

Osteoarthritis



**Prevention, causes
and treatments**

What is Osteoarthritis?

Osteoarthritis (OA) is the most common form of arthritis. In the past, OA was perceived as part of the normal aging process, resulting from years of wear and tear on joints. However, doctors now see that other factors may be involved, including genetics.

OA can affect any joint, but it occurs most often in the knees, hips, lower back and neck, small joints of the fingers, and the bases of the thumb and big toe. The shoulders and temporomandibular (jaw) joints may also be affected. Other joints are rarely involved, except as a result of joint injury or unusual stress on the joint.

Nearly 27 million people in the United States have OA. However, not everyone has joint symptoms because of it. OA can be serious, but

the symptoms may be lessened if treated. It's important to see your doctor to get the correct diagnosis and treatment plan.

What Happens in Osteoarthritis?

In normal joints, a firm, rubbery material called cartilage covers the end of each bone. Cartilage provides a smooth, gliding surface for joint motion and acts as a cushion between the bones. In OA, this cartilage breaks down, leading to symptoms such as pain and swelling and problems using the joint.

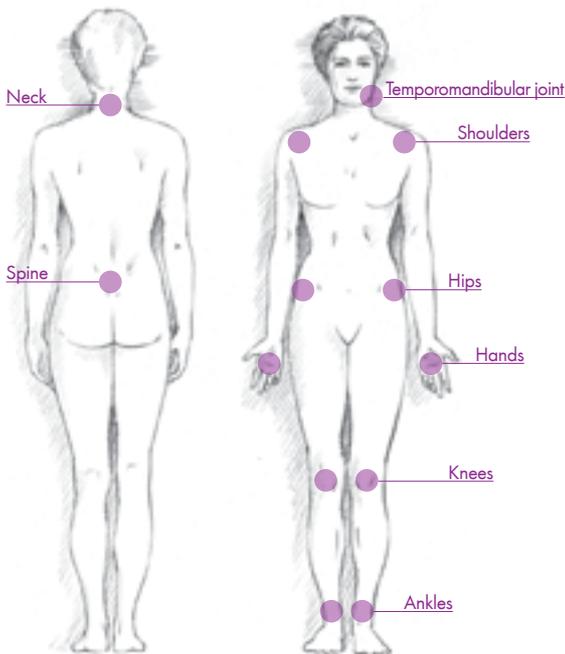
As the cartilage breaks down, changes occur in the underlying bone. Bony growths called spurs develop on the bone surface at the margins of the joint; they can be seen on an X-ray. Bits of bone or cartilage may float loosely in the joint space. The membrane lining the joint (the synovium) may also become inflamed because of the cartilage breakdown.

Symptoms

OA symptoms tend to build over time rather than show up suddenly. Symptoms can vary depending on which joint is involved, as well as your age, weight, joint alignment, fitness and physical activity level. However, some common symptoms include:

- persistent or recurring pain, aching or tenderness in and around a joint
- stiffness and limited range of motion in a joint
- mild swelling around a joint
- clicking or cracking sound when a joint bends
- enlargement or changes to the shape of a joint

Joints affected by osteoarthritis usually hurt or feel stiff during or after use. Stiffness after not moving for a while is also common. For example, you may find it hard to use the joint in the



Joints that may be affected by OA.

OA Imitators

Trochanteric bursitis is often mistaken for hip arthritis. Bursitis is inflammation or irritation of the bursa, a small, fluid-filled sac located between the bone and muscle, skin or tendon. The trochanteric bursa is located over the prominent bone on the side of your hip. While you can have arthritis of the hip and trochanteric bursitis, the bursitis is more common.

morning, but after moving for a few minutes, it may feel better. Then, later in the day it may hurt after use.

OA in the Hips

If your hips are affected by OA:

- You typically will feel pain in the groin area or buttocks.
- You will feel pain on standing and walking.
- You may experience pain on the inside of your knee or thigh; this is called referred pain.
- You may limp when you walk.
- You might eventually have difficulty doing daily activities such as putting on shoes and socks.

