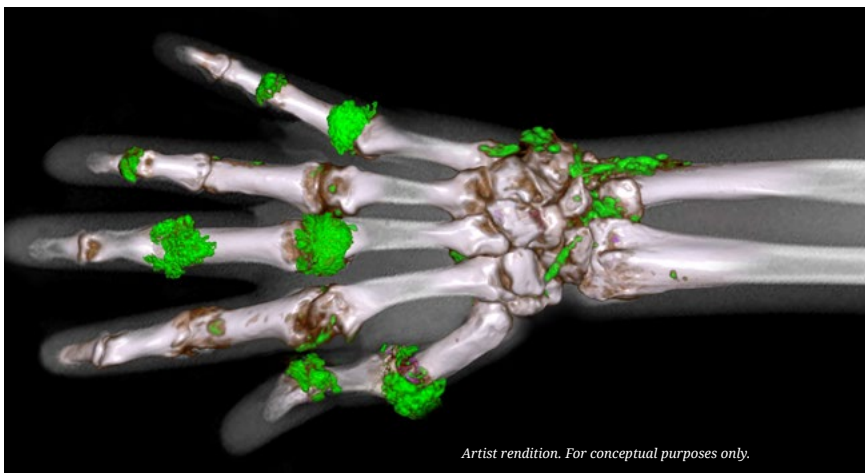


UNDERSTANDING GOUT AND YOUR KIDNEYS



Artist rendition. For conceptual purposes only.



UNDERSTANDING GOUT AND YOUR KIDNEYS

WHAT IS GOUT?

Gout is a common form of **arthritis**. It can cause pain, swelling, and redness in your joints. Gout usually begins in the big toe, but can affect other joints such as the ankle, knee, wrist, fingers, or elbow. Usually only one joint is affected with a flare at a time, but some people can have multiple joints affected at once. Gout overall tends to involve multiple joints, including some where no pain is noticed.

DID YOU KNOW?

- About 9.2 million U.S. adults (3.9 percent) are living with gout today and up to 10 percent of people worldwide may have gout. Gout is the most common form of inflammatory arthritis.
- Gout puts you at risk for kidney disease. Up to 20 percent of people with gout have moderate-to-severe chronic kidney disease.
- Having kidney disease puts you at risk for gout. It is the third most common risk factor for gout.
- A recent study found that 64 percent of kidney patients with gout were not being treated for it and about 80 percent of these patients had uncontrolled gout, a serious disease that can build up in bones and joints and impact organs.

WHAT CAUSES GOUT?

Gout happens if a substance called **uric acid** gets too high in your blood. Everyone has small amounts of uric acid in their blood. It comes from two places—the normal breakdown of your body's cells and certain foods. At normal levels, uric acid does not cause any damage. But if the levels get too high, it can form sharp crystals that can build up almost anywhere in the body, including the joints, kidneys, and other organs. Uric acid crystal formation can lead to pain and inflammation. The medical term for high blood urate levels is **hyperuricemia**.

HOW DOES URIC ACID CAUSE GOUT?

Only some uric acid comes from what we eat on a daily basis. Whenever you eat or drink something, your body pulls out the good stuff like vitamins, and gets rid of the waste. One of those waste products is uric acid, most of which comes from the body's natural metabolic processes.

Healthy kidneys are filters. They remove uric acid and other waste products from your blood. The waste products leave your body through urine. However, if more uric acid is made than the kidneys can remove, high uric acid levels can happen. If too much builds up, it can turn into crystals that settle in

your joints. This can cause a gout attack.

WHAT ARE THE SYMPTOMS OF GOUT?

A gout attack can happen without warning. Most often, pain begins suddenly in one or more joints, usually at night. Often the joint swells, feels warm, becomes painful, and the skin over the joint may look red, tight, and shiny. Pain and swelling usually peaks within 12 to 24 hours, and gets better within a few days to several weeks.

The good news? Treatment can help shorten a gout attack and ease pain. The earlier treatment is started, the better. By lowering uric acid, these painful symptoms can be prevented. Gout attacks are also called flare-ups.

HOW DO I KNOW I HAVE GOUT?

If you have **symptoms**, talk to your healthcare provider. Your healthcare provider will give you a physical exam, ask about your symptoms, and explore your medical history. You may be given some tests:

- **Joint fluid test.** A needle is used to take fluid from a joint. The fluid is looked at

under a microscope to see if it has uric acid crystals. This is the most reliable test for gout and is considered the gold standard.

- **Blood test.** A blood sample is taken to see how much uric acid is in your blood, although high levels don't always mean gout. Some people can have high levels in their blood and never get gout.
- **Imaging tests.** X-rays, ultrasound, CT scans can also be helpful in some people. X-rays are used to rule out other causes of joint swelling. Ultrasound and CT scans are used to look for urate crystals in a joint.

IS GOUT SERIOUS?

