

Healthy Steps to Preventing & Managing Arthritis

What is Arthritis?

The word arthritis is derived from the Greek words *arthron* (joint) and *-itis* (inflammation). Inflammation is one of the body's normal reactions to injury or disease. In an injured or diseased joint, this results in swelling, pain, and stiffness. Inflammation is usually temporary, but in arthritic joints, it may cause long-lasting or permanent disability. For people who have arthritis, the word variously signifies pain, swelling, redness, and heat that may be caused by an injury or disease in the joint.

Although many people use the word arthritis to refer to all rheumatic diseases, the reverse is actually more accurate: the different types of arthritis are a subgroup of the many conditions that fall into the category of rheumatic diseases.

Osteoarthritis is the most common type of arthritis. It is referred to as a degenerative joint disease, because it results from the deterioration of the bones and cartilage that make up the joints. The other main type of arthritis, rheumatoid arthritis, is an inflammatory disease that affects the lining of the joints, mainly in the hands and feet. Though it affects only one-tenth as many people as osteoarthritis, it can be far more debilitating. Other rheumatic diseases are gout, ankylosing spondylitis, Reiter's syndrome, psoriatic arthritis, and enteropathic arthritis.

Arthritis or Rheumatism?

We many times are confused by medical terminology. Rheumatology is the branch of medicine devoted to the study and treatment of arthritis and related diseases and the language used in this branch of medicine is particularly confusing.

People often express confusion about the difference between arthritis and rheumatism. Often, both words are used as catchall terms for any joint disorder. Rheumatism is an old term for pain and stiffness afflicting any part of the musculoskeletal system, including the discomfort of tendonitis or bursitis. Arthritis, on the other hand, is pain, swelling, and stiffness caused by changes in the joints, such as occur with osteoarthritis. Arthritis and rheumatism are sets of symptoms, not specific disease. Any disorder that can produce arthritis, rheumatism, or both is broadly classified as a rheumatic disease.

Even though there are many types of rheumatic diseases, most have a common feature: they limit a person's ability to move freely.

The arrangement of bones and muscles in the body is a marvel of engineering. The skeleton looks rickety and frail, but bones have a compression-strength equaling that of

cast iron or oak. Although incredibly light - the average skeleton weighs only 20 pounds or so - bones are capable of bearing tremendous weight. Their strength is necessary to withstand the forces of movement. When you walk at a leisurely pace, each foot strikes the ground with a force about three times your weight. At a brisk walk or run, the pressure increases to five to six times your weight. In other words, a 150-pound person's lower extremities are subjected to 450-900 pounds of force during normal activity.

A joint is where the ends of two or more bones meet. For example, a bone of the lower leg, called the shin or tibia and the thighbone, called the femur, meet to form the knee joint. The hip is a ball and socket joint. It is formed by the upper end of the thighbone - the ball fitting into the socket-part of the pelvis called the acetabulum.

The bone ends of a joint are covered with a smooth material called cartilage. The cartilage cushions the bone and allows the joint to move easily without pain. The joint is enclosed by a fibrous envelope called the synovium which produces a fluid that helps to reduce friction and wear in a joint. Ligaments connect the bones and keep the joint stable. Muscles and tendons power the joint and enable it to move.

Osteoarthritis: Wear and Tear

Osteoarthritis, the most common of all joint diseases, affects more than 20 million people in the United States. It is responsible for more than 7 million physician visits and 68 million days of lost work per year.

Men and women have osteoarthritis at about the same rate but it tends to affect them differently. Men typically develop symptoms before age 45; women usually don't have them until after age 55. Women more often have osteoarthritis in the hands and knees, while men are more likely to have it in the hips, knees, and spine. Women are ten times more likely to develop heberden's nodes, hard, bony growths on the joint nearest the fingertip; they run in some families and appear to involve genes that are strongly expressed in women than in men.

Osteoarthritis is rare in young adults and virtually unheard of in children, but almost everyone over age 65 has some cartilage and bone changes typical of the disorder. It was long considered a natural part of aging, reflecting normal wear and tear on cartilage. Although this attitude still prevails among many physicians, experts now say that the cause is much more complex. External factors, such as injury, are important initiators, but the rate of progression may be determined by genetic traits.