OA in the Knees

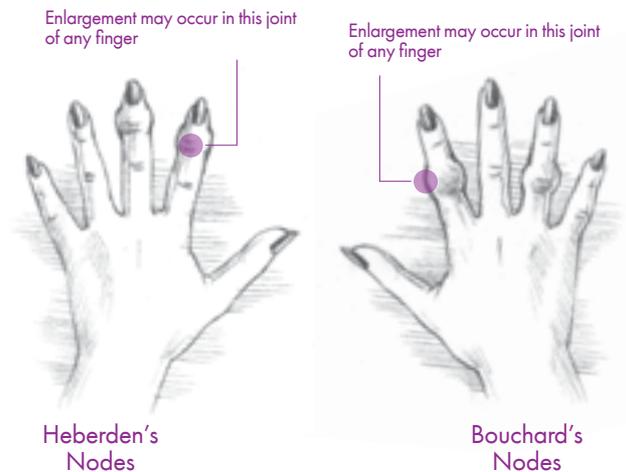
If your knees are affected by OA:

- You may feel pain or a “grating” or “catching” sensation when you move your knee.
- It may be painful to walk up or down stairs or to get up from a chair, especially after sitting for a prolonged period.

OA in the Fingers

If your hands are affected by OA:

- They may be visibly swollen.
- You may develop bony growths (spurs) at the edges of your joints, causing them to become painful and enlarged.
- You may notice redness, swelling, tenderness and aching, especially in the early stages of OA as these bony growths are forming.
- You may feel pain at the base of the thumb.
- Activities requiring pinching movements may be difficult.



OA in the Feet

If your feet are affected by OA:

- You may feel pain and tenderness in the large joint at the base of the big toe.
- Your toes may press against the top of your shoe with pain at the knuckles of the feet. Wearing tight shoes and high heels may worsen the pain.

OA in the Spine

If your spine is affected by OA:

- You may feel stiffness and pain in the neck and lower back caused by breakdown of the discs in the spine and resulting bony overgrowth.
- Extra pressure on the nerves in your spinal cord can cause a condition commonly referred to as a pinched nerve, resulting in pain in your neck, shoulder, arm, lower back or legs (sciatica).
- Pressure on the spinal cord or nerves as they exit the cord may cause weakness or numbness in your arms or legs.



To learn more about OA go to www.arthritis.org/aboutoa.



OA by the Numbers

- One in four adults will develop symptoms of hip OA by age 85.
- One in two adults will develop symptoms of knee OA during their lives.
- One in 12 people 60 or older have hand OA.
- More than 80 percent of people over age 55 show signs of OA on an X-ray.

What Causes Osteoarthritis?

The cause of OA is not known. However, research has uncovered several factors that may increase your risk of developing OA:

Aging. OA becomes more common as people age. It usually begins after age 45, and it is most common in people over age 65. While the association between OA and aging is strong, the reason for the association is unclear. One theory is that the cells involved in cartilage repair dwindle in number as people age.

Gender. OA affects both men and women. Up to about age 50, OA is more common in men. After age 50, it's more common in women. Women also experience faster progression of hip OA than men.

Excess body weight. Obesity plays more than just a mechanical role in OA development. Being overweight or obese is a strong risk factor for development of OA, particularly of the knees, and contributes to more severe symptoms and impact of OA. In addition, recent research suggests that excess body fat produces chemicals that may fuel joint inflammation.

Joint injury. Traumatic injury to a joint, whether from sports or a car wreck, is another strong risk factor for development of OA. Among people with a prior knee injury, the lifetime risk of OA

is 57 percent. Researchers are studying the ways in which cells' abnormal response to injury and inadequate repair contribute to the disease.

Genetic factors. Your genes can play a role in OA risk, particularly of the hands. For example, a person whose mother has or had OA of the hands may be at greater risk for also developing OA of the hands.

