when taken according to label recommendations.	Liver toxicity with overdose. Long-term use may raise risk of certain kidney problems.
Narcotic-related medications	Tramadol (Ultram, others).	Similar pain-relieving effect as narcotic drugs, but less risk of physical addiction.	May include dizziness, drowsiness, constipation and nausea and may interact with certain antidepressant drugs.

<b>Antidepressants</b>	<b>Brands include</b>	<b>Advantages</b>	<b>Key risks</b>
Tricyclics (most commonly prescribed for arthritis pain management)	Amitriptyline; desipramine (Norpramin); imipramine (Tofranil); nortriptyline (Aventyl, Pamelor).	Can reduce chronic pain and improve sleep even if you don't have depression. Also helps treat the depression and insomnia that can come with arthritis pain.	May include dry mouth, dizziness, drowsiness, weight gain, nausea and constipation. Some may cause heart and blood pressure problems. Lower doses, often used for arthritis pain, result in milder side effects. Urinary outflow obstruction, especially in men with enlarged prostates.
Other agents	Duloxetine (Cymbalta); venlafaxine (Effexor); trazodone (Desyrel).		

## Preventing stomach problems

One risk of taking nonsteroidal anti-inflammatory drugs (NSAIDs) is developing bleeding or ulcers in your stomach — especially when you take them at high doses.

This risk increases with age, especially after age 65, or if you've had stomach ulcers in the past. It may also increase if you're taking a steroid medication — or if you smoke or consume alcohol.

If you're taking NSAIDs regularly and are at high risk of developing stomach problems, you may be able to reduce your risk by:

- Taking your NSAIDs with food.
- Stopping smoking and avoiding alcohol.
- Having your doctor prescribe a drug to prevent ulcers. These include the proton pump inhibitors esomeprazole (Nexium), omeprazole (Prilosec, Zegerid), pantoprazole (Protropix) and rabeprazole (Aciphex), which reduce stomach acid. Others, such as misoprostol (Cytotec) and sucralfate (Carafate), help protect the stomach's inner lining.
- Using the COX-2 inhibitor celecoxib (Celebrex). This type of NSAID works in a way that may result in fewer stomach problems on a short-term basis than with other NSAIDs. When taken over the long term, your risks are similar to risks related to other NSAIDs.

(Simponi). Other drugs that act on different proteins include anakinra (Kineret) and abatacept (Orencia), and rituximab (Rituxan). A new drug, tocilizumab (Actemra), that blocks another protein involved in autoimmune inflammation, has received approval from the Food and Drug Administration.

■ *Oral corticosteroids* — In addition to being used as a bridge until other DMARDs begin working, oral corticosteroids may be used long term in as low a dose as possible. If you take corticosteroids such as prednisone, side effects may include osteoporosis, high blood pressure, weight gain, high blood sugar, unfavorable cholesterol and triglyceride levels and, rarely, bone tissue damage (osteonecrosis).

Many of these drugs are also used to help manage other forms of autoimmune arthritis.

## Surgery and arthritis

Sometimes, more conservative treatments such as medications and physical therapy aren't enough to relieve your arthritis signs and symptoms. In these cases, a number of surgical procedures may be considered to relieve pain, slow or prevent cartilage damage or restore mobility and stability. Common surgical procedures include:

■ *Arthroscopic debridement* (*ahr-thro-SKOP-ik duh-BREED-munt*) — A thin tube (arthroscope) is inserted into the joint area through a small incision to suction away loose fragments of bone, cartilage or synovial tissue that may be causing pain. This is particularly helpful in treating the "mechanical" symptoms of arthritis, such as catching or locking.

■ *Synovectomy* (*sin-o-VEK-tuh-me*) — Often done in rheumatoid arthritis, this involves surgically removing inflamed synovial tissue to reduce pain and swelling, and possibly delay or prevent joint destruction.

■ *Joint fusion* — Often done when joint replacement isn't an option, permanently fusing a joint in the spine, wrist, ankle or foot can reduce pain and improve stability, although flexibility of that joint is lost.

■ *Joint replacement* — Hip, knee, elbow and shoulder joints — and less commonly some of the joints in the hands — can all be replaced by artificial joints made of various materials. Advances continue to be made in artificial joint durability and the overall success of these procedures. In some cases, less invasive procedures such as partial knee replacement or hip replacements using smaller incisions are helping reduce recovery time. Modified anesthesia techniques, aggressive postoperative rehabilitation and better postoperative pain management are also contributing to quicker recovery times.

## Do what you can

You may not be able to make arthritis pain totally go away or do everything that you once could. But you can make the most of what you can do, which includes fully utilizing the medical therapies available to you, leading a joint-healthy lifestyle, and maintaining a positive attitude. □