

# about Gout

What You Need to Know about Gout & Uric Acid

## Plus:

- How to gain control of symptoms
- A gout-friendly eating style
- Lifestyle changes that can help prevent future attacks



**GOUT & URIC ACID**  
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A photograph of an older couple walking together on a paved path. The woman, on the left, is wearing an orange sleeveless top and black shorts, and is smiling. The man, on the right, is wearing a grey t-shirt and black shorts, and is also smiling. He is holding a clear plastic water bottle in his left hand. They are surrounded by lush green trees and foliage, suggesting a park or a wooded area. The lighting is bright and natural, indicating it might be daytime.

“We’re doing  
everything  
we can—  
and more!”



## Introduction

More than 8.3 million people in the United States are living with gout today. Gout is one of the most painful forms of arthritis and is the source of disability for many. This brochure is designed to help you understand the disease and how to gain control of it. With the right treatment, most people who suffer with gout are able to control their painful symptoms and maintain their normal lifestyle.

As with all medical conditions, patients should work with their physician for a treatment plan that's right for them. For additional resources and the latest information, visit **[www.gouteducation.org](http://www.gouteducation.org)**, our companion website.

## What is Gout?

Gout is a form of arthritis. It is caused by an accumulation of uric acid crystals in the joints. The crystals form when there are abnormally high levels of uric acid in the body.

Gout is one of the oldest known diseases, known as far back as 4,000 years ago. Myths about its causes and treatment are common. One of the most popular myths is that gout is “the disease of kings” and other rich people and is caused by overindulgence. Today, gout is among the fastest growing diseases in the United States. Diet does play a role in the development of gout, but so do genetic factors and metabolic problems such as high blood pressure, diabetes, obesity and kidney disease.

A gout attack is characterized by sudden and severe episodes of pain, warmth and swelling in a joint. Gout typically strikes the large joint of the big toe, but may also affect other joints such as the instep, ankle, heel, knee, Achilles tendon, wrist, finger or elbow. When a person has had untreated gout for a long time, more than one joint may be involved.



## Why the Big Toe?

Half of first-time acute attacks strike the big toe. Ninety percent of patients will suffer gout of the big toe at some point during the course of the disease. Some believe that the big toe is most vulnerable because of the pressure it receives from walking. Others believe that uric acid crystals form more readily at cooler temperatures, and that the big toe is cooler than the central part of the body.

## Is Severe Pain Typical?

A gout attack is extremely painful. Some people report it feels like the affected joint is caught in a mechanical device. On a pain scale of 1 to 10, most gout patients rank their pain as a 9 or 10. Medical professionals generally agree that pain that a patient ranks as a “5” requires pain medicine.

## What is Uric Acid?

Everyone has uric acid in their body. It is naturally present in small amounts. It is a waste product that results from the body's normal processes. Cells die and release chemicals called purines. Uric acid is made from purines. When we eat or drink high-purine foods, uric acid levels go up. High uric acid levels are part of what triggers a gout attack.



Normally, uric acid is dissolved in the blood and passes through the kidneys and out into the urine. But when more uric acid is produced than the kidneys can get rid of, high uric acid levels (known as hyperuricemia) develop. High uric acid may turn into crystals

in the joints. When uric acid crystals accumulate in the joints they can make for a painful attack of gout.



## What Are the Risk Factors for Gout?

There are a number of risk factors for gout. The more risk factors a patient has, the greater the risk of the disease.

- With certain exceptions, gout develops in people age 45 or older. It affects men more than women, although once women are post menopausal, their rates of gout increase almost but not quite to the same level as men.
- Obesity – someone with a Body Mass Index (BMI) of 30 or higher is classified as obese. Visit [www.gouteducation.org](http://www.gouteducation.org) for a link to a BMI calculator.
- Untreated high blood pressure, diabetes or high cholesterol
- Joint injury
- Use of certain medicines, especially diuretics or water pills and certain anti-rejection medications used in transplant patients
- Kidney disease, which can come from high blood pressure or diabetes
- A high-fructose diet, including sweetened soft drinks
- Genetics – one out of four people with gout has a family history
- Hyperuricemia – normal range for uric acid is 2-5 mg/dL

