Gout Diet

What is Gout

- Gout is a disease characterized by: hyperuricemia because of an abnormal metabolism of uric acid.

  - ✓ Increased uric acid production (≈ 10% of affected cases), and
  - ✓ Decreased uric acid excretion in urine (≈ 90% of affected cases)

    - ➢ Excess uric acid in blood
    - ➢ Excess uric acid in tissues

  - ✓ Normal uric acid level in blood is: 3-7 mg/dl (< 5mg/dl) slightly lower in women than in men
  - ✓ Hyperuricemia: > 7 mg/dl

Types of Gout

- Gout may be:
  - Primary gout: inherited defect in purine metabolism
  - Secondary gout:
    - High uric acid production because of increased tissue breakdown in diseases like leukemia, lymphoma etc.
    - Increased tissue breakdown because of medications such as chemotherapy agents.
    - Kidney disease decreases kidney excretion of uric acid..
- Gout is not contagious.
- Gout is a progressive disease

Risk Factors for Developing Gout

- Genetics: having a family history of gout increases the risk.
- Sex: Men 9 times more common in men than in women.
- Obesity.
- Heavy alcohol consumption: especially beer (research).
- Diets rich in protein foods such as: meat and seafood, internal organs, yeast, etc.
- Frequent dehydration .
- Use of aspirin (research).
- Lead exposure (research).

Gout Prevalence

- Gout is most often seen in men:
  - ✓ It predominantly attacks males after puberty, with a peak age of 75 years.
  - ✓ In women, gout attacks usually occur after menopause.
- Uric acid levels increase at puberty in men, and at menopause in women.

❖ Gout prevalence appears to be increasing.

❖ Gouty arthritis is reportedly the most common cause of inflammatory arthritis in men >40 years of age.

Sources of Uric Acid

- Purines are broken down into uric acid (both endogenous and exogenous purines):

  - ✓ Endogenous Purines occur naturally in the body as a result of body tissue breakdown,

  - ✓ Exogenous Purines are found in food especially protein foods.

Purines in Food

- Purines in food are absorbed and enter the liver where they are changed into uric acid.

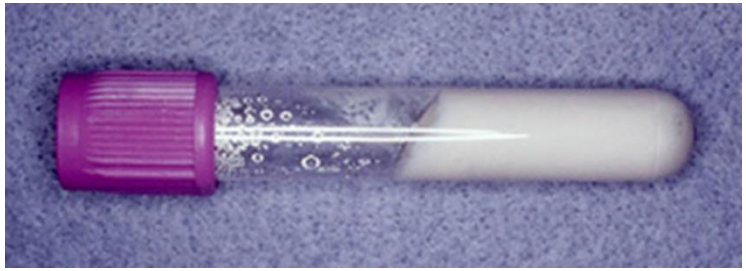
- Normally, uric acid in blood travels to the kidneys, where it passes out in urine.

- Gout occurs when:
  - ➢ Uric acid builds up in the body, and
  - ➢ Forms crystals in the joints or in soft tissue.