Occupation. A job, or any long-term activity, that requires repeated, forceful or excessive knee bending; kneeling or twisting; lifting or carrying heavy loads; or working while standing may cause recurrent "little injuries," putting people at a higher risk for knee or hip OA over time.

Can Osteoarthritis Be Prevented?

Doctors believe some people can reduce their risk of developing OA or delay its onset by following these guidelines:

- Maintain a healthy weight or lose extra weight.
- Stay physically active.
- Avoid joint injury.
- Adjust jobs that require knee bending or carrying.

Not Your Grandma's Arthritis

Though disease prevalence spikes around age 45, more young people are developing osteoarthritis. In some cases, the OA results from childhood sports injuries and appears around a decade later. Kids with congenital conditions can develop the disease early on as well. Research also shows that people serving in the military may be more likely to develop OA.

Joint Protection Tips

Use big joints for big jobs. When lifting or carrying, use the largest and strongest joints and muscles in the arms and legs to avoid straining smaller joints.

Pace yourself. Alternate periods of heavy activity with periods of rest.

Practice good posture. Stand and sit up straight to protect the joints in your neck, back, hips and knees.

Don't be stiff. Changing positions regularly will help decrease stiffness in your joints.

Listen to your body. Increased pain or swelling after activity or exercise may indicate that you have overstressed your joints. Do less next time, and take more breaks. Don't ignore pain that persists or is worse than usual.

Vary the routine. To keep moving, stay strong and avoid injury, don't do the same activity every day.

Don't be a weekend warrior. When starting a new activity, take it easy until you know how your body reacts to the activity.

Ask for help. Don't try to do a job that is too big to handle alone. Get another pair of hands to help.

Use protective gear. Wear joint padding when skating, playing soccer or hockey. Play at baseball fields that have installed break-away bases to avoid ankle injury when sliding.

Diagnosing OA

It's possible that your primary care doctor can diagnose your OA. To begin with, he'll ask you to describe your symptoms and discuss how they're affecting your life. Then he'll ask about your personal and family medical history.

Additional procedures, such as X-rays, may be recommended to help confirm the diagnosis, rule out other causes of pain and assess joint damage. Joint aspiration, a procedure in which fluid is drained from the affected joints and examined, also may be used to rule out other forms of arthritis such as gout. Your doctor may conduct blood tests to rule out other diseases that cause joint pain such as rheumatoid arthritis.



How is OA Managed?

Creating an OA Management Plan

By communicating openly with your doctor and other members of your health care team, you can shape the right OA management plan for you. A good treatment program can help decrease joint pain and stiffness, improve joint motion and increase your ability to do everyday activities.

Your treatment plan should be based on how severe your disease is, which joints are affected, your symptoms and any other medical problems. Your age, occupation and everyday activities also should be considered. The plan will likely include many things you can do to manage your OA, such as physical and/or occupational therapy, regular physical activity, weight control if you're overweight and medication. If these measures don't help, surgery may be considered for certain joints, like hips or knees.

The goals of OA treatment are:

- controlling pain and other symptoms
- improving and preserving joint function
- weight loss (if overweight) and maintaining a healthy body weight
- optimizing overall health, well-being and quality of life

Before you go to the doctor and between visits, keep a health log so you'll be prepared to discuss any joint pain, drug reactions, doses and the success of your treatment plan with your doctor and other health care team members.



The Arthritis Foundation offers several exercise DVDs including tai chi and yoga. Visit www.afstore.org or call 800-283-7800.

Benefits of Exercise in OA

Regular physical activity can:

- Make you feel better by releasing chemicals in your brain that reduce pain and boost your mood
- Help you sleep better and give you more energy
- Loosen stiff joints and help keep them moving
- Strengthen and stretch muscles that help support and move your joints
- Improve overall fitness
- Make your heart and lungs stronger
- Help you get to and stay at a healthy weight

The Role of Physical Activity

One of the most beneficial things you can do to manage your OA is simply to move. It may sound counterintuitive, especially when your body hurts, but moving is truly the best medicine for pain.

