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ARTHRITIS: RESEARCH & THERAPY

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INTRODUCTION

Arthritis is not a single disease; the term refers to joint pain or joint disease, and there are more than 100 types of arthritis and related conditions. People of all ages, races & sexes live with arthritis, and it is the leading cause of disability in the U.S. It's most common among women, and although it's not a disease of aging, some types of arthritis occur in older people more than younger people.

Arthritis is an inflammation of the joints that may affect one joint or multiple joints. The symptoms of arthritis usually develop over time, but they may also appear suddenly it is long duration.

Common arthritis symptoms include swelling, pain, stiffness and diminished range of motion in joints. Symptoms vary from mild to severe and may come and go. Some may stay about the same for years, but symptoms can also progress and get worse over time. Severe arthritis can result in chronic pain, difficulty performing daily activities and make walking and climbing stairs painful.

Arthritis can also cause permanent joint changes. These may be visible, such as knobby finger joints, but often the damage can be seen only on X-rays. Some types of arthritis affect the heart, eyes, lungs, kidneys and skin as well as the joints.

TYPES OF ARTHRITIS

Osteoarthritis

In osteoarthritis (OA), a degenerative disease that affects the whole joint, the protective cartilage and fluid break down over time, making joint movement difficult and painful. Eventually, bones of the joint may rub directly against one another, causing severe pain.

Inflammation is also involved in the process of OA, which most commonly affects knees, hips, hands and the spine.

Pain intensity varies from person to person. It can range from mild to moderate and may be manageable with drugs and regular physical activity. For some it can be debilitating, making any movement of the affected joint difficult, but continuing physical movement of any sort is known to help.

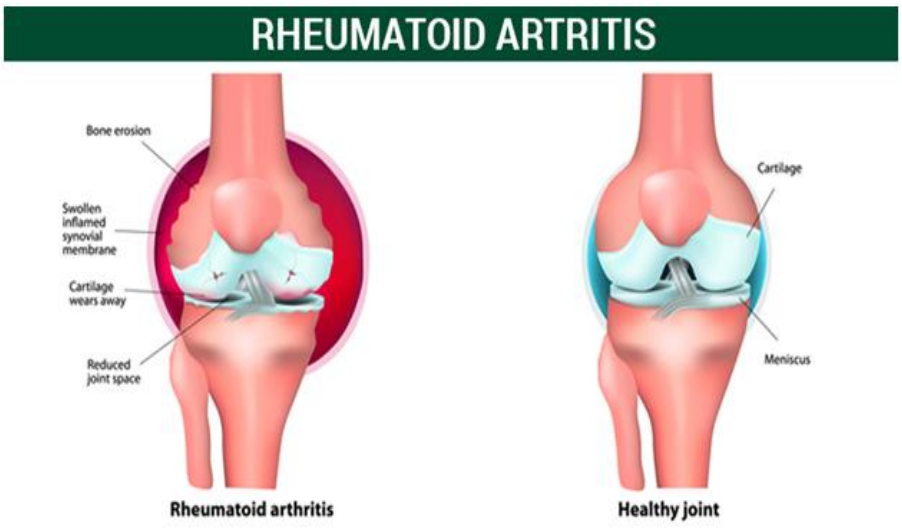
Rheumatoid Arthritis and Juvenile Idiopathic Arthritis

In rheumatoid arthritis (RA), the body's immune system is dysfunctional and attacks the tissues of the body's own joints and other organs. The immune system normally triggers inflammation that protects a person from viruses, bacteria and other invaders. In people with autoimmune diseases like RA, inflammation becomes overactive and attacks healthy tissue — such as the lining of the joints, called the synovium, in the cases of RA and JIA. Persistent inflammation can eventually lead to permanent damage to joints and other organs and create worsening pain in the process.

RA typically affects parallel joints on both sides of the body, such as both knees or hands. It can also affect internal organs, including the liver, heart and eyes.

The process in juvenile idiopathic arthritis (JIA) works similarly to that in RA, but it's important to note that JIA is not a child-sized version of RA. Like RA, it can affect more than joints, including internal organs and eyes. People with RA or JIA often experience disease flares, where symptoms including pain get worse for a period of time. Medications

used to treat the diseases themselves, like disease-modifying antirheumatic drugs (DMARDs) and biologics, are often effective at easing pain, too.



Psoriatic Arthritis

Similar to RA and JIA, psoriatic arthritis (PsA) is an autoimmune inflammatory disease in which the immune system attacks the body, especially the skin and joints, causing skin rashes and pain. It typically occurs in people who have psoriasis, an autoimmune disease that creates red or silver scaly skin patches as the production of skin cells accelerates. These patches can be itchy or painful and they can become dry and cracked, causing more pain.

PsA can affect any joint. It may also affect the sites where tendons or ligaments attach to bones, called entheses. The inflammation of these areas, called enthesitis, commonly affects the heel or bottom of the foot and the lower back. Medications used to treat PsA, including DMARDs and biologics, may relieve pain. Additional skin treatments for psoriasis may be needed from a dermatologist.

