
I Cured My Gout

The purpose of this webpage is to share with fellow sufferers my experiences in how I accidentally cured my painful Acute Gout with baking soda in water. It sounds impossible, but it is true. If this information is useful, please pass it on. Best regards.

Sincerely,

JYY

contact@icuredmygout.org

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[Web-Counter](#) 

Warning and Disclaimer. The information contained in this webpage was obtained from medical and scientific literature, from my doctors and pharmacists, and from my own and other gout sufferers' experiences. There is no guarantee it is complete or 100% accurate. One should assume one's own risk in believing this information. Furthermore, one should not consider the information as medical advice. All medical advice should be obtained from one's doctor.

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Emergency Gout Treatments

If the pain is unbearable due to an acute gout attack, I do the following in order of importance:

- PROMPTLY go to the doctor or a hospital for an injection of steroid or non-steroidal anti-inflammatory drug (NSAID). It can relieve the pain instantly. Or, ask the doctor for some narcotic pain reliever which can greatly reduce the severe pain.
- Or, take the medicine for treating gout attack the doctor prescribed -- usually Indomethacin, another NSAID, Colchicine, or Prednisone. If the doctor is unavailable take a over-the-counter (OTC) NSAID such as Ibuprofen or Naproxen, until seeing a doctor. For OTC NSAIDs, American Academy of Family Physicians recommends the following for treating acute gout attacks. Reduce the dosage as the attack subsides.

Indomethacin (Rx) 25~50 mg 4 times a day, or

Ibuprofen (OTC) 800 mg 4 times a day, or

Naproxen (OTC) 500 mg 2 times a day, or other NSAIDs

(Note . Acetaminophen is not anti-inflammatory and is not as helpful as an NSAID.)

- Apply an FDA-approved topical anesthetic spray, gel, cream, or lotion to the gout attack sites to numb the skin to relieve the surface pain. These products are available over the counter and aren't very expensive (read the product direction before applying).
- DO NOT take aspirin. It will worsen the attack. Also avoid alcohol, acidic foods and drinks, carbonated drinks, loop and thiazide diuretics, niacin, vitamin C, dehydration, crash dieting, low carbohydrate diet, starvation, and change in medication. They will worsen and prolong the attack.
- Have doctor's approval before trying this: drink 1/2 (flat) teaspoon (2.5 grams) of baking soda in a glass of water once before going to bed, once after getting up in the morning, and every 2-4 hours in between when the stomach is not very full -- up to a total of 7 times a day maximum for no more than 2 weeks. It can make Indomethacin and other NSAIDs more effective and may even eradicate gout. It may temporary raise the blood pressure. Cut salt intake. Monitor the blood pressure if one is hypertensive. Stop taking baking soda if the blood pressure becomes too high. Read Section 2.7 below for other possible side effects.
- DO NOT initiate Allopurinol or Probenecid during the gout attack. They will lower the blood uric acid level suddenly, and will worsen and prolong the attack. Start them gradually in increased dosages 4~6 weeks after gout attack is completely gone, preferably with Indomethacin, colchicine, etc. to avoid another gout attack. However, if they were initiated before the attack, do not stop and keep taking them.
- Drink 10-12 glasses of ALKALINE water (pH>7) a day.
- Eat 30-40 dark or bright colored cherries or berries, or drink equivalent amount of their fresh juice every 4 hours. They contain anthocyanins which is anti-inflammatory and can ease the attack. AVOID oranges, cranberries, tomatoes, pineapples and most of other fruits and fruit juices because they are very acidic and can worsen the gout attacks.
- Remove the shoes, socks, or clothing from the attack sites and avoid any stress on them.
- Ice the red, hot, and painful attack sites for 10-15 minutes at a time, several times a day. It can ease the pain. After the acute attacks have subsided, soak the attack sites in warm/hot water and gently massage the jell- or dough-like exudate to help the swelling go down faster. See section 3.30 for more on icing.

- Elevate the attack sites above the heart level to help drain the body fluids and relieve the pain.
- Rest until gout is completely gone -- usually in several days to a few weeks. Premature use of the attacked joints may prolong or bring back the attack.
- Learn more about gout to prevent and treat future attacks. Gout is an insidious monster. It often starts with an innocent twinge at night or when one is tired and inattentive. If one does not take gout medicine in a few hours after the first sign of gout, it becomes more difficult to treat; takes no gout medicine in 12 hours, it becomes a war. Do not leave town without bringing gout medicine to the trip.