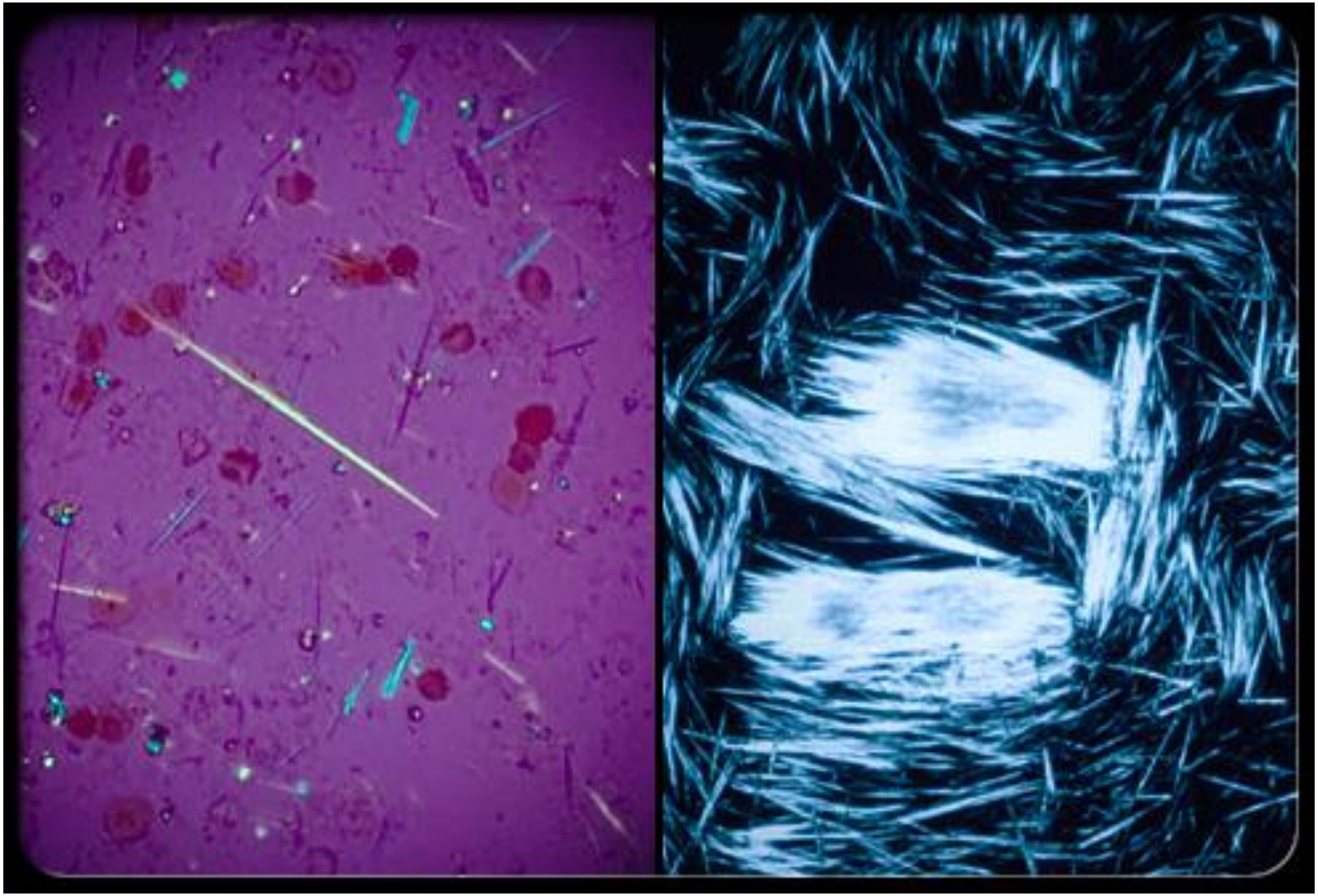
Gout Diagnosis

- It is diagnosed by:
  - ✓ detecting uric acid (monosodium urate) crystals
  - ✓ in an aspirated sample of the joint fluid.

Using a sterile syringe and needle, fluid is withdrawn from the inflamed joint and then analyzed for uric acid crystals.



This fluid was obtained from crystal deposits in a patient with gout.