Gout is a serious disease that needs to be properly diagnosed and treated. Without treatment, over time, gout attacks (also called flare-ups) become more painful and happen more often. Another problem? Uric acid crystal deposits (called tophi) can form in the joints, under the skin, in bones or cartilage, or in the fluid-filled sacs that cushion the body's tissue (called bursae). Tophi are not usually painful, but they can become inflamed and cause other problems. As gout progresses, it can damage your joints; limiting

your ability to move and affecting your ability to do normal, day-to-day activities. Gout can also lead to loss of kidney function.

HOW DOES GOUT HURT MY KIDNEYS?

Uric acid usually affects joints like the big toe, but crystals can also form in your kidneys or in the tubes that carry urine from your body. Kidney stones can develop and hurt the kidneys by:

- Blocking the kidneys from removing waste products, which can lead to kidney failure and infections.
- Scarring the kidneys from inflammation and fibrosis.

This can lead to **kidney disease** or **kidney failure**. There is also evidence that high uric acid levels alone can hurt your kidneys, aside from the damage caused by kidney stones.

SHOULD I BE TESTED FOR KIDNEY DISEASE?

Yes. Gout puts you at risk for kidney disease and kidney failure. Ask your healthcare professional for these two simple tests:

- **eGFR (estimated glomerular filtration rate)** is a blood test

that checks how well your kidneys are filtering waste products from your blood.

- **UACR (urinary albumin to creatinine ratio)** is a urine test that shows if protein (albumin) levels are too high, which may mean kidney damage.

WHO IS AT RISK FOR GOUT?

It is not fully known why some people are more likely to get gout, but some things can increase your risk.

- **Gender and age.** Gout is more common in men than women up to age 60. In men, it usually happens between the ages of 40 and 60. In women, it usually happens after **menopause**.
- **Family background.** You are more likely to get gout if other members of your family have it.
- **Lifestyle.** Being overweight and drinking too much alcohol can put you at risk for gout. The more alcohol you drink, the higher your risk.
- **Diet.** Drinking sugary drinks or eating too much red meat, organ meat, and some types of seafood can put you at risk.



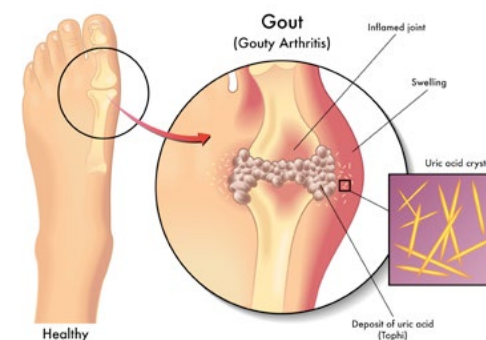
- **Medicine.** You may have a higher risk if you take certain medicines, such as water pills (called **diuretics**), low-dose aspirin, and some **anti-rejection drugs** used by people who have had a **kidney transplant** or other organ transplant.
- **Recent surgery or trauma.** Surgery, radiation therapy, or a sudden, severe illness can trigger a gout attack.
- **Other health problems.** Certain health problems can

cause higher levels of uric acid in the blood. These include kidney disease, kidney failure, **high blood pressure**, **diabetes**, and other disorders.

IS MY RISK FOR GOUT HIGHER IF I HAVE KIDNEY DISEASE?

Yes. Your kidneys do many important jobs that keep you healthy. Among other things, they balance your body's fluids, help

make red blood cells, and clean waste products from your blood. When you have kidney disease, it means your kidneys are damaged. They cannot do these jobs as well as healthy kidneys. They cannot remove enough waste products like uric acid from your blood. As a result, your uric acid levels can get too high, and gout can happen.



CAN GOUT BE TREATED?

Gout is a serious disease, but it can be treated. Over time, treatment will help gout flares be less painful, happen less often, and even stop coming back (called **remission**). Treatment usually involves:

- **Keeping uric acid (or serum urate) levels in check.** Having your serum urate levels checked regularly is very important. Most people with gout need to keep uric acid levels under 6 mg/dL. Some people with severe gout or tophi may need to keep uric acid levels even lower.
- **A healthy lifestyle.** This may include regular exercise, losing weight, limiting purine-rich foods such as red meat and shellfish, avoiding alcohol and sugary drinks, and not smoking.

- **Taking medicine.** A healthy lifestyle is important, but may not be enough to control gout. Most people will need special medicine to:
 - Reduce pain during a gout attack
 - Lower the level of uric acid over time and help keep future attacks from happening

There is no single treatment that is right for everyone. Your treatment choices will depend on many things, including how well your kidneys work and whether you have other health problems.

IF I HAVE KIDNEY FAILURE, WILL MY DIALYSIS TREATMENT CONTROL GOUT?

Dialysis is a process that filters (cleans) your blood when your

kidneys no longer do this well. It is one of the basic forms of treatment for kidney failure. Dialysis cleans waste products like uric acid from your blood, but may not remove enough to stop gout. Most people on dialysis with gout still need special medicine to keep uric acid levels in check.

WHICH MEDICINES ARE USED TO TREAT GOUT?