Common Mistakes in Diagnosis and Management of Gout

- Wrong diagnosis of gout due to overemphasis on the blood uric acid (UA) level. -- Gout can occur at any blood UA level. Also, during the gout attacks, the blood UA level becomes higher than usual in some gout patients and lower in others. About 50% of gout patients have normal UA level during the attacks. Therefore, the diagnosis of gout based mainly on the blood UA level during a gout attack is unreliable. Joint fluid test which visually identifies the MSU crystals in the joint fluid is more accurate in diagnosing gout. See paragraph 3.7 below for the American College of Rheumatology's 13 criteria for diagnosis of gout.
- Misdiagnosing other serious diseases/conditions as gout. -- Some serious diseases/conditions can mimic gout and are often misdiagnosed as gout. They include micro bone fractures, septic arthritis, reactive arthritis, rhabdomyolysis, psoriatic arthritis, rheumatoid arthritis, pseudogout, other crystal arthritis, etc. Chronic gout patients must be extra vigilant because once they have hyperuricemia (high level of UA in the blood) and gout, the doctors are more likely to mis-diagnose the inflammation due to those other diseases/conditions as another gout attack! Septic arthritis is acute and potentially life threatening. If in doubt, ask to have blood and joint fluid tested for infection, etc.!
- Worsening the gout attacks by not taking the gout medicine (colchicine, Indomethacin, or another NSAID) promptly. -- Gout symptoms worsen exponentially with the length of time without medication. Take gout medicines the minute one thinks there is a gout attack. Keep gout medicines readily available all the time.
- Failure to avoid the excruciating pain during a gout attack by not taking also an opioid pain killer by mouth or having a cortisone injection.
- Over-emphasis of strict low purine diet which detracts gout patients from doing other helpful things. -- Strict low purine diet can lower the blood UA level by at most 1~2 mg/dL and cannot be sustained for long. There is no evidence such heroic endeavor can actually prevent gout attacks significantly. It is better for gout patients to look beyond the strict low purine diet and take other actions that can be helpful in prevention of gout attacks. See Section 2 for more info.
- Failure to prevent bone erosion, UA kidney stones or kidney failure. -- Most gout patients are hyperuricemic. Some of them may also excrete high level of UA in the urine, especially if they are taking uricosuric agents such as Probenecid, Sulphinpyrazone, benzbromarone, or losartan. When the urine UA level is high, and the urine pH and urine volume are low, they can cause UA kidney stones and kidney failure. To prevent kidney stones and kidney damages, drink 8~12 8 oz of water a day or until the color of the urine is about clear; take alkalizers to keep the urine pH above 6.0 (using pH paper to test the first morning urine and the urine when the

stomach is empty); and, take 24-hour urine UA tests to monitor the amount of UA excreted in the urine a day. If a gout patient is on an uricosuric agent and excretes too much UA in the urine, be sure to take urine alkalizers, and, reduce the uricosuric agents dosage or stop taking them.

- Worsening and prolonging the gout attacks by initiating UA lowering therapy (using Allopurinol, Probenecid, Sulphinpyrazone, etc.) during gout attacks. -- Initiation of these drugs during gout attacks can worsen and prolong the attacks. Wait for a month after the attacks have completely subsided before starting UA lowering therapy.
- Triggering gout attacks by initiating UA lowering drugs without prophylactic use of low-dose colchicine (0.5 mg/day) or an NSAID. -- Initiation of the UA lowering drugs can trigger gout attacks. To prevent gout attacks, take also low-dose colchicine or an NSAID for the first few or several months when UA lowering drugs are initiated.
- Triggering gout attacks by initiating Allopurinol at 300 mg/day. -- Initiation of Allopurinol at this dosage can decrease the blood UA level (2~3 mg/100 dL) suddenly and trigger gout attacks. To avoid triggering gout attacks, start it at 100 mg/day and increase the dosage by 50~100 mg/day every 1~2 months with prophylactic doses of colchicine or an NSAID.
- Failure to prevent gout attacks due to taking wrong dosage of UA lowering drugs. -- To prevent gout attacks, the blood UA level need to be below 5.5~6.0 mg/dL (.33~.36 mmol/L). Gout patients often do not take high enough dosage of the UA lowering drugs to keep UA at that level, therefore still have frequent gout attacks. Monitor the blood UA level and use it to adjust the dosage up or down. (About 50% of gout patients need more than "standard" dosage of 300 mg/day of Allopurinol to keep the blood UA level below 5.5~6.0 mg/dL.)
- Eating too much wrong kinds of fruits and vegetables. -- Gout patients are often advised to eat plenty of fruits and vegetables. However, some fruits and vegetables can actually trigger gout in some gout patients. They are: citrus fruits, tomatoes, cranberries, pomegranate, peanuts, spinach, beans, asparagus... Track down what fruits and vegetables trigger gout attacks and avoid them.

Testimonials

Below are positive responses from people who have tried taking baking soda (Warning: Have your doctor's approval before trying baking soda in water. See Section 2 for the side effects of baking soda).

