

Rheumatoid Arthritis (RA)

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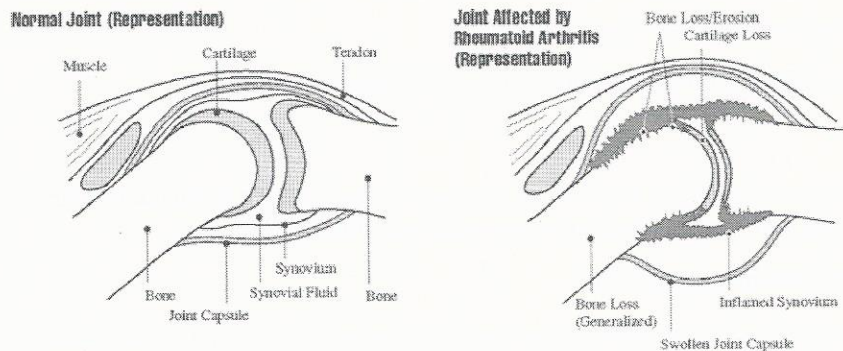
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What is rheumatoid arthritis?

Rheumatoid arthritis (RA) is a chronic autoimmune disease causing pain, swelling, stiffness and loss of function in the joints. A healthy immune system protects the body by attacking foreign bacteria and viruses, but an autoimmune disease causes the body to mistakenly attack healthy tissue.

About 1.5 million people in the United States have rheumatoid arthritis.

Joints are designed to absorb shock and allow smooth movement between bones. The ends of bones are covered by elastic tissue called cartilage to support and protect it during movements. Underneath the caps is tissue called synovium, which produces synovial fluid that acts as a lubricant and nourishment to the cartilage. In people with RA, white blood cells cause inflammation in the synovium. This causes the tissue that lines the walls of the joints to thicken and become swollen and painful when moved. The uncontrollable inflammation leads to joint erosion, a loss of motion and damage to many associated parts of the body.



RA affects the most important joints in the body, including joints in the:

- Hands
- Feet
- Wrists
- Elbows
- Knees
- Ankles

Over time, the affected synovium destroys the cartilage and bone within joints. Everything around that area that is supposed to support the joint – muscles, ligaments, and tendons – will weaken. This breakdown of essential functions leads to the pain associated with RA.

It is important to diagnose and begin treatment for rheumatoid arthritis early. Permanent damage to bones can begin within the first year of developing the disease.

RA often begins in middle age and nearly 3 times as many women have the condition as men. It does not usually occur in children and young adults, but a related disease called juvenile idiopathic arthritis (JRA) can. RA is a slowly progressing disease, but once damage is done it cannot be reversed. Doctors recommend treatment beginning immediately after diagnosis to slow down the effects.

Causes of Rheumatoid Arthritis

Rheumatoid arthritis is an autoimmune disorder, meaning it is caused by an anomaly in the immune system. Doctors are not sure what causes the immune system to attack its own tissues, but they have identified what could be contributing factors.

Genetic Factors

There are certain genes that may play a small role in the development of RA, although not directly. Researchers have identified a few genetic markers that are known to control immune responses. Researchers have found that people who have one gene in particular, HLA, could be 5 times more likely to get RA than people who don't. However, not everyone with rheumatoid arthritis has the gene and not everyone with the gene has rheumatoid arthritis. Research suggests these genes do not cause RA, but might make patients more vulnerable to developing it.

Regulate the immune system → fine tune adaptive immune system

Environmental Factors

There are several environmental factors that, combined with a genetic predisposition, give people a greater risk to develop RA. These include:

- Bacteria and viruses
- Exposure to secondhand smoke
- Air pollution
- Insecticides

There are also several risks that come from exposure to occupational hazards, such as:

- Mineral oils
- Silica mineral (found in obsidian, granite, diorite, and sandstone)

Personal Factors

Gender: Both men and women are susceptible to RA, but the disease is far more common in women. In fact, 70 percent of people diagnosed with rheumatoid arthritis are women. This may be due to a variety of hormonal factors that are involved in the development of RA. Changes in hormones (such as the use of certain contraceptives) may promote the development of RA in people who are genetically susceptible or have been exposed to a triggering event. Rheumatoid arthritis symptoms tend to improve or disappear completely during pregnancy, but frequent flares are common after the birth. Breastfeeding can also cause RA symptoms to flare.