## What Can Trigger an Attack?

- Regular, excessive alcohol intake, especially beer or binge drinking
- Eating large amounts of purine-rich foods, especially red meat, organ meat and shellfish
- Crash diets, especially high-protein fad diets
- A diet high in fructose, including soft drinks and fruit juices
- Starting a uric acid-lowering treatment medicine (even though it may be the correct long-term therapy)
- Surgery or a sudden, severe illness that puts a person to bed for a time
- Radiation therapy

## I What Are the Treatment Options?

Through proper treatment and understanding of the disease, patients can avoid painful episodes and long-term joint damage and disability due to gout, and maintain their normal lifestyle as well.

The goals of treatment are to:

- Ease the pain associated with acute attacks
- Prevent future attacks
- Avoid the formation of uric acid crystals, tophi (crystals under the skin) and kidney stones
- Reduce the risk of long-term damage to affected joints

For most patients, medications and some changes to diet are the most effective way to control gout.

## Medications to Treat Gout

### I Treatments to Relieve Pain and Reduce Swelling in Acute Gout

#### **Colchicine**

Taken orally, colchicine may be most effective when taken within the first 12 hours of an acute attack. A common dosing schedule is to take two 1.2 mg tablets together at once, then a third tablet one hour later followed by one tablet three times per day over the next week. Occasionally, patients may have side effects such as nausea, vomiting, abdominal cramps or diarrhea. *Example: Colcrys*

#### **Glucocorticosteroids (cortisone)**

Taken orally or injected, cortisone quickly suppresses the inflammation of an acute attack. *Examples: Medrol, Deltasone (Prednisone), Kenalog*

#### **Nonsteroidal anti-inflammatory drugs (NSAIDs)**

Taken orally, NSAIDs reduce the inflammation caused by deposits of uric acid in the body. *Examples: Aleve, Advil, Celebrex, Indocin, Motrin, Naprosyn*



## Treatments to Lower Uric Acid Levels and Prevent Future Attacks

### **Allopurinol**

Taken orally, allopurinol decreases the body's production of uric acid and is recommended for patients with a history of kidney stones or tophi. *Examples: Lopurin, Zyloprim*

### **Febuxostat**

This medication is taken orally and decreases the body's production of uric acid. It can be taken by people with mild to moderate kidney or liver disease. *Example: Uloric*

### **Pegloticase**

Pegloticase is an intravenous infusion of an enzyme used to dissolve gout crystals in advanced and difficult to control gout. *Example: Krystexxa*

### **Probenecid**

Taken orally, this medication increases the kidneys' ability to remove uric acid from the body. It is not recommended if there is a history of kidney stones or renal impairment.

*Examples: Benemid, Probalan*

### **Clinical Trials**

There are also opportunities to participate in clinical trials. For more information about factors to consider and a list of clinical trials currently enrolling patients, visit [www.gouteducation.org](http://www.gouteducation.org).

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Most experts agree that lowering a person's uric acid level to less than **6.0 mg/dL** is necessary to prevent gout flares and other problems from elevated uric acid.

Your physician will measure and monitor your uric acid level through a simple blood test. A treatment plan that includes a combination of medication and lifestyle adjustments can lower uric acid levels to below **6.0 mg/dL**. It may take several visits to get to this goal but most gout patients will get there.

Follow up with your physician until you find a treatment that is right for you. Be sure to mention all of the over-the-counter products you take, including herbs and vitamins.

## What Will Help Decrease the Pain of an Acute Attack?

- Avoid alcohol.
- Rest the affected joint for 24 hours after the initial attack or until the pain eases.
- Elevate painful joints.
- Apply cold packs wrapped in towels to the affected joints for 20-30 minutes several times per day.
- Relieve painful inflammation by taking one of the medications listed on page 6. The sooner a person takes the medicine, the faster the relief will come. Untreated gout flares take three to four days to go away at first. After many years, it may take longer.
- Many of the medicines listed require a prescription. There are also over-the-counter, anti-inflammatory drugs like Advil or Aleve, but they need to be taken in a higher dosage than the OTC doses to work. If you have high blood pressure, heart disease, kidney disease, ulcers, heartburn or bruise easily it is best to check with a physician or pharmacist first.