While it's true that one's risk of developing osteoarthritis increase with age, many people have no symptoms.

Progression of Osteoarthritis

Osteoarthritis is sometimes referred to as “non-inflammatory” to distinguish it from other rheumatic diseases. But, in fact, it often does involve a low-grade inflammation. The first signs of osteoarthritis are microscopic pits and tears in the surface of the cartilage in your joints. These tiny tears indicate that the cartilage is becoming less elastic due to biochemical changes. Cartilage cells themselves produce substances that damage the molecules that make up the structure of the cartilage, and tiny pieces may flake off into the joint cavity. This changes the shape of the contact surfaces of the joint, causing further damage as the roughened surfaces move against each other.

Finally, as cartilage degenerates, patches of exposed bone appear. In the same way that a damaged gasket leads to metal-on-metal contact in a machine, your bones experience bone-to-bone contact and irritation. They then try to repair themselves, but the repair is disorderly. As a result, the surface thickens and bone spurs form.

Once your cartilage is damaged, the resulting abnormalities can irritate surrounding soft tissues and cause inflammation. People who have severely damaged joints have episodes of joint swelling and inflammation that causes painful movements.

Symptoms

The symptoms of osteoarthritis usually develop slowly over many years. Often, people first notice pain and stiffness only after engaging in strenuous activity or overusing a joint. The joint may be stiff in the morning, but after a few minutes of movement, it loosens up.

Cartilage is insensitive to pain, but the soft tissue in the joints is well supplied with nerves. As more cartilage is destroyed, the soft tissue is increasingly irritated even by slight movement. Thus, some people have continual joint pain that interferes with sleep. Or the joint may be mildly tender and movement may produce a sensation of crackling or grating.

How Does Osteoarthritis Affect People?

Osteoarthritis affects each person differently. In some people, it progresses quickly; in others, the symptoms are more serious. Scientists do not know yet what causes the disease, but they suspect a combination of factors, including being overweight, the aging process, joint injury, and stresses on the joints from certain jobs and sports activities.

Osteoarthritis hurts people in more than their joints: their finances and lifestyles also are affected.

Financial effects include

- The cost of treatment
- Wages lost because of disability.

Lifestyle effects include

- Depression
- Anxiety
- Feelings of helplessness
- Limitations on daily activities
- Job limitations
- Trouble participating in everyday personal and family joys and responsibilities.

Despite these challenges, most people with osteoarthritis **can** lead active and productive lives. They succeed by using osteoarthritis treatment strategies, such as the following:

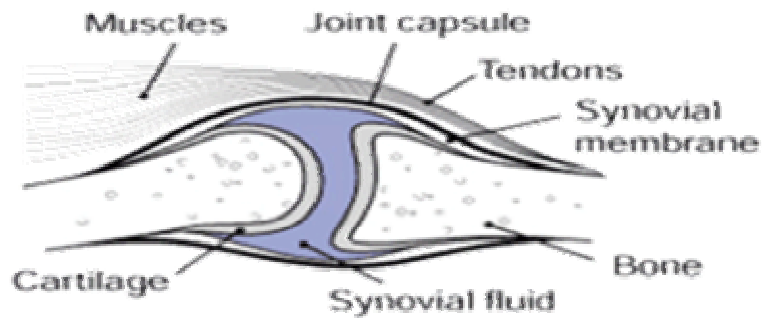
- Pain relief medications
- Rest and exercise
- Patient education and support programs
- Learning self-care and having a "good-health attitude."