Age: RA can affect a person at any age, but it typically presents in those between the ages of 40-60.

Family History: Those who have a family history of rheumatoid arthritis may have a higher chance of developing the disease.

Research on Rheumatoid Arthritis

In the last few years, much research has been done to increase understanding of the immune system and what makes it malfunction. There have also been new therapies discovered to help treat the disease. Some of the topics of intense research include:

What are the genetic factors that predispose people to develop rheumatoid arthritis?

White blood cells, commonly known as T cells, are important in maintaining a healthy and properly functioning immune system. Scientists have discovered a variation, called single nucleotide polymorphism (SNP), in a gene that controls T cells. When the SNP gene is present, T cells attempt to correct abnormalities in joints too quickly, causing the inflammation and tissue damage associated with RA. The discovery of SNP may help determine people's risk for getting RA and might help explain why autoimmune diseases run in families.

At conception, twins have an identical set of genes. So why would only one twin develop RA?

Twins only have identical genomes at conception. As they grow and after birth, developmental and environmental factors differentiate the genomes. By studying the differences in the lives of twins, scientists can better determine where and why rheumatoid arthritis begins to develop. A technique called microarray is used to examine a large amount of genes at once, and differences in cases where only one twin developed the disease can be studied. Researchers were able to single out several genes that might be the cause of the inflammation and bone erosion of RA thanks to these studies.

Rheumatoid Arthritis Symptoms

Rheumatoid Arthritis begins slowly and progresses over time. It can be difficult to detect and diagnose RA because early symptoms are subtle and nonspecific.

Symptoms appear differently in every patient and many will experience spans of no symptoms at all. Heavy inflammation of the joints is known as a flare. Flares are common in RA sufferers and can last for months. Early symptoms of the disease include fatigue and stiffness and tenderness in the joints.

There are many symptoms of rheumatoid arthritis that stem from inflamed tissue in the joints. The most common symptoms are:

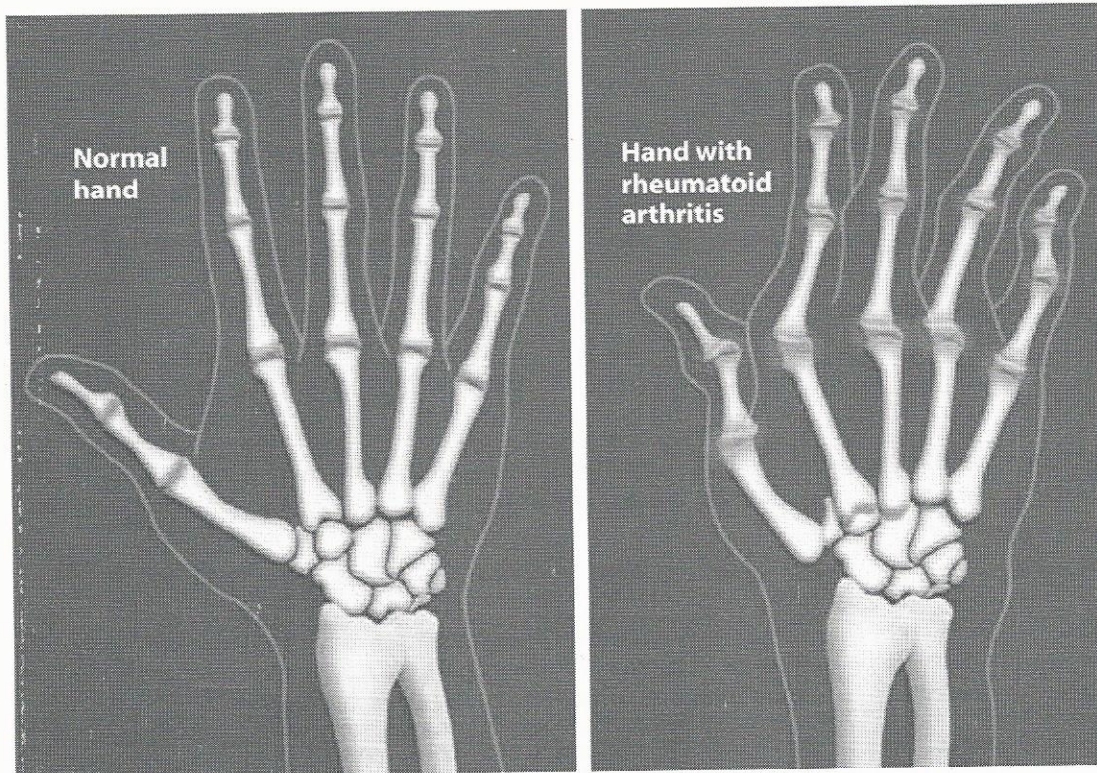
Swelling: Synovial tissue in the caps of joints becomes damaged in rheumatoid arthritis sufferers, causing the tissue to thicken and swell.

