

## Gout

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### **What is gout?**

Gout is a medical condition in which some people with high levels of a substance called uric acid develop crystal deposits in the body's tissues, usually in and around joints. The body's immune system reacts against these crystals (white blood cells eat them) and causes inflammation and pain. Each of these episodes of inflammation and pain is called an acute gout attack. After several years of crystal build-up a tophus will form. A tophus is a nontender collection of uric acid crystals visible through the skin located on the fingertips, palms, soles, or sometimes on the ear. People with tophi have what is called tophaceous gout, indicating a more chronic form of gout.

### **What is uric acid?**

Uric acid is a waste product from the breakdown of purines found in our diet. Normally, uric acid is made, dissolves in the blood, travels to the kidney and gets excreted into the urine without any difficulties. Some people with gout have a problem with making too much uric acid, while others have problems excreting the uric acid in their urine.

### **How did I get gout?**

In some cases, gout is hereditary, meaning it was passed down to you from your parents in your DNA. Other people have no family members with gout, but are unfortunate enough to develop gout on their own. Just because you have gout, does not necessarily mean that you will pass it on to your children. Gout is not contagious, so you can't catch it from someone else and you can't spread gout from one joint to another by touch. People at risk for gout include men 30-50 years old, women 50-70 years old, and people with repeat joint trauma, arthritis, peripheral vascular disease and hypothyroidism.

### **Does everyone with increased uric acid levels develop gout?**

No. Some people can have high levels of uric acid all their lives and never develop gout. Actually, less than 20% of people with high uric acid levels develop gout. No one is sure why some people with high levels of uric acid get gout and some don't.

### **What are the symptoms of gout?**

The first episode of gout classically occurs at night. The person awakens with severe pain, redness, warmth, and swelling to the affected joint, with or without fever. The base of the big toe is the most common site to develop gout (50% of people), but the instep, ankle, heel, knee, wrist, fingers, and elbow are also places some people develop gout. The joint can be so sensitive that even the weight of a blanket touching it can be too much. The worst pain occurs in the first few hours after the start of the attack, and then the pain gradually improves until it completely resolves in a few days to several weeks. A second attack will usually happen within 2 years, usually in the same joint, but it can occur in a different joint also. If gout is untreated, the attacks can become more frequent and last longer.

### **How is gout diagnosed?**

Gout can usually be diagnosed in your doctor's office. Your doctor will need to get a sample of the fluid from your joint. This is done simply by numbing the skin, inserting a needle into the joint space, and withdrawing fluid from the joint. If you have gout, the fluid will either show crystals alone or crystals inside white blood cells when studied under a microscope. Your doctor may also want to take blood and urine samples so he/she can tell if your body is making too much uric acid or if your kidneys just aren't getting rid of it. This will help your doctor develop a treatment plan for you. If you have tophi, a sample of the tophi can also be taken to make the diagnosis of gout.

### **How do you treat gout?**

Unfortunately, there is no cure for gout, but with proper treatment, you can control the number of attacks that you have. The treatment depends on if you are having an acute gout attack (the painful time) or if you are between attacks (pain-free). The pain in acute attacks is caused by the inflammation (those hard-working white blood cells unsuccessfully trying to eat and destroy those crystals), so the treatment is non-steroidal anti-inflammatory drugs (NSAIDS), such as indomethacin or naproxen. These medicines work great for most everyone, but should not be used if you have ulcers, bleeding disorders, kidney problems or if you are on Coumadin (warfarin). If you are unable to take NSAIDS, you can use colchicine pills. Colchicine can cause diarrhea in some people, especially the elderly, but it works great for gout attacks. Intravenous colchicine is available, but is used only if you have multiple joints involved and even then you will need to be hospitalized and be followed by a physician who is experienced in using intravenous colchicine. Sometimes, patients need a steroid injection into the affected joint or oral steroids for acute attacks, if they can't tolerate NSAIDS or colchicine.

For preventing future attacks, there are several choices. Colchicine can be taken on a longer basis to prevent future attacks. Other choices depend on the results of your work-up, that is, why you have too much uric acid. If your body produces too much uric acid, then Allopurinol or Febuxostat could work well. They both work to prevent uric acid formation by preventing the breakdown of purines into uric acid.

If you don't seem to be excreting enough uric acid from your body by way of your urine, then Probenecid, Sulfapyrazone, Femofibrate or Losartan might work for you. They all help uric acid get to your urine and stay there. Losartan is also a medicine for high blood pressure, so if you have gout and high blood pressure, this medicine might be a good choice for you. If your doctor decides these medicines are right for you, he/she will start you out on a low dose and work you up to the proper dose slowly, since some people can develop an acute attack of gout just from starting treatment. It's important that you drink plenty of fluids while taking these medicines to help keep the uric acid dissolved, otherwise you could possibly develop kidney stones (these medicines are not meant for people who are prone to kidney stones anyway).