Osteoarthritis Basics: The Joint and Its Parts

Most joints the place where two moving bones come together--are designed to allow smooth movement between the bones and to absorb shock from movements like walking or repetitive movements. The joint is made up of:

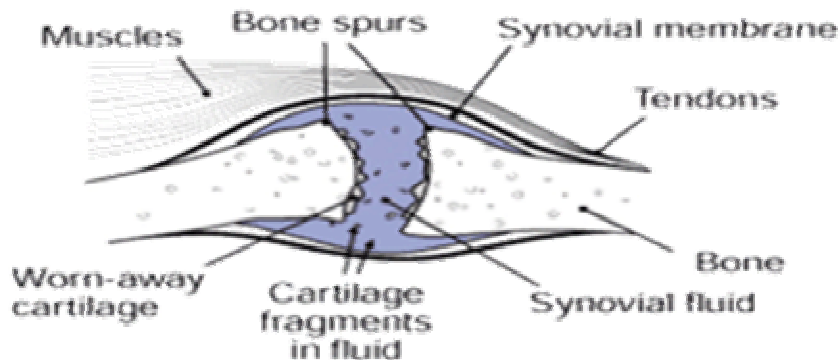
- **Cartilage:** a hard but slippery coating on the end of each bone. Cartilage, which breaks down and wears away in osteoarthritis, is described in more detail later.
- **Joint capsule:** a tough membrane sac that holds all the bones and other joint parts together.
- **Synovium** (sin-O-vee-um): a thin membrane inside the joint capsule.
- **Synovial fluid:** a fluid that lubricates the joint and keeps the cartilage smooth and healthy.
- **Ligaments, tendons, and muscles:** tissues that keep the bones stable and allow the joint to bend and move. Ligaments are tough, cord-like tissues that connect one bone to another. Tendons are tough, fibrous cords that connect muscles to bones. Muscles are bundles of specialized cells that contract to produce movement when stimulated by nerves.

A Healthy Joint



In a healthy joint, the ends of bones are encased in smooth cartilage. Together, they are protected by a joint capsule lined with a synovial membrane that produces synovial fluid. The capsule and fluid protect the cartilage, muscles, and connective tissues.

A Joint With Osteoarthritis



With osteoarthritis, the cartilage becomes worn away. Spurs grow out from the edge of the bone, and synovial fluid increases. Altogether, the joint feels stiff and sore.

Cartilage: The Key to Healthy Joints

Cartilage is 65 to 80 percent water. Three other components make up the rest of cartilage tissue: collagen, proteoglycans, and chondrocytes.

- **Collagen** (KAHL-uh-jen): a fibrous protein. Collagen is also the building block of skin, tendon, bone, and other connective tissues.
- **Proteoglycans** (PRO-tee-uh-GLY-kanz): a combination of proteins and sugars. Strands of proteoglycans and collagen weave together and form a mesh-like tissue. This allows cartilage to flex and absorb physical shock. .
- **Chondrocytes** (KAHN-druh-sytz): cells that are found all through the cartilage. They mainly help cartilage stay healthy and grow. Sometimes, however, they release substances called enzymes that destroy collagen and other proteins. Researchers are trying to learn more about chondrocytes.

How do You Know if You Have Osteoarthritis?

Usually, osteoarthritis comes on slowly. Early in the disease, joints may ache after physical work or exercise. Osteoarthritis can occur in any joint. Most often it occurs at the hands, knees, hips, or spine.

Hands: Osteoarthritis of the fingers is one type of osteoarthritis that seems to have some hereditary characteristics; that is, it runs in families. More women than men have it, and they develop it especially after menopause. In osteoarthritis, small, bony knobs appear on the end joints of the fingers. They are called Heberden's (HEB-err-denz) nodes. Similar knobs, called Bouchard's (boo-SHARDZ) nodes, can appear on the middle joints of the fingers. Fingers can become enlarged and gnarled, and they may ache or be stiff and numb. The base of the thumb joint also is commonly affected by osteoarthritis. Osteoarthritis of the hands can be helped by medications, splints, or heat treatment.

Knees: The knees are the body's primary weight-bearing joints. For this reason, they are among the joints most commonly affected by osteoarthritis. They may be stiff, swollen, and painful, making it hard to walk, climb, and get in and out of chairs and bathtubs. If not treated, osteoarthritis in the knees can lead to disability. Medications, weight loss, exercise, and walking aids can reduce pain and disability. In severe cases, knee replacement surgery may be helpful.