Fibromyalgia

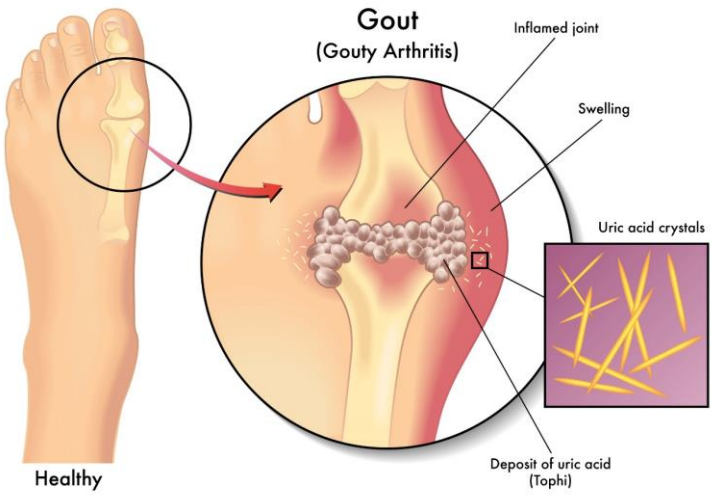
Fibromyalgia is considered a pain disorder caused by a dysfunction of the central nervous system (CNS), including the brain and spinal cord. Fibromyalgia is characterized by widespread pain that may come and go or be constant. It's believed that CNS signals are amplified in fibromyalgia, so that pain signals are heightened. A touch or movement that doesn't affect most people may cause painful for someone with fibromyalgia (this is called allodynia), and something that is typically mildly painful may be extremely painful with fibromyalgia (a condition called hyperalgesia). Other possible symptoms include fatigue, sleep problems, inability to concentrate and mood troubles, all of which may intensify pain perception. Treatments include medications that target neurochemicals, such as drugs used as antidepressants or anticonvulsants (such as *Lyrica*). Nondrug treatments including exercise and acupuncture also can be effective.

Gout

Gout is a form of inflammatory arthritis, but it does not cause body-wide inflammation like RA or PsA does. In gout, high levels of uric acid are the problem. If your body produces too much uric acid or if you are unable to remove the excess fast enough, it can build up in the blood (called hyperuricemia), and excess uric acid can form crystals in joints. This results in extremely painful joint inflammation. Untreated, these crystals can form lumps (tophi) in affected joints or surrounding tissues. Gout usually strikes suddenly, often in the large joint of the big toe, but sometimes in other joints. With a gout flare, you can go to bed feeling fine and wake up with excruciating pain.

The initial flare is treated with NSAIDs, corticosteroids and an antigout drug called colchicine. To control gout after the flare subsides, uric acid-reducing drugs are used to treat

and manage gout. Lifestyle changes, such as drinking more water and avoiding alcohol and purine-rich foods, can also help prevent future gout attacks.



Risk Factors

1) Non-Modifiable factors

Age: The risk of most of arthritis develop when increases the age.

Sex: In most types of arthritis are common in women, nearly 60% of all people with arthritis are women. Ankylosing spondylitis and gout are more common in men.

Genetics: Specific genes are associated with a higher risk of certain types of arthritis such as rheumatoid arthritis, systemic lupus erythematosus and ankylosing spondylitis.

2) Modifiable risk factors

Overweight and Obesity: If you have overweight can contribute to both the onset and progression of Knee & hip osteoarthritis.

Physical inactivity: Physical inactiveness associated with increased severity and progression of many types of arthritis.

Joint Injuries: In the joint, damage can contributes the development of osteoarthritis.

Smoking: Severity of rheumatoid arthritis and systemic lupus erythematosus can be occur during smoking.

Infection: Many microbial agents can infect joints and potentially cause the development of various forms of arthritis.

Occupation: Certain occupations involving repetitive knee bending and squatting are associated with osteoarthritis of the knee and hip.

Diet: Plays an important role in healthy weight maintenance, which is a key factor in prevention of diseases progression. It also identified risk factor for the development and management of gout.

Diagnosis

During the physical exam, doctors check your joints for swelling, redness and warmth. They'll also want to see how well you can move your joints.

Laboratory tests

Can a blood test detect arthritis?

There is no blood test that can directly detect arthritis. But if your healthcare provider suspects gout or rheumatoid arthritis, they may order blood work. It looks for uric acid or inflammatory proteins.

The analysis of different types of body fluids can help pinpoint the type of arthritis you may have. Fluids commonly analyzed include blood, urine and joint fluid. To obtain a sample of joint fluid, doctors cleanse and numb the area before inserting a needle in the joint space to withdraw some fluid.

Imaging

These types of tests can detect problems within the joint that may be causing your symptoms. Examples include:

X-rays: Using low levels of radiation to visualize bone, X-rays can show cartilage loss, bone damage and bone spurs. X-rays may not reveal early arthritic damage, but they are often used to track progression of the disease.