Unlike many diseases, exercise is actually considered a treatment for OA – perhaps the most effective treatment – and not just a way to help you cope with the condition. The American College of Rheumatology recommends exercise – particularly aquatic exercise – in its guidelines for treating knee and hip OA.

In fact, research shows that exercise may actually affect the course of OA. In a review of 28 studies of knee OA, exercise was found to be associated with an increased amount of cartilage within knee joints and fewer cartilage defects. Another study discovered a surge of anti-inflammatory activity within the knee joints of women with knee OA immediately after performing intense thigh strengthening exercises.

You should, of course, discuss starting an exercise program with your health care team. They can advise you on how to manage limitations and help create an easy-to-follow plan.

Try to incorporate the following three types of regular physical activity into your routine:

Stretching. Slow, gentle stretches, such as those that comprise yoga and tai chi, can help prevent joint stiffness and make it easier to get moving. These forms of exercise can improve flexibility, increase muscle strength and help you relax.

Aerobic activity. Engaging in regular physical activity is an important part of controlling OA symptoms. Aerobic exercise – any activity that gets your heart rate going – will strengthen your heart

How Much Activity Is Right for You?

The U.S. Department of Health and Human Services' Physical Activity Guidelines for Americans recommends:

- Two and a half hours (150 minutes) a week of moderate-intensity aerobic physical activity.
- One hour and 15 minutes (75 minutes) a week of vigorous-intensity aerobic physical activity.
- An equivalent combination of moderate- and vigorous-intensity aerobic physical activity.
- Aerobic activity should be performed in intervals of at least 10 minutes, preferably spread throughout the week.
- Muscle-strengthening activities that involve all major muscle groups two or more days per week.

and lungs. Water exercises, walking and riding a stationary bicycle are less stressful on your joints than other aerobic activities.

Strengthening exercises. Activities that maintain and/or build strength and endurance in the muscles around affected joints are equally important. When muscles around a joint weaken, the joint loses its ability to function properly. The Arthritis Foundation offers land-based and water-based exercise classes. For more information, contact your local office.

Flexibility and balance exercises. To help prevent falls, try to do gentle stretches or flexibility exercises every day. When doing muscle-strengthening exercises, you could mix in a few stretches; always stretch muscles while they are warm to reduce injury. Finally, add in balance exercises to help reduce the risk of falls.

Nutrition and Weight Loss

Another key tactic to managing OA is staying at your recommended weight or losing weight if you are overweight or obese. Benefits include:

- Preventing knee OA if you don't already have it
- Easing pain by reducing stress on the weight-bearing joints (hips, knees, back and feet)
- Enhancing your overall feeling of well-being

Unfortunately, there is no magic formula to help you lose weight. The basic rule for losing weight

is to eat fewer calories and increase your physical activity. Your health care team can help you develop a safe, simple weight-loss program.

There is no “OA diet,” either, but in general you should eat a balanced diet which, according to the U.S. Food and Drug Administration, should be centered on plant-based foods. Approximately two-thirds of your diet should come from fruits, vegetables and whole grains. The other third should include fat-free or low-fat dairy products and lean sources of protein. Go to www.choosemyplate.gov to learn more about dietary recommendations.

Assistive Devices

Assistive devices are often used by people whose pain or instability limits physical activity, who are not eligible for surgery, who don't want surgery or who want to delay it. These tools can help to decrease your pain and improve your ability to move.

They may include supports, braces, splints and shoe orthotics as well as canes and walkers, which help support your joints and/or provide rest to the joint while you go about your everyday activities.



To learn more about assistive devices, visit www.arthritis.org/jointprotection.

The Four-Pound Rule

Research has shown that every excess pound places an extra four pounds of pressure on your knees, so losing even a few pounds can make a huge difference if you are overweight.