Hips: Osteoarthritis in the hip can cause pain, stiffness, and severe disability. People may feel the pain in their hips, or in their groin, inner thigh, buttocks, or knees. Walking aids, such as canes or walkers, can reduce stress on the hip. Osteoarthritis in the hip may limit moving and bending. This can make daily activities such as dressing and foot care a challenge. Walking aids, medication, and exercise can help relieve pain and improve motion. The doctor may recommend hip replacement if the pain is severe and not relieved by other methods.

Spine: Stiffness and pain in the neck or in the lower back can result from osteoarthritis of the spine. Weakness or numbness of the arms or legs also can result. Some people feel better when they sleep on a firm mattress or sit using back support pillows. Others find it helps to use heat treatments or to follow an exercise program that strengthens the back and abdominal muscles. In severe cases, the doctor may suggest surgery to reduce pain and help restore function.

The Warning Signs of Osteoarthritis

- Steady or intermittent **pain** in a joint
- **Stiffness** in a joint after getting out of bed or sitting for a long time
- **Swelling** or **tenderness** in one or more joints
- A **crunching feeling** or the sound of bone rubbing on bone
- **Hot, red, or tender?** Probably not osteoarthritis. Check with your doctor about other causes, such as rheumatoid arthritis.

- **Pain?** Not always. In fact, only a third of people whose x rays show evidence of osteoarthritis report pain or other symptoms.

How do Doctors Diagnose Osteoarthritis?

No single test can diagnose osteoarthritis. Most doctors use a combination of the following methods to diagnose the disease and rule out other conditions:

Clinical history: The doctor begins by asking the patient to describe the symptoms, and when and how the condition started. Good doctor-patient communication is important. The doctor can give a better assessment if the patient gives a good description of pain, stiffness, and joint function, and how they have changed over time. It also is important for the doctor to know how the condition affects the patient's work and daily life. Finally, the doctor also needs to know about other medical conditions and whether the patient is taking any medicines.

Physical examination: The doctor will check the patient's general health, including checking reflexes and muscle strength. Joints bothering the patient will be examined. The doctor will also observe the patient's ability to walk, bend, and carry out activities of daily living.

X rays: Doctors take x rays to see how much joint damage has been done. X rays of the affected joint can show such things as cartilage loss, bone damage, and bone spurs. But there often is a big difference between the severity of osteoarthritis as shown by the x ray and the degree of pain and disability felt by the patient. Also, x rays may not show early osteoarthritis damage, before much cartilage loss has taken place.

Other tests: The doctor may order blood tests to rule out other causes of symptoms. Another common test is called joint aspiration, which involves drawing fluid from the joint for examination.

It usually is not difficult to tell if a patient has osteoarthritis. It is more difficult to tell if the disease is causing the patient's symptoms. Osteoarthritis is so common--especially in older people--that symptoms seemingly caused by the disease actually may be due to other medical conditions. The doctor will try to find out what is causing the symptoms by ruling out other disorders and identifying conditions that may make the symptoms worse. The severity of symptoms in osteoarthritis is influenced greatly by the patient's attitude, anxiety, depression, and daily activity level.

How is Osteoarthritis Treated?

Most successful treatment programs involve a combination of treatments tailored to the patient's needs, lifestyle, and health. Osteoarthritis treatment has four general goals:

- **Improve joint care** through rest and exercise.
- **Maintain an acceptable body weight.**

- **Control pain** with medicine and other measures.
- **Achieve a healthy lifestyle.**

Treatment Approaches to Osteoarthritis

- Exercise
- Weight control
- Rest and joint care
- Pain relief techniques
- Medicines
- Alternative therapies
- Surgery

Osteoarthritis treatment plans often include ways to manage pain and improve function. Such plans can involve exercise, rest and joint care, pain relief, weight control, medicines, surgery, and nontraditional treatment approaches.

Exercise: Research shows that exercise is one of the best treatments for osteoarthritis. Exercise can improve mood and outlook, decrease pain, increase flexibility, improve the heart and blood flow, maintain weight, and promote general physical fitness. Exercise is also inexpensive and, if done correctly, has few negative side effects. The amount and form of exercise will depend on which joints are involved, how stable the joints are, and whether a joint replacement has already been done.