"I have to write this. That is my feeling. We must share our experiences. For the first time I am seeing a strong and immediate effects for any kind of medication. The baking soda does work. I am usually very sceptical..can not be convinced easily...I have challenged my gout severely..I ate too much red meat and though I had panick that night because I had to attend the next day a course. I took half teaspoonful of BS with my usual medication (Arthrotec-NSAID). I Needed only one tab +1tsp of BS. Nothing happened the next morning. I did the challeng repeatedly with excellent persistent and consistent results. no attacks of gout for the the months os april and may 08 . I am a paediatrician in scotland aged 56 and has luckily a low blood pressure. Thanks a lot for those who contributed in the icuredmyself website." 5/14/08

"Right you are! Count me in as one of the folks who benefitted immediately by the use of baking soda, and your website is/was most helpful to me ... Thanks for all the helpful info and tips. Cheers." 10/20/07

"I am 37 years old and I had my first gout attack about 10 years ago... I went about 8 1/2 years with bad attacks. Doctors could not figure anything out with my ua levels. It got soooo bad that gout deformed my left big toe joint and I could not bend it anymore. Well I had to have that operated on and a screw put into my foot. Then I found out about baking soda via <http://icuredmygout.Org> ... I have not a problem since I started taking baking soda as he has recommended. Some of the other benefits of the baking soda are that all of the deposits of the crystals on the joints have been going down or disappearing all together... I still have been experimenting with how often to take baking soda. From what I can figure out it depends on how much your body can deal with acidic foods..." 2/2007

"... The story is that my father had serious gout attacks... and no medicals could help.... found your <http://icuredmygout.Org> page. It was (and still is) unbelievable, but baking soda helped!!! No attacks for many months! He is now a new man, and I feel I finally made something really worthy for him! ..." 10/11/06

"Since begining the baking soda regimen a little over a month ago, I have been attack free! I haven't felt this good for a few years You've done for me what thousands of dollars and numerous visits to doctors couldn't do" 1/13/2006

"I'm 36, and first had gout 15 years ago; each episode becoming more pronounced until last year, 2004, I had it in some degree or another for about 90% of the time. The baking soda approach worked wonders for me, and I haven't had even a hint of relapse since I finished taking it in March. I'm getting happier by the day with the slow realization that this may not be a fluke!" -11/15/05

"You are right about the baking soda. I too had gout for over 20 years and had attacks quite regularly. I also always had some toe pain. I started putting 1/2 teaspoon of baking soda in 2 bottles of water a day. I haven't had an attack since and can walk anywhere I want to go. The doctors that say baking soda doesn't work ... Baking soda may not be a cure, but it certainly works better than any medication that I have ever gotten from the pharmacy." -11/11/05

"The results are in! I took 1 teaspoon baking soda in pm, then 1/2 teaspoon just before bed with 400 mg ibuprofen. I woke this morning and my ankle was almost 100% better! I went to the gym today and was back to lifting 405 lb deadlifts! That's in one day! The best recovery time ever for an ankle attack ... was about 5 days slowly, but with the baking soda, the proof was definitely in the pudding, or baking, that is! ... Can't believe all these years.. And the answer was so simple. C'est la vie." -10/14/05

"I got a gout attack about 13 days ago and is my first one.... Yesterday the pain on my right toe was as bad as at the beginning of the attack. The doctor prescribed me colchicine and the only thing I got from it was big side effects and even I lost 5 kilos in one night because of the diarrhoea ... I decided to give a try to the baking soda last night and this morning the pain almost disappeared." -10/4/05

"I tell you my experience has been good with Baking Soda. I have been taking it for 3 weeks. Almost in 2 days I saw the great results. My ankle pain diagnosed by my doctor as gout was gone. I have been dealing with this pain for over 2 years now." -8/10/05

"This baking soda is working because it is also helping me with my stomach problems. Can you add something in your web site that can gather information about people who have gout and also suffer from stomach problems? ... I think it is helping me and a lot of other people out there"

-8/12/2005

"I was so desperate I would have tried anything. Baking soda by the recommendations in the icuredmygout.org web site has helped a lot. I take very little (half a tea spoon) after my lunch and once at night. I feel better and my gout has been gone for 3 weeks without any sign of pain in my ankles. I have found that there is a relationship between my stomach acid and the pain in my ankles. Baking soda is acting as an antacid for me and I feel better... Allouprinol and colchicine were not working for me." -8/10/05

"To cure I used:

1. 1 400 mg Ibuprofen after dinner.
2. First thing in the morning and last thing at night, half a flat teaspoon of baking soda.
3. Drink water like a camel.

Results:

Immediate pain relief.

About 1-2 weeks for swelling to go down.