NOTE: Do not take high doses of aspirin, which may abruptly change uric acid levels and make symptoms worse.

## Is There a Way to Prevent and Minimize Future Attacks?

**Yes.** First and foremost, patients should understand what triggers gout for them and what and how to take medicine to break a flare. Gout sufferers should have a “gout flare” plan and keep those medicines on hand.

For a first-time flare, getting to an emergency room or urgent care clinic is best unless a doctor’s appointment is readily available. Seeking or beginning treatment when the symptoms first occur will make things go more smoothly and resolve pain faster. Maintaining a healthy diet, exercising regularly and maintaining healthy body weight are all important to help prevent and minimize gout attacks.





## Is There a Gout Diet?

Diet plays a role in the management of gout. For most people with gout, a healthy, balanced diet will be enough. But understanding the role dietary modifications can make is useful.

### Low-purine foods to include in a balanced diet

- Low-fat dairy products
- Fresh vegetables
- Fresh fruit
- Nuts
- Grains

Foods rich in purines or large amounts of foods containing a moderate amount of purines should be avoided; they increase the amount of uric acid in the blood and may trigger a gout attack.



Some dietitians recommend creating a gout and lifestyle diary to track foods that may trigger an attack. Work with your physician or other healthcare professional on an eating plan appropriate for you.

### High-purine foods to avoid

- Beer and grain liquors
- Red meat
- Seafood, especially shellfish like shrimp and lobster
- Food and drinks sweetened with high-fructose corn syrup

A 2004 study published in the *New England Journal of Medicine* found that each additional serving of purine-rich red meat was associated with a 21 percent increase in the risk of gout in men over age 40. The study, conducted by Dr. Hyon Choi and colleagues, also found that each additional weekly serving of seafood was associated with a 7 percent increase in risk. Protein, purine-rich vegetables and moderate wine drinking were found not as harmful to gout sufferers as once believed. In addition, the study found that low-fat dairy products, specifically skim milk and low-fat yogurt, may actually decrease the risk or provide some protection against gout.





## High-fructose Foods to Limit

Fructose is a naturally occurring simple sugar found in fruit, vegetables and honey. It has become an additive in many foods and drinks. There is a correlation between a diet high in fructose content and gout. In the typical American diet, high-fructose corn syrup is added to many foods. This is the main source of the “high-fructose epidemic” we are experiencing.

The following foods/drinks should be limited:

- All sweetened soft drinks, juices and foods with added high-fructose corn syrup on the label, especially in sodas, enriched fruit drinks, many breakfast cereals, many store-bought baked goods, many ice creams and candy.
- Processed foods such as those found at “fast food” restaurants

The following foods have naturally occurring high fructose and should also be limited to one to two cups per day:

- |           |            |
|-----------|------------|
| • Apples  | • Cherries |
| • Dates   | • Grapes   |
| • Peaches | • Pears    |
| • Plums   | • Prunes   |



## **Are There Other Lifestyle Changes That Will Make a Difference?**

### **Drink Less Beer and Other Alcohol**

Beer is very high in purines and like other grain-based alcohol can increase the amount of uric acid in your body.

### **Take Medicine as Directed**

Work with your physician to find the right medication for you to effectively manage your gout; there are many. Always take your medication as directed. If there are problems with the medicine, call the doctor or medical professional who prescribed it. Your pharmacist can answer questions you may have about possible drug interactions.

### **Keep Track of Your Uric Acid Level**

Get your uric acid level checked at least twice per year. The goal should be to have your uric acid level below **6.0 mg/dL**.

### **Exercise Regularly**

Adults should engage in moderate-intensity physical activities for at least 30 minutes most days of the week, according to the Centers for Disease Control and Prevention. Moderate activity includes activities such as walking briskly or swimming laps, mowing the lawn, dancing or bicycling on level ground. Increasing the intensity or the amount of time you are physically active can have even greater health benefits and may be needed to prevent weight gain. Develop an appropriate exercise program that is tailored to your body, lifestyle and needs. Always check with your physician before starting any new or vigorous exercise program.