Stiffness: Inflamed joints tend to stiffen and are difficult to move correctly. People who have RA experience stiff joints, especially in the mornings or after long periods of rest. This can last for hours at a time.

Pain: Cartilage and bone within the joints will wear down over time. Joints are supported by surrounding muscles, ligaments and tendons, but these will weaken and no longer stabilize joints. This causes intense pain and joint damage.

Redness: Joints can be warm and may appear pink, or even red, on the outside during a flare or when inflamed.

The degeneration caused by RA tends to affect the smaller joints in the body first, namely the joints in the fingers, hands, and feet. The damage then spreads to other major joints in the body. RA usually affects the body symmetrically, which means the same joints on both sides of the body will show symptoms. For instance, if one wrist is showing symptoms, the other will likely show symptoms at the same time.



RA is most common in the hands, but can happen in any joint, including knees, wrists, neck, shoulders, elbows, feet, hips, and even the jaw.

Psychological Symptoms

RA affects every person differently. Symptoms differ in severity and frequency, and aren't always just physical. RA may cause emotional and psychological symptoms.

The symptoms of RA can leave a person unable to function for long periods of time without pain. Jobs that involve a large amount of moving or a large amount of time sitting still can be difficult for a person with RA. Mental illnesses such as depression, anxiety, low self-esteem and feelings of helplessness are common among RA sufferers.

Physical Symptoms

Additional symptoms are direct results of the high levels of inflammation that come with RA. These can affect the entire body and sometimes resemble the flu, but are chronic.

Physical symptoms include:

- Fatigue
- Minor fever
- Loss of appetite
- Muscle aches
- Weight loss

There are similar symptoms that appear in specific locations in the body.

Shortness of breath can come from inflammation and scarring of the lungs. A sharp chest pain frequently appears as well.

Dry eyes and dry mouth can be signs of Sjögren's Syndrome, an immune disease that often accompanies rheumatoid arthritis. In Sjögren's Syndrome, the glands in your eyes and mouth that typically produce mucus and moisture no longer produce effectively.

Other eye symptoms can include burning, itchiness, discharge and impaired vision.

Rheumatoid nodules are small lumps that form under the skin over bony areas that have been eroded away. Nodules are firm and are usually non-painful. The frequency of nodules in RA patients dwindles every year because of early detection and symptom control. Currently, approximately 20% of rheumatoid arthritis patients have developed these nodules.

Inflamed blood vessels from rheumatoid arthritis can lead to damage in nerves and skin resulting in numbness, tingling, and burning.

