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**HERBS, CHEMICALS, AND DIET AS MEDICINE TO TACKLE GOUT: AN  
AMPLE ASSESSMENT**

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Received 27<sup>th</sup> May 2020; Revised 24<sup>th</sup> June 2020; Accepted 25<sup>th</sup> July 2020; Available online 1<sup>st</sup> April 2021

<https://doi.org/10.31032/IJBPAS/2021/10.4.5453>

**ABSTRACT**

Gout is inflammatory arthritis that results in ache and discomfort, mainly in the toes, ankles, and Knees. This article gives a quick reference to gout and tackling it with herbal. Gout occurs when the body builds up too much of uric acid (UA) in the body. Symptoms of gout include engorgement and inflammation caused due to the build-up of urate crystals in joints. Urate crystals remain to deposit rising to large sizes termed as tophi which lead to joint deformities. Gout is treated by decreasing excess blood UA levels and enhancing scarce urinary excretion. There is no treatment for gout so a blend of medicines and household therapies can help keep gout in diminution. Many drugs to cure gout viz., Ginger, Mushrooms, Melons, Eggs and Tomatoes. Some food products are avoided during gout. Preventing measures are to be taken during gout additionally sleep is to be avoided in the day time. The authors brought a list of herbs that were successfully tried for gout by referring peer-reviewed articles form reputed journals. A bunch of research approaches on herbals used

in the treatment of gout was listed. The article concludes that taking some preventive measures before and herbal treatment after gout helps in get rid of gout.

**Keywords: Gout, Uric acid, acute gout, inflammatory arthritis, purines**

## INTRODUCTION

Gout is a general type of arthritis which is a common term for a mixture of conditions caused by a buildup of uric acid (UA) [1]. Majorly it produces deep pain, engorgement, and rigourousness in joints. Gout is considered by high UA levels in the blood which crystallizes and sinks in the body joints [2]. Gout spasms produce rapidly and keep recurring, gradually damaging tissues in the area of the swelling, and can be tremendously sore. Men are commonly affected, and women are more vulnerable to it after the menopause [3]. Abrupt and strong pain in joints which gives a feel like fire in the foot. Gout spasms frequently happen without any caution in the middle of the night. The purines present in high alkaline food/body/obese breaks into the UA crystals, lead to swelling and redness, in the joint tissues of the big toes. Gout is generally found in men and infrequently observed in women. Gout is further aggressive and violent in patients with hypertension, cardiovascular issues, and obesity [4].

### Stages of gout

There are 4 stages of gout [5, 6]

- Asymptomatic hyperuricemia

- Acute gout
- Interval gout
- Chronic tophaceous gout

### Asymptomatic hyperuricemia

It is the stage in which high concentrations of UA content in the blood. No particular symptoms are absorbed.

### Acute gout

It befalls when hyperuricemia causes UA crystals to develop in one of the joints. Onset is abrupt, usually occurs at night. The patient is abruptly distressed with unadorned, choppy pain, and cannot tolerate even with a simple touch. It disappears within a few days.

### Interval (Intercritical) gout

After recovery from the acute gout flare, the patient enters an asymptomatic phase of the disease. This interval between gout flares is known as interval gout.

### Chronic tophaceous gout

It occurs if gout is left untreated. It takes more than 10 years to mature. In this stage, the hard nodules progress in the joints and the skin and soft tissue nearby. The UA crystals can deposit in other body parts like ears.

### Pathogenesis of gout

The pathogenesis of gout and its mechanism is figured [7] (Figure 1).