### **Maintain a Healthy Body Weight**

An obese person is four times more likely to develop gout than someone with ideal body weight. Avoid crash diets since fast or extreme weight loss can increase the amount of uric acid in the body. High-protein diets may be a problem for people with gout because of the high-purine foods on many of the diets, especially red meat and shellfish.

### **Stay Hydrated**

Many dietitians recommend consuming at least 64 ounces of water daily, and more if you are exercising. Water helps the body transport nutrients and waste, regulates body temperature and cushions joints and tissues. Research also suggests that drinking adequate water might guard against kidney stones and constipation. Some experts believe that drinking water can help remove uric acid from the bloodstream. Avoid sports drinks sweetened with high-fructose corn syrup.

### **Vitamins**

The risk of gout appears to be lower in men taking daily vitamins. Vitamin C may be a useful supplement in the 500-1000 mg per day range.







## Is Gout Serious?

Yes. If left untreated, gout can lead to **permanent joint damage and destruction of tissue**. There are other disorders associated with untreated gout, which is why gaining control of the disease early is important.



Extensive destruction of joints and large tophi can lead to deformities, particularly of the hands and feet, and lead to loss of normal use.

**Kidney stones**, which can also be extremely painful, are often composed of uric acid in patients with gout. They may block the urinary tract and if left untreated can result in infection and kidney damage. About one out of five gout sufferers will develop kidney stones.

Hyperuricemia and gout can be associated with **decreased kidney function**.

**Obesity** is a condition that exists when someone carries excess body fat that is severely out of proportion to their height.

**Diabetes** is a disease in which blood glucose (sugar) levels are above normal due to either a lack of insulin in the blood or resistance to the insulin. Some research suggests that insulin resistance may even play a role in the development of gout and that hyperuricemia may worsen insulin resistance. The recommended modifications to ensure a healthy diet and appropriate activity level for managing gout are generally good for preventing or treating diabetes.

**Heart problems**, including high blood pressure, blocked arteries and heart failure are also associated with gout. Hyperuricemia alone has been associated with a higher risk of death from these conditions.



## **How Can I Make the Most Out of a Visit to My Physician?**

### **Be ready to answer the following questions:**

1. What are the names and dosages of all medicines you take? Include prescriptions and OTC medicines for treatment of gout and other conditions.
2. What joints are affected?
3. When did you first notice the pain?
4. Did the pain come on suddenly or gradually?
5. What was the pain like?
6. Was the pain worse during the day or at night?
7. Was the area hot, red or swollen?
8. Have you had similar episodes in the past? If so, how long did they last? When did they occur?
9. Did you experience other symptoms such as fever, general achiness or a loss of appetite at the time you noticed the pain?
10. Have you noticed any lumps under your skin, especially on the ridge of the outer ear, the fingers, elbows, toes or around the Achilles tendon (connects the heel bone to the lower leg)?
11. Have you ever had kidney stones?
12. Does anyone in your family have gout?

### **You may want to ask your physician the following questions:**

1. Are there any lifestyle changes I can make that might reduce my risk of developing gout or having a gout attack?
2. Will any of the current medications I am taking increase my risk for hyperuricemia?
3. How does medication work to help my gout?
4. How and when should I take my medication?
5. Could gout medication interact with other medications I am taking?
6. What should I do if I miss a dose?
7. What should I do if my symptoms are not relieved while taking gout medication?
8. What is my uric acid level?

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The Gout & Uric Acid Education Society is a nonprofit group of healthcare professionals whose mission is to educate the public and healthcare community about gout and the related healthcare consequences of hyperuricemia, with the aim of improving the quality of care and minimizing the burden of gout. For more information on our programs and opportunities for involvement, visit our website at [www.gouteducation.org](http://www.gouteducation.org) or email us at [info@gouteducation.org](mailto:info@gouteducation.org).

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