Anemia, the decrease in production of red blood cells, is also a common symptom of rheumatoid arthritis.

If you or someone you know are experiencing these symptoms, it's important to see a doctor as soon as possible. Diagnosing RA early is necessary due to how quickly bone and cartilage damage can occur.

[Click here to learn more about rheumatoid arthritis symptoms.](#)

Diagnosing Rheumatoid Arthritis

Rheumatoid arthritis is subtle and often presents itself similarly to other arthritis diseases. People will typically feel the effects of RA in their smallest joints first, such as the fingers and toes.

The earliest signs of the disease are:

- Achy joints
- Stiffness
- Formation of nodules
- Fatigue
- Unintentional weight loss

If a doctor suspects that a patient has RA, they will refer the patient to a rheumatologist for further testing. A rheumatologist is a medical professional who specializes in musculoskeletal and autoimmune diseases. They are specially trained to handle the diagnosis and treatment of RA and other arthritis diseases.

Tests performed by a rheumatologist:

Family history: A rheumatologist will first ask for the medical history of the patient to see if RA or other arthritis diseases run in their family. Many scientists believe that having a certain gene increases the chances of developing RA and believe that gene can be inherited.

Pain history and examination of joints: A rheumatologist can get a better understanding of disease progression if they know the patient's recent and current symptoms. It is important to keep an accurate record of pain to ensure a proper diagnosis it made. Once a rheumatologist understands a patient's pain history, they can perform a physical examination of their joints. A physical examination can tell a rheumatologist the progression of RA and where in the body it is affecting. If RA has started to develop in the joints, a patient will show signs or sensitivity to tenderness, swelling, warmth, and painful or limited movement in the joints.

Blood tests: Blood chemistry can tell a rheumatologist a lot about inflammation levels which are a good determinant of rheumatoid arthritis. If certain antibodies are present in the blood, there is a high chance that the person has RA. One of these antibodies is known as Rheumatoid factor or RF. If a blood test shows RF then there is an 80% chance the patient could develop RA or another inflammatory disease. Another blood indicator is the erythrocyte sedimentation rate or ESR. ESR's identify the presence of inflammation.

Imaging scans: Joint damage can be detected through imaging tests, making them useful for diagnosing rheumatoid arthritis. Rheumatologists use x-rays, ultrasounds, and magnetic resonance imaging scans to examine the joints and determine if RA is the cause of erosion. However, damage will not always be present with a positive RA diagnosis if the disease is in an early stage.

A single test cannot determine if a person has rheumatoid arthritis, but rheumatologists use a combination of tests to make an accurate diagnosis. Once a diagnosis has been made, a patient can work with their rheumatologist to create a treatment plan that fits their needs and current stage of RA.

Rheumatoid arthritis typically manifests in middle-aged people and can progress slowly. Early symptoms include minor joint pain, stiffness and fatigue, but these can be subtle. Sometimes symptoms will resemble the flu, making RA difficult to detect.

Click here to learn more about diagnosing rheumatoid arthritis.

The Stages of RA

Rheumatoid arthritis most often develops as a progressive disease, meaning that it will become more aggressive over time. However, it can also appear in other courses.

Monocyclic progression (sometimes called remissive) is an episode of RA with symptoms that last only 2-5 years. Monocyclic progression is usually the result of an early diagnosis and immediate aggressive treatment to ensure that the symptoms do not return.

Polycyclic progression (sometimes called intermittent) is the constant recurrence of RA symptoms and flares but in fluctuating stages. Patients could go long periods of time without experiencing symptoms, but flares usually return.

Rheumatoid Arthritis vs. Osteoarthritis

Many people confuse rheumatoid arthritis with osteoarthritis (OA) due to their similar symptoms, but the two diseases are caused by different factors. Osteoarthritis is a mechanical disease brought on by the destruction of joints through wear and tear. Rheumatoid arthritis is an autoimmune disease that causes joint malfunction due to inflammation.