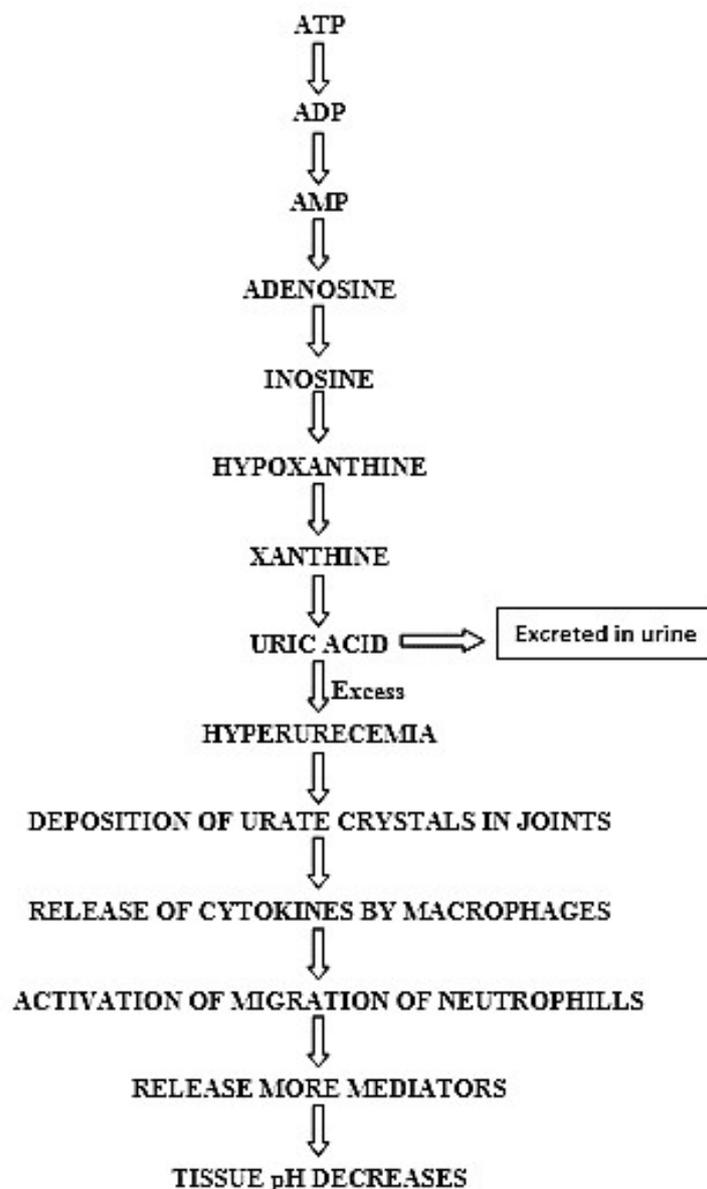


Figure 1: Pathogenesis of gout

## Treatment for gout

### Herbal therapy

Nature has a wide range of medicine to fight against many ailments and they are proved to be safe. The natural drugs used to treat gout are given in **Table 1**.

### Chemical therapy

Additionally, some chemicals available in the kitchen are also proved effective against gout and were illustrated in **Table 2**.

### Food to be taken and avoided in gout

The gout patient should avoid some specified diet as mentioned [43] in **Table 3**. Some dietary tips for consuming in gout are mentioned in **Table 4**.

Table 1: Herbs so far tried for tacking gout

| Common name         | Scientific name                        | Family                       | Active constituent                         | Reference                        |
|---------------------|--|------------------------------|--|----------------------------------|
| Apple cider vinegar | <i>Malus pumila Mill</i>               | Rosaceae                     | Acetic acid                                | Abebe,2002 [8]                   |
| Apples              | <i>Malus domestica</i>                 | Rosaceae                     | Ascorbic acid                              | Juraschek <i>et al.</i> 2016[9]  |
| Asparagus           | <i>Asparagus officinalis</i>           | Lilliaceae                   | Asparagin                                  | Bansal <i>et al.</i> 2010[10]    |
| Bananas             | <i>Musa acuminata</i>                  | Musaceae                     | Vitamin-c                                  | Firestein <i>et al.</i> 2018[11] |
| Burdock roots       | <i>Arcitumlappa</i>                    | Asteraceae                   | Bitter glycosides<br>Flavonoids<br>Tannins | Maghsoumi <i>et al.</i> 2016[12] |
| Bilberry            | <i>Vacciniummyrtillus</i>              | Ericaceae                    | Anthocyanins                               | Wirther <i>et al.</i> 2017[13]   |
| Beet juice          | <i>Beta vulgaris</i>                   | Chenopodiaceae               | Betcyanins                                 | Sandoo <i>et al.</i> 2011 [14]   |
| Breads              | <i>Saccharomyces cerevisiae</i>        | Saccharomycetaceae           | Yeast                                      | Fignoniet <i>al.</i> 2010[15]    |
| Cherries            | <i>Prunus avium</i>                    | Rosaceae                     | Prunasin                                   | Kelleyet <i>al.</i> 2018[16]     |
| Cauliflower         | <i>Brassica oleracea var. botrytis</i> | Brassicaceae                 | Vitamin A                                  | Zhu <i>et al.</i> 2011[17]       |
| Celery seeds        | <i>Apiumgraveolens</i>                 | Apiaceae                     | Phenolic acid                              | Mohamedet <i>al.</i> 2008[18]    |
| Chamomile tea       | <i>Matricariarecutita</i>              | Asteraceae                   | Bisabolol<br>Flavonoids                    | Havlik <i>et al.</i> 2010[19]    |
| Cod liver oil       | <i>Gadusmorrhua</i>                    | Gadidae                      | Vitamin A<br>Vitamin D<br>Cholesterol      | Sokoloveet <i>al.</i> 2013[20]   |
| Chilli peppers      | <i>Capsicum annum</i>                  | Solanaceae                   | Capsaicin                                  | Nuki and Simkin, 2006[21]        |
| Cerals              | <i>Triticum aestivum</i>               | Poaceae                      | Carbohydrates,<br>Lipids,Vitamins          | Adam <i>et al.</i> 2003[22]      |
| Dandelion           | <i>Taraxacumofficinale</i>             | Asteraceae                   | Taraxacerin                                | Gerbino, <i>et al.</i> 2018[23]  |
| Ginger              | <i>Zingiberofficianale</i>             | Zingiberaceae                | Zingeberene                                | Saganuwaneet <i>al.</i> 2010[24] |
| Hibiscus            | <i>Hibiscus rosa-sinenfis</i>          | Malvaceae                    | Ascorbic acid                              | Kuo <i>et al.</i> 2012[25]       |
| Lentils             | <i>Lens culinaris</i>                  | Legume                       | Iron, potassium,<br>manganese              | Yadavet <i>al.</i> 2007 [26]     |
| Milk thistle seeds  | <i>Silybummarianum</i>                 | Asteraceae                   | Silymarin                                  | Wanget <i>al.</i> 2014[27]       |
| Melons              | <i>Cucumis melo</i>                    | Cucurbitaceae                | Citrulline                                 | Wanget <i>al.</i> 2011[28]       |
| Mushroom            | <i>Agaricusbisporus</i>                | Beta and Hetero-Beta-glucans | Agaricus                                   | Towiwat and Li, 2015[29]         |
| Nettle tea          | <i>Urtitadioica</i>                    | Utriaceae                    | Vitamin-B, C, K, and flavonoids            | Voglet <i>al.</i> 2013[30]       |
| Pineapple           | <i>Ananascomosus</i>                   | Bromeliaceae                 | Bromelain                                  | Skinneret <i>al.</i> 2012[31]    |
| Red onions          | <i>Allium cepa</i>                     | Alliaceae                    | Quercitin                                  | Dorsch <i>et al.</i> 1990[32]    |
| Rose hips           | <i>Rosaacicularis</i>                  | Rosaceae                     | Rutin                                      | Marstrandet <i>al.</i> 2016[33]  |
| Spinach             | <i>Spinacia oleracea</i>               | Amaranthaceae                | Calcium and Vitamin A                      | Parket <i>al.</i> 2018[34]       |
| Tomatoes            | <i>Solanum lycopersicum</i>            | Solanaceae                   | Lycopene                                   | Flynn <i>et al.</i> 2015[35]     |
| Turmeric            | <i>Curcuma longa</i>                   | Zingiberaceae                | Curcumin                                   | Tayemet <i>al.</i> 2006[36]      |
| Watercress          | <i>Nasturtium officinale</i>           | Brassicaceae                 | Vitamin A                                  | Leclercqet <i>al.</i> 1998 [37]  |

