



Pseudogout (Calcium Pyrophosphate Deposition Disease)

Joint problems caused by calcium pyrophosphate crystals may be one of the most misunderstood forms of arthritis. Joint problems seen with these crystals often are mistaken for gout and other conditions, so proper diagnosis is important. Untreated, pseudogout may lead to severe, painful attacks and joint degeneration, resulting in chronic disability. Some treatment options do exist, but are less targeted than those for [gout](#).

Fast facts

- Anyone can develop calcium pyrophosphate crystals and pseudogout; the risk greatly increases with age.
- Proper diagnosis depends on identifying the calcium pyrophosphate crystals found in the fluid of an affected joint.
- Anti-inflammatory medications may be prescribed to prevent or control joint symptoms.

What is pseudogout?

Pseudogout is a type of arthritis that, as the name suggests, can cause a variety of symptoms similar to [gout](#) but in reaction to a different type of crystal deposit. Pseudogout, often referred to as calcium pyrophosphate deposition disease, can cause severe episodes of localized pain and swelling resulting in incapacitation for days or weeks. It also can cause more chronic arthritis that mimics osteoarthritis or rheumatoid arthritis. Knees most often are involved, but wrists, shoulders, ankles, elbows or hands can be affected.

What causes pseudogout?

Pseudogout develops when deposits of calcium pyrophosphate crystals accumulate in a joint. Crystals deposit first in the cartilage and can damage the cartilage. The crystals also can cause a reaction with inflammation that leads to joint pain and swelling. In most cases it is not known why the crystals form, although crystal deposits clearly increase with age. Because the condition sometimes runs in families, genetic factors are suspected of contributing to the disorder, as can a severely underactive thyroid (hypothyroidism), excess iron storage (hemochromatosis), low magnesium levels in blood, an overactive parathyroid gland, and some causes of excessive calcium in the blood (hypercalcemia).



Who gets pseudogout?

The calcium crystal deposits seen in pseudogout affect about 3 percent of people in their 60s and as many as 50 percent of people in their 90s. The release of the calcium pyrophosphate crystals into the joint can attract white blood cells, leading to a painful attack. Attacks of pseudogout can develop after any injury to the joint, following joint surgery or other surgery, or without an obvious reason. Not everyone will experience severe attacks. Many patients with calcium pyrophosphate crystals have chronic arthritis without inflammation that behaves more like osteoarthritis.

How is pseudogout diagnosed?

Diagnosis is made on the basis of symptoms and medical tests. The physician may use a needle to take fluid from a swollen or painful joint to determine whether calcium pyrophosphate crystals are present. An X-ray of the joint may be taken to determine whether calcium-containing deposits are present in the cartilage, creating a condition known as chondrocalcinosis. Other potential causes of symptoms, such as [gout](#), [rheumatoid arthritis](#), or infection, must be ruled out.

Calcium pyrophosphate crystals are commonly found in the joints of older individuals who are otherwise healthy. Many persons who have these crystal deposits will never experience an attack of pseudogout. They are often present in people who have osteoarthritis.

How is pseudogout treated?

For patients who have acute attacks the doctor may prescribe nonsteroidal anti-inflammatory drugs, which are commonly called NSAIDs. [NSAIDs](#) like indomethacin (*Indocin*) and naproxen (*Naprosyn*) treat pain and disability during severe episodes. To prevent further attacks, low doses of colchicine or NSAIDs may prove effective. However, no treatment is available to dissolve the crystal deposits, and those with poor kidney function, a history of stomach ulcers and/or who are on blood thinners often cannot take NSAIDs. These patients may find draining the joint fluid and injecting a corticosteroid into the affected joint a useful option.

Treatments such as [hydroxychloroquine](#) (*Plaquenil*, *Quineprox*), [methotrexate](#) (*Rheumatrex*, *Trexall*) and an interleukin 1 beta-antagonist that can decrease inflammation (such as anakinra) may be used to help some patients with severe attacks or the less common chronic inflammation caused by these crystals. Surgery to repair and replace damaged joints is an option should joints degenerate.

Prevention

It is not known how to prevent these crystals. If the condition has developed because of some other medical conditions, such as hemochromatosis (too much iron stored in the body) or parathyroid problems, treatment of that condition may prevent it from worsening and may, in some cases, slow the development of pseudogout.

Points to remember

When a patient complains of joint pain, physicians often do not consider pseudogout because it can be confused with [gout](#) and other types of arthritis. Diagnosis is confirmed by using a microscope to identify calcium pyrophosphate crystals. Anti-inflammatory drugs can help lessen symptoms, but there is no way to eliminate the crystals themselves.



The rheumatologist's role in the treatment of pseudogout

Rheumatologists actively are engaged in research into the causes of pseudogout to better prevent and treat this form of arthritis. Because people with these calcium crystals tend to be older and more susceptible to side effects from anti-inflammatory medications, they benefit from seeing rheumatologists, who offer valuable expertise in using such drugs.

Rheumatologists are experts at diagnosing pseudogout and directing a team approach to the treatment and efforts to help prevent possible joint damage they may sometimes cause. This is important, because the patient may need advice about surgery or may require additional information and support from physical and occupational therapists and nurses.

To find a rheumatologist

For a listing of rheumatologists in your area, [click here](#).

Learn more about [rheumatologists](#) and [rheumatology health professionals](#).

For more information

The American College of Rheumatology has compiled this list to give you a starting point for your own additional research. The ACR does not endorse or maintain these Web sites, and is not responsible for any information or claims provided on them. It is always best to talk with your rheumatologist for more information and before making any decisions about your care.

The Arthritis Foundation

www.arthritis.org

National Institute of Arthritis and Musculoskeletal and Skin Diseases Information Clearinghouse

www.niams.nih.gov

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Written by H. Ralph Schumacher, MD, and reviewed by the American College of Rheumatology Communications and Marketing Committee.

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