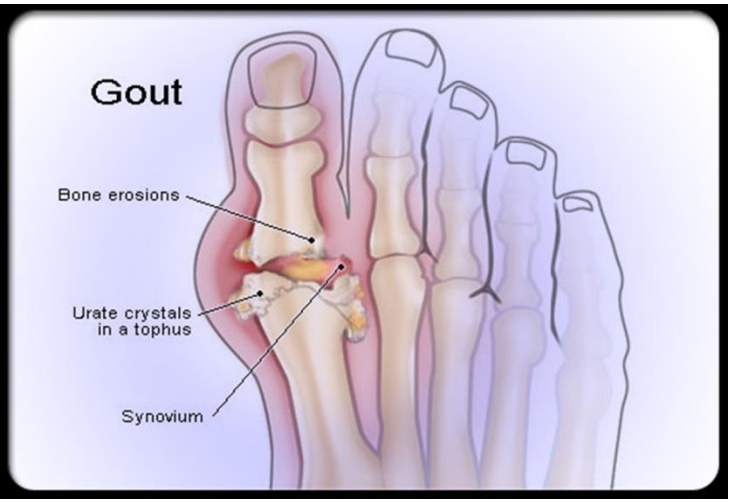


Bright, needle-like uric acid crystals

Needles of urate crystals under microscope

Effect of Uric Acid Build-up

- Uric acid crystals can accumulate in joints and tissues around them over the years:
  - This intermittently triggers repeated bouts of acute inflammation.
  - Repeated "attacks" of gouty arthritis, or "flares," can damage the joint and lead to chronic arthritis.



The most common site of gout attacks.

- The most common sign of gout is:
  - A nighttime attack of swelling, tenderness, redness, and sharp pain in the big toe.

- Gout attacks also appear in feet, ankles, heels, knees, fingers, and elbows.
- Even without treatment, the first attacks stop spontaneously after one to two weeks.
- Gouty arthritis commonly returns either in the same joint or in another joint.

Gout is a Form of Arthritis.

- Symptoms of gout generally include the following:
  - Sudden burning pain, stiffness, and swelling, and tenderness in a joint,
  - Warmth, and extreme tenderness in a joint,
  - Very red or purplish skin around the affected joint which may appear to be infected,
  - As the gout attack subsides, the skin around the affected joint may peel and feel itchy,
  - With time, attacks of gouty arthritis can occur more frequently and may last longer.

Other Consequences of Gout

- Other than acute and chronic gouty arthritis:
  - Large hard deposits of uric acid called tophi: in the skin and other tissues such as:
    - Kidney stones which are more frequent in people with gout.
    - In the fingers, earlobe, heel, back of the ankle & elbow or in other tissues.

Severe Gout

Back of the Elbow

Earlobe

Back of the Ankle

Heel

Goal of Gout Diet

- Gout diet aims at:

  - ✓ Reducing the intake of foods that are high in purines:
    - ➢ which helps control the production of uric acid in the body.

- Obese people should lose weight gradually:

  - ➢ Because fast weight loss can promote a gout attack.

Gout Diet Guidelines

- Limit meat, poultry & fish.
  - Animal proteins are high in purine:
    - ✓ Red meat (beef, pork and lamb),
    - ✓ Fatty fish and seafood (tuna, shrimp, lobster and scallops).
  - Animal protein foods are associated with increased risk of gout.
- Limit intake to 4 to 6 ounces (113 [≈ 110] to 170 grams) / day

✓ Because all meat, poultry and fish contain purines,

- Avoid high-purine foods, such as:
  - Organ meats e.g. liver.
  - Herring, anchovies and mackerel.

Purine Content of Foods

Foods can be classified into 3 groups:

Group A: containing (150 - >825) mg of purine /100 g of food.

Group B: containing (50-150) mg of purine /100 g of food.

Group C: containing (up to 50) mg of purine /100 g of food.

Group A Foods: containing (150 - > 825) mg purine /100 g food

- ✓ Organ meats such as: kidney, heart, liver, pate, liver sausage,
- ✓ Wild game such as rabbits, mallard (wild duck), wild turkeys,
- ✓ Meat extracts (highly concentrated meat stock), and yeast extract (Marmite, Vegemite),
- ✓ Fish roe and caviar,
- ✓ Fatty fish such as tuna, herring, mackerel, trout,
- ✓ Shellfish such as shrimp, scallops, lobster, crayfish,
- ✓ Small fish eaten whole or processed (anchovies, sardines, anchovy paste),
- ✓ Thai fish sauce and gravies.

Meat extract is highly concentrated meat stock, usually made from beef. It is used to add meat flavor in cooking, and to make broth for drinking.