Table 2: Chemicals for fighting against gout

| Chemical name      | Source                               | Reference                       |
|--------------------|--------------------------------------|---------------------------------|
| Activated charcoal | Bamboo, Wood, and Coconut husk       | Stohr <i>et al.</i> 1991[38]    |
| Baking soda        | Soda ash                             | Dart, 2004[39]                  |
| Magnesium          | Vegetables, Legumes, Nuts, and seeds | Bernath, <i>et al.</i> 1985[40] |
| Vitamin C          | Citrus fruits, and Vegetables        | Towiwat and Li., 2015[41]       |
| Water              | Drinking water                       | Baroni, <i>et al.</i> 2007[42]  |

Table 3: Food to be avoided in gout

| Fruit and vegetables                                 | Dairy products                                    | Juices and beverages  | Animal foods                                   | Avoid   |
|--|---|---|--|---|
| Kiwi, Cranberries, Apples(unripe), Persimmon rhubarb | Powdered milk, sour cream ice cream,salted butter | Canned juices, Alcohol fizzy drinks, Reduced caffeine intake, Eliminate sugar, and soda | Beef, Pork, Trout, Shellfish, Mussels, Herring | Cereals, Grains, Oats, Legumes, Chickpea, Kidney bean, Oils, and Fats |

Table 4: Diet chartin gout

| Diet                      | Examples   |
|---------------------------|--|
| Fruits                    | Berries, Banana, Citrus fruits, Cherries, Melons, and Tomatoes                                 |
| Vegetables                | Asparagus, Cauliflower, Mushrooms, and Spinach   |
| Grains                    | Breads, Cereals, and Lentils   |
| Legumes                   | Beans, and Peas  |
| Low-fat dairy foodstuffs  | Cheese, and Eggs   |
| Healthy Herbs and spices  | Cinnamon, Garlic, Ginger, and Turmeric   |
| Other sources of proteins | Cheese, Yogurt, Omega-3 enriched eggs, Skinless poultry  |
| Fish and seafood          | Wild Alaskan Salmon, and Alaskan black cod   |
| Healthy Fats              | Virgin Olive oil, expeller pressed canola oil, Walnuts, Avocados, and Freshly ground flaxseeds |

### Preventing measures

- Taking Nutritional supplements in diets
- Applying ice cubes for about 20 min a day reduces swelling and pain
- Intake of protein supplement should be limited to under a 0.8g/kg of body weight per day.
- Proper diagnosis and medication should be followed during a severe attack.
- Focusing on maintaining the normal UA levels and promoting the healing of tissues.
- Reducing alcohol consumption
- Avoid Diuretic Drugs

- Drinking plenty of water.

### CONCLUSION

Gout can be treated by diminishing blood uric acid levels by giving diuretics. But there is no specific therapy for gout but the relieved by herbs available in our kitchen and garden. Additionally, by taking some preventing measures like diet regulations will help in tackling gout.

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