On the Move: Fighting Osteoarthritis With Exercise: You can use exercises to keep strong and limber, extend your range of movement, and reduce your weight. Some different types of exercise include the following:

- **Strength exercises:** These can be performed with exercise bands, inexpensive devices that add resistance.
- **Aerobic activities:** These keep your lungs and circulation systems in shape.
- **Range of motion activities:** These keep your joints limber.
- **Agility exercises:** These can help you maintain daily living skills.
- **Neck and back strength exercises:** These can help you keep your spine strong and limber.

Ask your doctor or physical therapist what exercises are best for you. Ask for guidelines on exercising when a joint is sore or if swelling is present. Also, check if you should (1) use pain-relieving drugs, such as analgesics or anti-inflammatories (also called NSAIDs), to make exercising easier, or (2) use ice afterwards.

Rest and joint care: Treatment plans include regularly scheduled rest. Patients must learn to recognize the body's signals, and know when to stop or slow down, which prevents pain caused by overexertion. Some patients find that relaxation techniques, stress reduction, and biofeedback help. Some use canes and splints to protect joints and take pressure off them. Splints or braces provide extra support for weakened joints.

They also keep the joint in proper position during sleep or activity. Splints should be used only for limited periods because joints and muscles need to be exercised to prevent stiffness and weakness. An occupational therapist or a doctor can help the patient get a properly fitting splint.

Nondrug pain relief: People with osteoarthritis may find nondrug ways to relieve pain. Warm towels, hot packs, or a warm bath or shower to apply moist heat to the joint can relieve pain and stiffness. In some cases, cold packs (a bag of ice or frozen vegetables wrapped in a towel can relieve pain or numb the sore area. (Check with a doctor or physical therapist to find out if heat or cold is the best treatment.) Water therapy in a heated pool or whirlpool also may relieve pain and stiffness. For osteoarthritis in the knee, patients may wear insoles or cushioned shoes to redistribute weight and reduce joint stress.

Weight control: Osteoarthritis patients who are overweight or obese need to lose weight. Weight loss can reduce stress on weight-bearing joints and limit further injury. A dietitian can help patients develop healthy eating habits. A healthy diet and regular exercise help reduce weight.

Medicines: Doctors prescribe medicines to eliminate or reduce pain and to improve functioning. Doctors consider a number of factors when choosing medicines for their patients with osteoarthritis. Two important factors are the intensity of the pain and the potential side effects of the medicine. Patients must use medicines carefully and tell their doctors about any changes that occur.

Most medicines used to treat osteoarthritis have side effects, so it is important for people to learn about the medicines they take. Even nonprescription drugs should be checked. Several groups of patients are at high risk for side effects from NSAIDs (*nonsteroidal anti-inflammatory drugs* such as aspirin, Advil, Motrin IB, Aleve, ketoprofen), such as people with a history of peptic ulcers or digestive tract bleeding, people taking oral corticosteroids or anticoagulants (blood thinners), smokers, and people who consume alcohol. Some patients may be able to help reduce side effects by taking some medicines with food. Others should avoid stomach irritants such as alcohol, tobacco, and caffeine. Some patients try to protect their stomachs by taking other medicines that coat the stomach or block stomach acids. These measures help, but they are not always completely effective.

Surgery: For many people, surgery helps relieve the pain and disability of osteoarthritis. Surgery may be performed to

- Remove loose pieces of bone and cartilage from the joint if they are causing mechanical symptoms of buckling or locking
- Resurface (smooth out) bones
- Reposition bones
- Replace joints.

Surgeons may replace affected joints with artificial joints called prostheses. These joints can be made from metal alloys, high-density plastic, and ceramic material. They can be joined to bone surfaces by special cements. Artificial joints can last 10 to 15 years or longer. About 10 percent of artificial joints may need revision. Surgeons choose the design and components of prostheses according to their patient's weight, sex, age, activity level, and other medical conditions.

The decision to use surgery depends on several things. Both the surgeon and the patient consider the patient's level of disability, the intensity of pain, the interference with the patient's lifestyle, the patient's age, and occupation. Currently, more than 80 percent of osteoarthritis surgery cases involve replacing the hip or knee joint. After surgery and rehabilitation, the patient usually feels less pain and swelling, and can move more easily.