Yeast extract is the common name for various forms of processed yeast products made by extracting the cell contents; they are used as food additives or flavorings, or as nutrients for bacterial culture media.

Group B Foods: containing (50-150) mg purine /100 g food

- ✓ Poultry: chicken, duck, turkey, goose,
- ✓ Red Meats and sausages,
- ✓ Whole grains and their products,
- ✓ Legumes: lentils, chickpeas, etc.
- ✓ Nuts and seeds: peanuts, cashews, sesame, and tahini.
- ✓ Brassica such as: cabbage, turnip, mustard, cauliflower, kale, Brussels sprouts.
- ✓ Other vegetables: spinach, asparagus, avocado and mushrooms.

Group C Foods: containing (≤ 50) mg purine /100 g food

- ✓ Fruits,
- ✓ Vegetables such as: green beans, all except those in group B,
- ✓ Refined grains & their products: white bread, most breakfast cereals, rice, and barley; couscous and pasta permitted in moderation,
- ✓ Dairy products,
- ✓ Cheese and eggs,
- ✓ Fats: all + olives,
- ✓ Nuts: except peanuts and cashews, sesame seeds,
- ✓ Preserves: jams and marmalade, pickles,
- ✓ Beverages: tea and coffee, and soft drinks (these contain high caffeine).

Gout Diet Guidelines

- Eat plant-based proteins
  - ✓ This will also help cut down saturated fats intake:
    - ➢ which may indirectly contribute to obesity and gout.
  - ✓ This will also help reduce cholesterol and fat intake:
    - ❖ People with gout have a higher risk for heart disease.
- Plant based proteins not only lower the risk for gout but also the risk for heart disease.

Gout Diet Guidelines Cont'd.

- Limit or avoid alcohol:

  - Alcohol interferes with the elimination of uric acid from the body.

    - ✓ Drinking beer, in particular, has been linked to gout attacks,

    - ✓ Limit wine consumption when not having an attack,

    - ✓ Avoid wine when having an attack.

Gout Diet Guidelines Cont'd.

- Drink plenty of fluids, particularly water.
  - Fluids can help remove uric acid from the body,
  - Aim for 8 to 16 c /day.
  - There's also some evidence that drinking coffee in moderation decreases gout risk in men.
  - Cherry juice may decrease the intensity and severity of attacks.

Gout Diet Guidelines Cont'd.

- Consume low-fat or fat-free dairy products.
  - Some studies have shown that this helps reduce the risk of gout.
- Aim for adequate dairy intake of 2-3 c /day.

Gout Diet Guidelines Cont'd.

- Choose complex carbohydrates:

  - ✓ Eat more:
    - ➢ Bread, pasta, rice and other grains and products,
    - ➢ Fruits, and
    - ➢ Vegetables.

Gout Diet Guidelines Cont'd.

- Limit or avoid sugar:
  - Too many sweets can leave no room for plant-based proteins and low-fat or fat-free dairy products — the foods one needs to help avoid gout,
  - Sugary foods also tend to be high in calories, so they make it easier to eat more than you're likely to burn off.
- Sweets are definitely linked to overweight and obesity:
  - Although there's a debate about whether sugar has a direct effect on uric acid levels.

What Triggers Gout Attacks

- Attacks of gouty arthritis can be triggered when there is a sudden change in uric acid levels, which may be caused by:

  ✓ Overindulgence in alcohol and red meats,

  ✓ Use of medications such as diuretics, aspirin, chemotherapy,

  ✓ Starvation,

  ✓ Dehydration,

  ✓ Trauma.

Gout Treatment
Self-Care

- Take medications as prescribed:

  ✓ Allopurinol oral medication is primarily used to treat hyperuricemia and its complications.

- While a joint is hot and swollen, use a cane or similar support to keep weight off that joint.

- It may be helpful to keep the swollen joint elevated above chest level as much as possible.

- Ice packs can be helpful in relieving pain and reducing inflammation.

- Maintaining adequate hydration is key for minimizing the frequency and intensity of attacks.