Computerized tomography (CT): CT scanners take X-rays from many different angles and combine the information to create cross-sectional views of internal structures. CTs can visualize both bone and the surrounding soft tissues.

Magnetic resonance imaging (MRI): Combining radio waves with a strong magnetic field, MRIs can produce more-detailed cross-sectional images of soft tissues such as cartilage, tendons and ligaments

Ultrasound: This technology uses high-frequency sound waves to image soft tissues, cartilage and fluid-containing structures near the joints (bursae). Ultrasound is also used to guide needle placement for removing joint fluid or injecting medications into the joint.

Arthroscopy: This procedure uses a thin tube containing a light and camera (arthroscope) to look inside the joint. The arthroscope is inserted into the joint through a small incision. Images of the inside of the joint are projected onto a screen. It is used to evaluate any degenerative and/or arthritic changes in the joint; to detect bone diseases and tumors; to determine the cause of bone pain and inflammation, and to treat certain conditions.

Treatment

Arthritis treatment focuses on relieving symptoms and improving joint function. You may need to try several different treatments, or combinations of treatments, before you determine what works best for you.

Medications

The medications used to treat arthritis vary depending on the type of arthritis. Commonly used arthritis medications include:

NSAIDs

Nonsteroidal anti-inflammatory drugs (NSAIDs) can relieve pain and reduce inflammation. Examples include ibuprofen (Advil, Motrin IB, others) and naproxen sodium (Aleve). Stronger NSAIDs can cause stomach irritation and may increase your risk of heart attack or stroke. NSAIDs are also available as creams or gels, which can be rubbed on joints.

Counterirritants

Some varieties of creams and ointments contain menthol or capsaicin, the ingredient that makes hot peppers spicy. Rubbing these preparations on the skin over your aching joint may interfere with the transmission of pain signals from the joint itself.

Steroids

Corticosteroid medications, such as prednisone, reduce inflammation and pain and slow joint damage. Corticosteroids may be given as a pill or as an injection into the painful joint. Side effects may include thinning of bones, weight gain and diabetes.

Disease-modifying antirheumatic drugs (DMARDs)

These drugs can slow the progression of rheumatoid arthritis and save the joints and other tissues from permanent damage. In addition to conventional DMARDs, there are also biologic agents and targeted synthetic DMARDs. Side effects vary but most DMARDs increase your risk of infections.

Natural remedies

A healthful, balanced diet, along with appropriate exercise and avoidance of smoking and drinking too much alcohol can help people with arthritis maintain their overall health and reduce symptom severity.

Diet

Eating some types of food may help reduce inflammation.

The following foods, found in a Mediterranean diet, can provide many nutrients that are good for joint health and can help relieve joint inflammation.

- Fish
- Nuts and seeds
- Fruits and vegetables
- Beans
- Olive oil
- Whole grains

On the other hand, people living with arthritis should avoid or limit eating processed foods, foods that contain added sugar, and refined carbohydrates. These foods may actually make arthritis inflammation worse.

Physical therapy and exercise

Doctors will often recommend a course of physical therapy to help patients with arthritis overcome some of the challenges and to reduce limitations on mobility.

Forms of physical therapy that may be recommended include

Physical therapy: specific exercises tailored to the condition and individual needs, sometimes combined with pain-relieving treatments such as ice or hot packs and massage.

Occupational therapy: practical advice on managing everyday tasks, choosing specialized aids and equipment, protecting the joints from further damage, and managing fatigue.

In addition, although individuals with arthritis may experience short-term increases in pain when first beginning exercise, continued physical activity can effectively reduce long-term symptoms.

People with arthritis can participate in joint-friendly physical activity on their own or with friends. As many people with arthritis have other conditions, such as heart disease, it is important to choose appropriate activities.

Joint-friendly physical activities that are appropriate for adults with arthritis and heart disease include

- Walking
- Swimming
- Cycling

A healthcare professional can help you find ways to live a healthful lifestyle and have a better quality of life.

Herbal medicines

A number of natural remedies have been suggested for different types of arthritis. Research Trusted Source has shown that some herbal supplement may be able to relieve some pain and inflammation or help reduce the need for taking pain medications. These include:

- Devil's claw
- Boswellia
- Chamomile
- Turmeric
- Ginger

However, anyone considering using natural remedies for any type of arthritis should speak to a doctor first.

Therapy

Physical therapy can be helpful for some types of arthritis. Exercises can improve range of motion and strengthen the muscles surrounding joints. In some cases, splints or braces may be warranted.

Surgery

If conservative measures don't help, doctors may suggest surgery, such as:

Joint Repair: In some instances, joint surfaces can be smoothed or realigned to reduce pain and improve function. These types of procedures can often be performed arthroscopically through small incisions over the joint.

Joint replacement: This procedure removes the damaged joint and replaces it with an artificial one. Joints most commonly replaced are hips and knees.

Joint fusion: This procedure is more often used for smaller joints, such as those in the wrist, ankle and fingers. It removes the ends of the two bones in the joint and then locks those ends together until they heal into one rigid unit.

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