

**Know Your Test: Uric Acid
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Uric acid is a natural substance produced in our body which has both good and bad side effects. Under normal concentrations, it is a very potent antioxidant which accounts for more than 50 percent of the antioxidant activity in our blood. When its levels are normal, it is beneficial. But when it is high, it precipitates into crystals and can be very harmful. In its crystal form, uric acid causes a lot of swelling or inflammation in the various tissues of the body.

Uric acid is produced by the breakdown of purines. Purines are nitrogen-containing compounds found in the cells of the body, including our DNA. As cells get old and die, they break down, releasing purines into the blood. To a lesser extent, purines may come from the digestion of certain foods. Most uric acid is removed from the body by the kidneys and is excreted in the urine, with the remainder eliminated in the stool. The uric acid test measures the level of uric acid in the blood or urine.

If too much uric acid is produced or not enough is excreted, it can accumulate in the body, causing increased levels in the blood (hyperuricemia). The presence of excess uric acid can cause gout, a condition characterised by inflammation of the joints accompanied by mild to excruciating pain due to the formation of uric acid crystals in the joint (synovial) fluid. Excess uric acid can also be deposited in the tissues such as the kidneys, leading to the formation of kidney stones or kidney problems.

The accumulation of too much uric acid is due to increased production, decreased elimination, or a combination of both. Elevated uric acid levels can occur when there is an increase in cell death, as seen with some cancer therapies or, rarely, as an inherited tendency to overproduce uric acid. Decreased elimination of uric acid is often the result of impaired kidney function due to kidney disease.

WHY GET TESTED?

Uric acid test is done to detect high levels of uric acid in the blood which could be a sign of the condition of gout, to detect high levels of uric acid in the urine in order to diagnose the cause of kidney stones, to monitor uric acid levels when undergoing chemotherapy or radiation treatment, and to monitor those with gout who are at risk of developing kidney stones.

WHEN TO GET TESTED?

One should get tested when one has joint pains or other symptoms associated with gout. People with gout mostly suffer from joint pain, mostly in their toes, but it can also occur in other joints as well. Uric acid levels are checked when one has gout or are otherwise at risk for kidney stone formation, when one had or is going to have chemotherapy or radiation therapies for cancer and when one has recurrent kidney stones.

HOW IS THE SAMPLE COLLECTED FOR TESTING?

A blood sample is obtained by inserting a needle into a vein in the arm. A 24-hour urine sample may be collected for the urinary uric acid test.

PREPARATION FOR THE TEST

No preparation is needed. However, it is advisable to discuss with the doctor about any medications being taken before having the test.

MEANING OF THE TEST RESULTS

Higher than normal uric acid levels in the blood is known as hyperuricemia and further investigation is needed to determine the cause of the overproduction or decreased excretion of uric acid. Normal ranges differ from laboratory to laboratory. Low levels of uric acid are less common than high levels and are less of a health concern. High levels of uric acid in the blood or urine may suggest:

- gout
- diabetes
- a diet high in purines
- kidney disorders
- kidney stones
- bone marrow disorders
- certain types of cancers

Low uric acid levels may suggest:

- Wilson's disease (an inherited disorder in which the tissues contain too much copper)
- Fanconi syndrome (a kidney tube disorder)
- alcoholism
- liver or kidney disease
- lead poisoning

HIGH URIC ACID LEVELS WITHOUT GOUT

Not everyone who has high uric acid gets gout. High levels of uric acid in the blood do not always lead to symptoms. This condition, known as asymptomatic hyperuricemia, is quite common. It is generally thought that this condition does not require any follow up or treatment unless the affected person is at a high risk of complications. People with a family history of gout, kidney stones or kidney disease due to hyperuricemia may receive treatment even though they are not experiencing symptoms.

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