

Johns Hopkins Health Alerts Arthritis Diet and Gout

Gout is one of the most painful yet treatable forms of arthritis, but it's often not treated properly. Today, it's estimated that two to five million Americans have gout, with most male victims suffering a first gout attack between 40 and 50 years of age. Women develop gout later, in the years following menopause. With Americans living longer and growing stouter, both of which are linked to gout's prevalence, it's important that the disease be diagnosed promptly and accurately, and treated effectively, to prevent disability, joint damage, lost workdays, and diminished quality of life.

Gout Qs and As

Q. Is gout an “old man’s disease?”

A. Gout is that rare example where the myth is true, though for reasons that people throughout history could not have surmised. It is true that gout remains predominately a disease of men (it is eight times more prevalent in men than women), and disease prevalence increases with age. Men over 30, for instance, represent one percent of all attacks, while men over age 65 account for approximately 10 percent of all attacks. The male predominance has to do with elevated uric acid levels in the bloodstream. In men, uric acid levels begin to rise after puberty, while in women, uric acid levels do not begin to rise until after menopause. This suggests that the hormone estrogen may have a protective effect in women.

Q. What causes gout?

A. Gout is caused by excess levels of uric acid in the blood. When this excess urate is present, it will often crystallize in a joint, typically the big toe, leading to inflammatory arthritis. Uric acid is a substance that forms when the body breaks down purines, components of DNA that occur naturally in the tissues of the body. It is part of the normal process in which tissues are replaced.

Purines are also present in many foods. In the process of digestion, purines are metabolized to form uric acid. For most people, uric acid does not pose a significant problem, since the kidneys simply filter it through the normal renal processes. Approximately 90 percent of people who have gout develop excess levels of uric acid because they can't excrete it in their urine due to either to the genetic make-up of the kidney or to the kidneys not working effectively. The other 10 percent of gout patients simply overproduce uric acid.

Thiazide diuretics, which are often used to treat high blood pressure, can also cause gout by increasing uric acid levels. Low doses of aspirin can do the same, as can anti-rejection medication used by people who have had organ transplants. In addition, untreated high blood pressure, diabetes, and elevated cholesterol levels may predispose a person to gout attacks.

After a few years of gout without proper diagnosis and treatment, uric acid crystals begin to form large tophi—unsightly deposits that appear to be lumps just under the skin, typically on the ear, fingers, and toes. If left untreated, tophi can severely damage a joint.

Q. Are dietary overindulgences and increased alcohol consumption the main causes of gout?

A. For most people, dietary indulgence is not the main cause of gout. As with many diseases, the problem is the underlying genetic condition that predisposes certain people to experience the accumulation of too much uric acid (a condition known as hyperuricemia). Diet, however, does exert an influence for those predisposed to the disease. If you have a genetic predisposition for gout and have higher than normal levels of uric acid to begin with, a poorly-balanced diet (low consumption of fruits, vegetables, and dairy products, and high consumption of fatty meats) will add to the problem, increasing your risk for a gout attack by about three percent.

Q. Which foods most likely contribute to gout attacks?

A. Historically, gout patients have been advised to avoid all foods that are rich in purines because they are more likely to cause or aggravate gout. These include organ meats, such as liver, kidneys, brains, and sweetbreads, as well as sardines, anchovies, clams, and purine-rich vegetables (peas, beans, cauliflower).

In order to get a better picture of the effects of purine-rich foods on gout, Dr. Hyon K. Choi, a rheumatologist at Harvard Medical School, undertook a study that was published in a recent issue of *The New England Journal of Medicine*. Dr. Choi's research highlighted several dietary considerations for those concerned with staving off gout. By taking a comprehensive look at a broad range of dietary factors, he was able to confirm the long-held—yet never proven—suspicion that consumption of certain purine-rich meats and seafood increases the risk of gout.

Over the course of twelve years, Dr. Choi and his fellow researchers at Massachusetts General Hospital and Harvard University tracked the dietary habits of 47,150 men aged 40 through 75 with no history of gout, comparing those who developed gout (730) during the course of the study with those who remained gout-free. After adjusting for weight and for any medications the men were taking, Dr. Choi and his colleagues reached the following conclusions:

- **Meats.** Those who consumed meats with the highest purine concentration (specifically organ meats, beef, pork, and lamb) were 40 percent more likely to develop gout than those who ate the least.
- **Seafood.** All types of seafood are high in purines. Those who ate the most seafood (including canned tuna, shrimp, lobster, and scallops) were 50 percent more likely to develop gout than those who ate the least.
- **Vegetables.** Vegetables high in purines, including peas, beans, mushrooms, cauliflower, and spinach, were not associated with gout attacks.
- **Dairy.** The incidence of gout decreases with increasing intake of dairy products. Low-fat dairy products may have protective benefits, most likely due to the proteins in milk that help reduce uric acid levels. Those who drank one or two glasses of skim milk per day were 48 percent less likely to develop gout.
- **Alcohol.** Those who consumed the least alcohol also tended to follow a low-purine diet with a low-fat dairy component, thereby recording fewer gout flare-ups. (Note: Beer is the only alcoholic beverage acknowledged to have a high-purine content. A more recent study of 50,000 men in the *Lancet* reported that beer increases uric acid concentrations in blood plasma, which may precipitate gout attacks. Moderate wine consumption was not linked to a risk of the disease in this *Lancet* study.)