Physical and Occupational Therapy

You may find that OA limits certain activities, such as walking, bathing, dressing, climbing stairs and doing household chores. Physical and occupational therapists can help improve your ability to perform these activities and help you manage your OA by designing a program that may include:

- Improving your joint range-of-motion muscle strength and endurance
- Providing and fitting assistive devices to make daily activities easier
- Showing you how to use heat therapy and cold therapy – applying simple heat packs or cold packs to relieve pain
- Teaching you principles of proper joint use and energy conservation

Pain Management

Controlling pain is the hardest part of managing OA. Pain creates a vicious circle of inactivity, which leads to greater pain, and thus greater inactivity. The very unpredictability of pain – and the fatigue that comes with it – along with its impact on your ability to do daily tasks can lead to depression. However, studies show most people note improvement in their OA symptoms with physical activity, physical therapy or occupational therapy, or the other techniques just discussed.

Your doctor also may recommend medications to help relieve pain. Medication can also help you control pain enough to start an exercise program. Some medications are taken on a daily basis; others aren't. Your doctor will work with you to decide what's best for you. Many common OA medications are discussed in this booklet. Other medications are under study for possible use in the future.

Arthritis Foundation Resources Can Help

The Arthritis Foundation offers several tools to help you live better with osteoarthritis. These resources include:

- **Your Exercise Solution (YES) Online Tool** – a unique online tool that helps you create a personalized activity plan to ease your pain based on your specific joint requirements. Check it out at YourExerciseSolution.org.



- **Arthritis Resource Finder** – a specialized online search tool that can help you find local health care providers, medical equipment suppliers and fitness programs, plus much more. Learn more at ArthritisResourceFinder.org.
- **The Better Living Toolkit** – a comprehensive kit that includes a health tracker and Arthritis Foundation publications to help you get a better understanding of your disease. Get yours at BetterLivingToolkit.org.



Non-Opioid and Opioid Analgesics

Analgesics are medications used for pain relief.

Acetaminophen (*Tylenol*) is a non-opioid (or non-narcotic) analgesic often used for pain relief.

It doesn't reduce the inflammation or swelling sometimes associated with OA, but it is helpful when pain is the main problem and can be safer than other medications used to treat OA.

While the number of potential side effects due to acetaminophen is small, there is a risk of liver damage or failure when taking high doses. Do not take more than 4,000 milligrams (mg) total per day.

Opioid analgesics are medicines with active ingredients such as codeine, hydrocodone, morphine, oxycodone or oxycodone in them. They are typically used for a limited time to relieve acute or sudden pain, such as after surgery. Doctors also prescribe them in some cases for chronic, or ongoing, moderate to severe pain. These drugs can be effective but also come with the potential for side effects, such as dizziness, nausea and constipation. People with a personal history of addiction may be advised by their doctor not to take opioids. Dependence can be an issue with prolonged use. Discuss the potential for side effects and any other concerns with your doctor.

NSAIDs

Nonsteroidal anti-inflammatory drugs, or NSAIDs, help reduce joint pain, stiffness and swelling. Aspirin (*Bayer*), ibuprofen (*Advil*) and naproxen sodium (*Aleve*) are examples of NSAIDs that are available over the counter. Oral and topical prescription NSAIDs are also available to treat OA.

Oral NSAIDs can cause side effects such as pain or bleeding in the stomach. If you experience these side effects, or have an increased risk for a stomach ulcer or bleeding, your doctor may prescribe other medications that may help reduce the risk of these problems.

The bottom line is that you should weigh the potential benefits and risks from taking a medication with your doctor, then maintain close communication while you're on the drug to determine how well it's working. Notify your doctor of any negative effects you have while taking your medication.

Injectables

Joint injections are often used by people with OA. Often, injections straight into the joint can help with symptoms without some of the side effects other treatments may have.

Corticosteroids are related to cortisone, a hormone that occurs naturally in the body. They may be injected into the joint to relieve the pain and swelling associated with OA.

