



A Guide on Gout

What is gout?

Gout is a common arthritis that causes sudden, excruciating pain and swelling in affected joints, particularly the big toe.

It is a disorder that results from high uric acid level in the blood, known as hyperuricemia. Concentrated blood uric acid crystallises and deposits in joints.

The majority of people with gout have inefficient uric acid excretion by the kidneys (due to genetics or kidney disease), therefore uric acid in the blood rises.

High uric acid level also arises as a result of a diet that is too rich in proteins, fat and alcohol.

If left untreated, joints may be damaged, resulting in deformity and disability, even after an acute attack has subsided.

Who gets gout?

- First attack occurs between the ages of 30 to 40 years old.
- Mostly men, although women may develop gout after menopause.
- Gout often runs in families due to genetic connection.
- High blood pressure, kidney stones, kidney or heart problems are common conditions that gout patients may have.
- Certain medications, leukaemia or leukaemia treatment may precipitate gout attacks.
- Other triggers include feasting, alcohol binge, and major illness (e.g. infection, heart attack or surgery).

How does gout come about?

Purine, a chemical compound found in most foods, is metabolised and degraded in our bodies into uric acid, which is then passed out in urine.

Uric acid normally exists as a soluble state in blood. In gout, the concentration of uric acid gets so high ("too thick") that crystallization into a salt (solid) occurs.

The uric acid crystal, monosodium urate, is deposited in/around the joint cartilage, tendons and other soft tissues. Due to certain triggers, the crystals cause an intense inflammatory response. Commonly affected joints are the big toe, foot, ankle, heel, and knee, usually one joint at a time. Upper limb joints like the fingers, wrists and elbows are affected at later stages.

What are the symptoms and complications of gout?

Gout is a chronic disease but gout sufferers do not have pain all the time; therefore they do not pay much attention to this illness.

They experience sudden joint pain from 'acute attacks' of gout. The first sign of a gout attack is a sudden, warm throbbing of the affected joint. Within a few hours, this can rapidly escalate into excruciating pain, accompanied by swelling and redness of the joint. The skin around the joint is very tender, sensitive and sore at the slightest touch. This acute arthritis results in difficulty in walking.

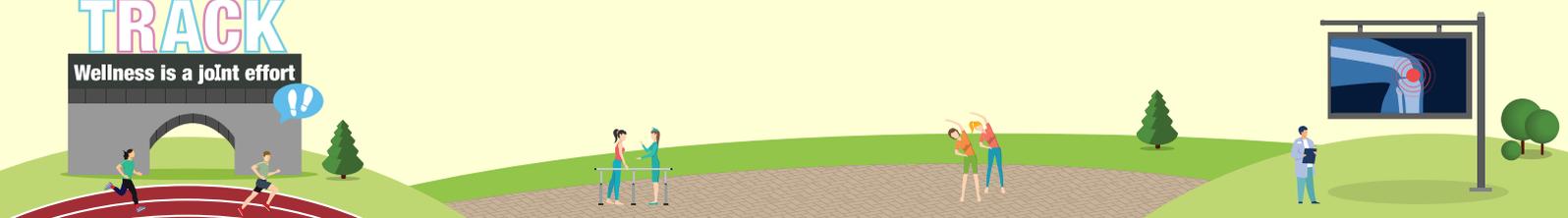
After two to five days, when the acute attack subsides, one may be quite well for months or even years, but the attacks will return. Episodes may become more frequent and prolonged.

If gout is left untreated, affected joints are destroyed, leading to continuous joint pain and loss of mobility.

Deposits of uric acid crystals, called 'Tophus' (plural - Tophi) around the joints, tendons or skin may form over time.

Uric acid crystals in the kidney / urinary system form kidney stones which may cause pain, urinary obstruction, infection and kidney damage.

Many people with gout also have hypertension, diabetes, high blood cholesterol and triglyceride (fat) and kidney problems. Their lifespan may be affected by heart disease or kidney failure.





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How is gout diagnosed?

The doctor can confirm the diagnosis by obtaining a detailed history and a physical examination. Presence of hyperuricaemia is supportive. X-rays can help in the assessment of amount of bone and joint damage but are not always needed.

The most definitive test is a joint aspiration by a doctor, where a needle is inserted in a swollen joint and a sample of the fluid is examined for the presence of uric acid crystals, but this is not often possible.

It is important to highlight that everyone has uric acid in their blood but only a small percentage of people with high uric acid will develop gout. Uric acid levels may be in the normal range in an acute gout attack.

What are the diet and lifestyle changes to control gout?

Drinking alcohol, especially beer, can trigger gout attacks. Limit sugar-sweetened drink or fruit juices.

Examples of beverages to avoid:

- Alcohol especially beer
- Sugar-sweetened drinks: soft drinks, sweetened fruit juices

Limit food high in animal source of protein / purine, especially animal internal organs, meat, fish, seafood and shellfish.

Examples of animal protein-rich foods to limit consumption:

- Offal (animal organs): liver, kidney, heart, brain
- Meat: beef, mutton, pork, poultry including duck and chicken
- Fish: anchovies, sardines, mackerel (including selar, tenggin), trout, herring, ocean perch, tuna, cod fish and eel
- Shellfish: crab, scallops, mussels, lobster, crayfish

Plant source of proteins/purine do not seem to increase the risk of gout. You do not need to restrict consumption of vegetables, grains and legumes such as soy bean, bean curd or tofu. These can be taken in moderation as part of a healthy and balanced diet.

Drink adequate water intake throughout the day (at least 2 litres per day). However, patients with heart or kidney problems may need fluid restriction, thus please check with your doctor.

What are the medications used to treat gout?

There is currently no cure for gout, but symptoms and progression can be controlled by a combination of medication and lifestyle changes.

a) Medications for acute gout attacks

NSAIDs (non-steroidal anti-inflammatory drugs) like diclofenac, (Voltaren), naproxen (Synflex), indomethacin (Indocid) or COX-2 inhibitors (Celecoxib and Etoricoxib) are often prescribed to reduce the pain, swelling and stiffness of a gout attack. Colchicine is very effective in relieving the acute pain and can be taken 2 to 3 times a day. A short course of steroids like prednisolone is used if NSAIDs or colchicine cannot be used, or if the attack is very severe. Sometimes, a combination of these drugs is used. Injection of steroid directly into the joints is often helpful. However, acute treatment only treats the symptoms but does not cure gout and repeated use of these medications leads to side effects.

b) Medications for long term gout control

To control gout in the long-term, medication is needed to lower the blood uric acid. Anyone with two or more gout attacks a year, 'tophus' deposition, joint damage or kidney stones should be considered for long term therapy. Allopurinol and Febuxostat reduce the production of uric acid. Allopurinol can cause side-effects like fever and rash. Should such side-effects occur, stop the drug immediately and contact your doctor for further advice. Probenecid and Benzbromarone increase the excretion of uric acid in the urine. Such drugs need to be taken long term, usually lifelong, in order to control the uric acid level and prevent further acute attacks. Doses of the medication should be adjusted to reach a target uric acid of less than 360 $\mu\text{mol/L}$. By about 6 months (sometimes longer), gout attacks will become less frequent and disappear. Tophus will reduce in size. Discuss the appropriate treatment with your doctor.

c) Surgery

Rarely, surgery is required to remove the infected tophus or if it interferes with joint movement or wearing of shoes etc. Tophi tend to re-accumulate unless hyperuricaemia is treated.