People with osteoarthritis can enjoy good health despite having the disease. How? By learning self-care skills and developing a "good-health attitude."

Self-care is central to successfully managing the pain and disability of osteoarthritis. People have a much better chance of having a rewarding lifestyle when they educate themselves about the disease and take part in their own care. Working actively with a team of health care providers enables people with the disease to minimize pain, share in decisionmaking about treatment, and feel a sense of control over their lives. Research shows that people with osteoarthritis who take part in their own care report less pain and make fewer doctor visits. They also enjoy a better quality of life.

Exercise: Regular physical activity plays a key role in self-care and wellness. Two types of exercise are important in osteoarthritis management. The first type, therapeutic exercises, keep joints working as well as possible. The other type, aerobic conditioning exercises, improve strength and fitness, and control weight. Patients should be realistic when they start exercising. They should learn how to exercise correctly, because exercising incorrectly can cause problems.

Most people with osteoarthritis exercise best when their pain is least severe. Start with an adequate warm-up and begin exercising slowly. Resting frequently ensures a good workout. It also reduces the risk of injury. A physical therapist can evaluate how a patient's muscles are working. This information helps the therapist develop a safe, personalized exercise program to increase strength and flexibility.

Many people enjoy sports or other activities in their exercise program. Good activities include swimming and aquatic exercise, walking, running, biking, cross-country skiing, and using exercise machines and exercise videotapes.

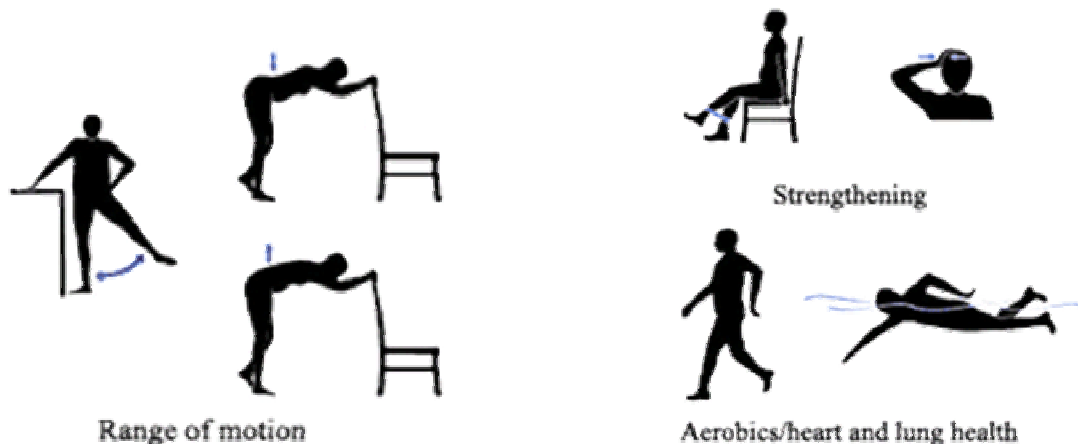
People with osteoarthritis should check with their doctor or physical therapist before starting an exercise program. Health care providers will suggest what exercises are best for you, how to warm up safely, and when to avoid exercising a joint affected by arthritis. Pain medications and applying ice after exercising may make exercising easier.

Enjoy a "Good-Health Attitude"

- Focus on your abilities instead of disabilities.
- Focus on your strengths instead of weaknesses.
- Break down activities into small tasks that you can manage.
- Incorporate fitness and nutrition into daily routines.
- Develop methods to minimize and manage stress.
- Balance rest with activity.
- Develop a support system of family, friends, and health professionals

Exercises for Osteoarthritis

People with osteoarthritis should do different kinds of exercise for different benefits to the body.



Body, Mind, Spirit: Making the most of good health requires careful attention to the body, mind, and spirit. People with osteoarthritis must plan and develop daily routines that maximize their quality of life and minimize disability. They also need to evaluate these routines periodically to make sure they are working well.

Good health also requires a positive attitude. People must decide to make the most of things when faced with the challenges of osteoarthritis. This attitude--a good-health mindset--doesn't just happen. It takes work, every day. And with the right attitude, you will achieve it.

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