Hyaluronic acid therapy involves injecting the knee joint with hyaluronan, a substance found naturally in joint fluid that helps to lubricate and cushion the joint.

Topical Pain Relievers

Topical pain relievers are available as creams, gels, patches, rubs, drops or sprays that are applied on the skin over a painful joint. They may contain combinations of salicylates, skin irritants and local anesthetics to relieve pain.

Some NSAIDs are available by prescription for topical use. Since the amount of the NSAID that gets into the blood is less than NSAIDs taken orally, they appear to have fewer side effects. You should not use topical pain relievers with heat therapy. Using them together can cause burns and serious injury.



For a complete list of medications used to treat OA and potential side effects, go to www.arthritis.org/drugguide.

Nutritional Supplements

Glucosamine and chondroitin sulfate are nutritional supplements derived from cartilage. While many people believe these offer relief from OA pain, research has yet to confirm their benefits. Some studies have shown these supplements provide the same pain relief as NSAIDs for people with certain types of OA pain; others have had mixed results.

Avocado soybean unsaponifiables (ASU), supplements have been shown to slow the progression of OA and improve knee and hip OA symptoms. Be sure to talk to your doctor about possible benefits and risks before taking these – or any – supplements.

Surgery

Most people with OA won't need surgery. However, surgery may be helpful when there is major joint damage, ongoing joint pain and disability brought about because of difficulty moving joints.

There are several types of surgery used for people with OA. Some involve removing or replacing damaged cartilage while others rebuild all or part of a joint.



To learn more about surgery options for people with OA, visit www.arthritis.org/jointsurgery.

Non-Medicinal Pain Relief

In addition to staying active and losing weight, you can fight OA pain with some tried-and-true remedies, including:

Hot and cold treatments. Usually applied directly to the pain site, heat may be more useful for chronic pain; cold packs may provide

relief from acute pain. Bags of frozen vegetables, such as peas, make excellent, easily moldable cold packs.

Relaxation techniques. Train your muscles to relax and slow down your thoughts with techniques such as deep breathing, guided imagery and visualization, among others.

Massage. Research shows massage can help ease arthritis pain, improve joint function and ease stress and anxiety.

Acupuncture. Acupuncture, the practice of inserting fine needles into the body along special points called “meridians,” has been shown to relieve and control pain.

Positive attitude. Many studies have demonstrated that a positive outlook can bolster the immune system and increase the ability to handle pain.





The Arthritis Foundation is the Champion of Yes.

We lead the fight for the arthritis community and help you conquer your everyday battles through life-changing information and resources, access to optimal care, advancements in science and community connections.

Go to www.arthritis.org
or call 800-283-7800.

Our goal is to help you:



Learn, be inspired and connect.

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Contact your local office about resources and events going on where you live. Go to arthritis.org, click the **Local Offices** tab at the top and enter your ZIP code.

Raise funds to conquer arthritis in our annual events, Walk to Cure Arthritis and Jingle Bell Run. Visit arthritis.org/events.

Talk about your condition. You're not alone when you connect with our community. Visit arthritis.org/community.

Make your voice be heard. Go to arthritis.org/advocate and become an Arthritis Foundation Advocate for better access to health care.

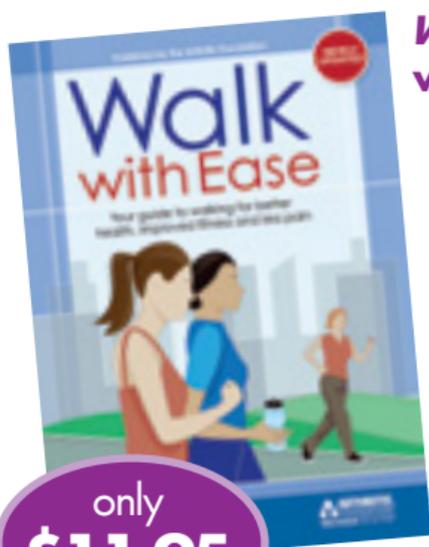
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