Another option is Uricase, a medicine which is still experimental but helps make uric acid more soluble (keep it dissolved). This means uric acid is less likely to form crystals that deposit in joints or cause kidney stones.

In some cases, tophaceous gout may require surgery if the tophi are causing complications like infection, pain, compression or deformity.

### **Are there any changes I can make to my diet to help?**

Yes. Dietary changes make a small but important contribution in helping to control your gout. Decreasing purine-rich foods will help. These foods include sweetbreads, liver, kidney, brain, sardines, anchovies, herring, mussels, codfish, trout, scallops, haddock, mackerel, dried beans and peas, and shellfish. Try to limit the amount of animal protein you consume to less than 6 ounces of fish, meat or poultry. Limit alcohol (beer or hard liquor) to 2 drinks per day for men, and 1 drink per day for women. You should really avoid all alcohol if you are serious about controlling your gout—alcohol causes dehydration and can increase production of uric acid. Instead of alcohol, try to drink 10-12 8-ounce glasses of water per day to help dilute uric acid and prevent crystal formation. Also, try to decrease your calorie intake if you are 30 pounds or more overweight, since you are at increased risk of gout attacks. Try to lose the weight slowly, since fasting can also cause gout attacks.

### **What medicines can cause gout?**

Some medicines that can cause gout include: thiazide diuretics, loop diuretics, cyclosporine, low-dose aspirin, ethambutol and pyrazinamide (TB medicines), warfarin, levadopa, methoxyflurane, laxative abuse, niacin, and tacrolimus. This is not a complete list, but these are the more common medicines known to cause gout attacks. Ask your doctor if any of your medicines can be causing gout attacks.

### **What are the complications of gout?**

If gout is untreated, the joint may become permanently deformed and tophi may actually destroy the nearby bone. Also, 20% of people with untreated gout develop kidney stones either solely from uric acid crystals or from calcium deposits around a uric acid center. These stones are due to increased uric acid excretion, decreased urine volume (not drinking enough fluids) or low pH of the urine. The other complication is kidney impairment leading to eventual kidney failure. The same crystals which deposit in the joint can also deposit in the kidney tissue, causing inflammation and fibrosis of the kidney. This is usually seen in people with high blood pressure, diabetes, obesity, atherosclerosis, hyperlipidemia, or lead intoxication (from moonshine).

### **Why should I see the doctor about my gout?**

If gout is untreated, you could have problems with the complications listed above. Also, you may not have gout! Septic arthritis (a joint infection) can also present as a red, swollen, painful joint. Pseudogout (calcium pyrophosphate dihydrate crystal deposition disease) can also present the same way, although large joints are more likely to be affected. Also acute rheumatic fever, rheumatoid arthritis, and osteomyelitis can all present similarly, so only your doctor can make the appropriate diagnosis and get you the treatment you need.

### **How long do I have to take these medicines?**

Usually, the anti-inflammatory medicines are taken for 5-7 days. The pain begins to subside after 24 hours and resolves in 48-72 hours. Then the NSAIDs can be stopped after a couple of pain-free days. The prophylactic medicines can usually be stopped after 6-12 months of having normal blood levels of uric acid if you don't have tophi. If tophi are present, the duration of medicines is uncertain. Never stop taking medicines without the guidance of your doctor.

### **Resources:**

1. Becker, Michael A., MD, Patient information: Gout, UpToDate.
2. Becker, Michael A., MD, Clinical manifestations and diagnosis of gout, UpToDate.
3. Becker, Michael A., MD, Treatment of gout, UpToDate.
4. American College of Rheumatology, <http://www.rheumatology.org/patients/factsheet/gout.html>
5. Shiel, William C. Jr, MD, Gout and Hyperuricemia, MedicineNet.com, <http://www.medicinenet.com/Gout/article.htm>
6. Arthritis Foundation, Gout, <http://www.arthritis.org/AFStore/StartRead.asp?idProduct=3323>
7. Mayo Foundation for Medical Education and Research, Gout, <http://www.mayoclinic.com/invite.cfm?id=DS00090>
8. Mayo Foundation for Medical Education and Research, Gout: Reducing purines in your diet, <http://www.mayoclinic.com/invite.cfm?id=HQ00765>
9. National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), <http://www.niams.nih.gov/hi/topics/gout/gout.htm>
10. Arthritis Foundation, Safe Foods for Gout, [http://www.arthritis.org/resources/arthritisoday/2003\\_archives/2003\\_09\\_10\\_ontcall\\_p4.asp](http://www.arthritis.org/resources/arthritisoday/2003_archives/2003_09_10_ontcall_p4.asp)