# Uric Acid

**Prepared By**

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# What is uric acid?

- **It is the end product of metabolism of purines which are present in nucleic acids of nucleoproteins**

- **It is formed endogenously from nucleoproteins and exogenously from metabolism of purines taken in food**

- **The enzyme xanthine oxidase makes uric acid from xanthine and hypoxanthine.**

- **It is formed in liver and filtered by kidneys to be excreted in urine with little amount passes in stool.**

- **High uric acid levels in blood occur when its formation is too much or its excretion is low**

# Why is uric acid test done?

➢ **Help diagnose gout**

➢ **Check for kidney stones**

➢ **Check if medicines that decrease uric acid level are working**

➢ **Check for uric acid level in patients on chemotherapy or radiation**

# Reference values:

- **Child : 2 - 5.5 mg/dl**
- **Men : 3.5 - 7.2 mg/dl**
- **Women : 2.6 - 6 mg/dl**

# Hyperuricemia:

➢ **It means high level of uric acid in the blood.**

## Causes :

- **Individual differences**
- **Hereditary reasons (Lesch-Nyhan syndrome)**
- **High intake of dietary purines**
- **Reduced excretion by the kidneys( kidney damage or failure)**
- **Fasting or rapid weight loss can temporarily elevate uric acid levels**

- **Certain drugs such as thiazide diuretics, vit.c, low doses of aspirin .**
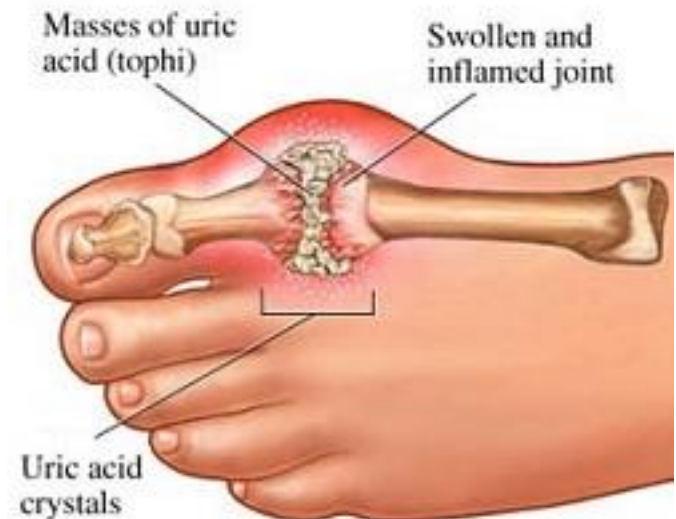- **Some types of cancer or cancer chemotherapy or radiation.**

**Examples of purines rich foods?**

- **Meat**
- **Meat organs (liver, kidney, brain)**
- **Poultry**
- **Seafood( scallops, sardines)**
- **Beans (moderate)**
- **Green peas (moderate)**
- **Spinach (moderate)**

# What can high uric acid level in blood lead to?

➢ **It will form solid crystals within joints which is painful and called gout if remain untreated it will lead to hard lumpy deposits called tophi**

➢ **It can also cause kidney stones or kidney failure**



Masses of uric acid (tophi)

Swollen and inflamed joint

Uric acid crystals

# Hypouricemia:

- It means low level of uric acid in the blood.
- It is seldom

## Causes:

- Some liver diseases (Wilson's disease)
-  Syndrome of inappropriate antidiuretic hormone)
- Diet low in proteins
- Large dose of allopurinol or aspirin