Medicine to reduce pain during a gout attack includes:

- **Colchicine** is a pill that helps reduce pain and swelling from gout. It works well, but can cause side effects in some people, such as nausea, vomiting, or diarrhea. People with kidney disease or kidney failure can use this medicine, but you will be given (prescribed) a lower dose to prevent the side effects of colchicine.
- **Corticosteroids** can be given to reduce pain and swelling. They can be taken as a pill, or given as a shot in your blood or directly into the affected joint.
- **Nonsteroidal anti-inflammatory drugs** (also called NSAIDs) are pills that help reduce pain and

swelling. Examples include aspirin, ibuprofen, and naproxen. NSAIDs can make your kidney disease worse, so people with kidney disease or kidney failure should not take them without consulting their healthcare provider.

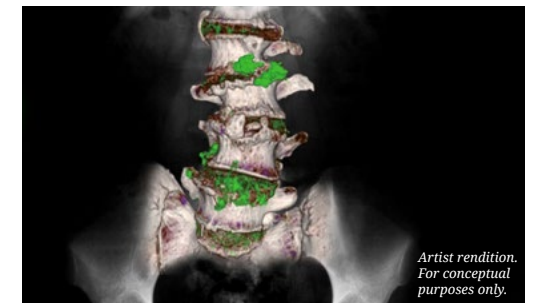
Medicines to help lower uric acid levels in order to help prevent future attacks include:

- **Allopurinol** and **Febuxostat** are considered “first-choice” medicines. Both pills work by helping to block uric acid from being produced. People with kidney disease may require a dose adjustment.
- **Probenecid** is a pill that helps your kidneys remove uric acid from your body. However, it is not recommended for people with moderate or advanced kidney disease.
- **Pegloticase** is given as an **IV infusion** into your blood to help break down uric acid in your body. An IV infusion means the medicine is sent directly into a vein using a needle or tube. Pegloticase can be useful for people with severe gout or those who do not respond to other treatments. It is the most powerful medicine to lower uric acid and can be used in

patients with kidney disease without adjusting dosage.

WHAT ELSE CAN I DO TO PREVENT GOUT FLARES?

- Exercise and keep a healthy weight
- Stay hydrated. Drinking water can help flush uric acid from your system, but some people with kidney failure must limit how much they can drink. Ask your healthcare provider how much fluid you can have.
- Eat healthy meals with plenty of fruits, vegetables, whole grains, and low-fat dairy products
- Do not smoke
- Limit alcohol, especially beer
- Limit organ meats, red meats, and shellfish
- Limit foods and drinks that are high in sugar, especially high fructose corn syrup
- Take all your medicines as instructed



SUMMARY

- Gout is a form of arthritis that causes joint pain and swelling. It is a serious disease that requires treatment.
- Gout happens if a substance called uric acid gets too high in your blood and crystallizes. Having high levels of uric acid in your blood is called hyperuricemia.
- High levels of uric acid can harm your kidneys and lead to kidney disease or kidney failure.
- People with kidney disease or kidney failure have a higher risk for gout.
- Treatment for gout usually includes lifestyle changes, diet, and taking medicine.
- With treatment, most people can control painful symptoms and enjoy a normal lifestyle.

WORDS TO KNOW

Anti-rejection medicine:

Medicine taken to keep the body from rejecting a newly transplanted organ.

Arthritis: An inflammation of the joints that usually causes pain.

Diabetes: A disorder in which the body either cannot make insulin or cannot use it properly. Insulin is a hormone that controls how much sugar is in your blood.

Dialysis: A process that filters (cleans) your blood when your kidneys no longer do this well. It is one of the basic forms of treatment for kidney failure.

Diuretics: A type of medicine that helps your body get rid of unneeded water and salt.

Gout: A form of arthritis that causes pain and swelling.

High blood pressure: The force of blood against the wall of your blood vessels. High blood pressure means the force is consistently higher than what is healthy.

Hyperuricemia: An excess of uric acid in the blood.

Infection: The presence of an organism like bacteria that causes pain, swelling, redness, and sometimes fever.

Inflammation: Swelling that happens when parts of your body become infected or injured.

IV infusion: When medicine is given to you directly into a vein using a needle or tube.

Kidney disease: The loss of some or all of your kidney function.

Kidney failure: The stage of kidney disease at which dialysis or a transplant is needed to stay alive.

Kidney transplant: An operation that places a healthy kidney in your body. It is one of the basic forms of treatment for kidney failure.

Menopause: When a woman stops having menstrual periods forever.

Remission: Disappearance of the signs and symptoms of a disease. Remission can be temporary or forever.

Symptoms: A physical or mental change that indicates illness or disease.

Tophi: A symptom of gout; often swollen, bulbous growths on joints just under the skin.

Uncontrolled gout: A serious disease that can build up in bones and joints and impact organs. If left untreated, gout attacks can become worse and more frequent.

Uric Acid: A normal waste product that comes from the breakdown of your body's cells and certain foods.

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