What is Osteoarthritis?

Osteoarthritis is the most common form of arthritis. Approximately 27 million Americans over the age of 25 have been diagnosed with it. Osteoarthritis is most commonly seen in people middle-aged to elderly and is the top cause of disability in those age groups. It can also affect young people who sustain joint injuries. In OA, the cartilage, joint lining, ligaments and bone are all affected by deterioration and inflammation. When cartilage begins to break down due to stress or changes in the body, the surrounding bones slowly get bigger and begin to fail. It is a slowly progressing disease and occurs in the joints of the hand, spine, hips, knees, and toes.

Risk factors of the disease most often stem from lifestyle or biological causes, such as:

- Obesity
- Old age
- Genetic recurrence or defect
- Overuse of joints
- Job stresses
- Sports injuries

Osteoarthritis sometimes occurs alongside rheumatoid arthritis or other disease, such as gout.

Symptoms of OA

Rheumatoid arthritis occurs symmetrically in the body, meaning that when a joint on one side is affected, the other will be as well. Osteoarthritis does not occur symmetrically in the body. It affects a single joint or a joint on one side of the body more severely. It progresses slowly over the years and can worsen with sudden injuries or increased risk factors.

Symptoms of the breakdown of joints and the weakness of bones include:

- Joint pain and stiffness
- Knobby swelling at the joint site
- Grinding or cracking noises at joint site during movement
- Decreased joint function

Diagnosing OA

To diagnose Osteoarthritis, a rheumatologist will look for warning signs that coincide with an individual's risk factors. Physical exams, X-rays, and other imaging tests are used to determine if a patient has osteoarthritis and the severity of the disease.

Treating OA

Like rheumatoid arthritis and other similar diseases of the joints, damage from OA cannot be reversed. However, there are treatments and lifestyle changes that can reduce pain and improve the function of the affected joints:

Lifestyle Changes: Being overweight is a large risk factor for osteoarthritis because it puts a large amount of stress on weight-bearing joints. This damage is largely preventable by losing excess weight and increasing safe activity. Exercise (as long as it does not put dangerous strain on the joints) will improve your muscle strength. Strong muscles will support your weight-bearing joints and

ultimately lower the chances of the negative symptoms of OA. Getting a sufficient amount of rest is also necessary for management of OA symptoms.

Non-Drug Therapies: Some patients find that sore and painful joints can be soothed by holistic alternatives to drugs. Massages, chiropractic manipulation, spa visits and acupuncture are said to relieve pain, but only for short periods of time before the procedure is repeated.

Natural Home Remedies: Many sufferers have found significant pain and inflammation relief and sometimes complete remission with lab grade turmeric and boswellia combinations. These seem to be especially effective when combined with an autoimmune diet.

Drug Therapies: Osteoarthritis is treated with many of the same medications as rheumatoid arthritis. Nonsteroidal anti-inflammatory drugs (NSAIDs) to decrease swelling and pain are often the first method of treatments. Other options include oral pain relievers such as acetaminophen and topical drugs such as capsaicin cream, lidocaine and diclofenac gel. These drugs are typically over-the-counter, but stronger prescription medication can be prescribed by a doctor if necessary. Prescription drugs include:

Corticosteroids (or cortisone shots) are often used to provide temporary relief of OA. These shots, administered directly into the knee, can delay the need for knee surgery.

Cymbalta, which is typically a drug used to treat depression, was approved by the FDA to treat chronic musculoskeletal pain.

[Click here to learn more about the differences between RA and OA.](#)

Next steps

If you or someone you care about is experiencing symptoms that sound like rheumatoid arthritis, it's important to make an appointment with your doctor as soon as possible. The earlier you can get diagnosed for RA, the earlier you can start treatment to minimize the long-term damage to your joints. There are many effective medications available to provide hope after a diagnosis.

If you would like to know more about the various treatments available for RA, [click here](#).

For helpful tips and advice about living with RA, [click here](#).

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