Now 6 months and no return" -7/28/05

"I have seen the 'baking soda' site and tried it once. That was the longest gout-free stint I've ever had. It seems like I only took one large dose though." -5/31/05

"My dr gave me an rx for colchicine since I had three attacks in three months. I am not to take it until the next acute attack. I am to continue on the allopurinol and naproxin for now. It took 2-1/2 weeks for the first attack (without baking soda) to let up (taking naproxin and lots of water per Dr.) it has been one week since the onset of the last attack (took baking soda) and I am pain-free today. This is a clear improvement..."

-5/27/05

"...that tasted really bad! uck, man." -4/27/05

"Hi, I posted about my husband who has had gout almost continuously since 9/9/04 when he had a heart attack. I found this board and saw the info on baking soda and told my husband. He was to the point where he just would rather die than live in such misery. I started him on 1/2 tsp. of BS in 4 oz. of water and within hours he was feeling better. He's continued to take it now for 2 weeks and is able to wear his shoes and walk pretty good. He's sleeping well and has no pain. He's cut his sodium intake in food because the BS is high in sodium. All I can say is, it seems like a miracle and I haven't seen any ill effects whatsoever. He continues with his heart meds and all is well. I don't know of any scientific data, but he says, who cares? I feel great." -3/20/2005

"I want to thank JYY for his advice a month ago about the use of baking soda for the treatment of gout. I have been having attacks on my big toe frequently. My Dr. Prescribed Allopurinol and Colchicine. It wasn't until I started to use baking soda every night that I noticed a big improvement..." -11/28/04

"It's the best gout medicine I have ever had." -2004

"It makes the difference between day and night. It also loosened the joints all over." -2003

"The gout is gone. I don't have to wear orthopedic shoes the doctor prescribed any more." -2003

The Highlights

This webpage is based on the information obtained from recent medical and scientific advances, for example:

- Monosodium urate (MSU) crystals, a compound of sodium and uric acid, which cause gout attack can build up in the joints years or even decades before the first gout attack. They are coated by certain proteins and are imbedded innocently in joints and other tissues.
- Acute gout attacks occur when the coatings of the MSU crystals are shedded to expose the raw crystals by certain triggers. When the crystals are recoated, gout subsides.
- Sudden increase or decrease of the blood uric acid level can cause the significant in-flow or out-flow of MSU between joint fluids and the blood, and cause the shedding of the coatings to trigger gout attacks. There are other triggers.
- Uric acid is more soluble in alkaline fluids; MSU in acidic fluids. Therefore low pH in the body can make uric acid less soluble, more difficult to excrete, and cause gout and uric acid stones in the kidneys and urinary tracks.
- Most of the patients who took Allopurinol to lower the uric acid level to prevent gout were found to have MSU crystals still in their joints months or years later.
- High level of uric acid in the blood (hyperuricemia) is neither the necessary nor the sufficient condition for gout. About 80~92% of the hyperuricemic people never have gout in their life time.
- During the gout attack, about 10%~50% of the hyperuricemic gout patients have normal or low blood uric acid levels because more uric acid is excreted during the attack. Therefore, the diagnosis based on the blood uric acid tests done during the gout attacks can be erroneous. Joint fluid tests can identify the MSU crystals and other substances and organisms to diagnose gout and/or other diseases.
- The strict low purine diet can reduce the blood uric acid level by only about 1 mg/dL (normal < 7mg/dL) which is quite small as compared with what can be achieved by the use of uric acid lowering drugs -- 2.5~3.5 mg/dL reduction. About 50%~70% of the patients who normalized their blood uric acid level with drugs were found to have MSU crystals still in their joints. Therefore it is more important to avoid the gout triggers than merely to be on low purine diet.
- I accidentally cured my 27-year old worsening gout by drinking baking soda in water while taking Indomethacin and Benemid during a gout attack. I have been free of gout for about 4.5 years (in January 2007) without taking any gout medicine and have been on unrestricted diet.

Section 1: I Cured My Gout

Summary. This section describes how I accidentally cured my 27-year old worsening gout by drinking baking soda in water during a gout attack while taking Indomethacin and Probenecid. I have been free of gout attacks for more than 5.5 years (in April of 2008) without taking gout medications and have been on an unrestricted diet. More information on gout causes, treatment, prevention and the cure is given in Sections 2 and 3 below.

I have been in relatively good health. I suffered my first excruciatingly painful **Acute Gout** attack while I was working outside during a long cold night without food, drink, and proper shoes. After this first incident, my gout attacks returned a few times a year. In the last few of my 27 gouty years, my gout attacks worsened greatly and were almost constantly occurring. The site of attacks spread from the big toe to other joints in the feet, ankles, wrists, and hands.

Over the years, I have been in the care of several family practice physicians, several internists, a podiatrist, two surgeons, a neurologist, and a rheumatologist. I was tested for blood uric acid level for about ten times in 27 years at the time when there were no gout attacks. Most of the test results were in the middle and the lower end of the normal range with a few just over the upper limit. My medication included *Allopurinol/Zyproprim* (which caused me stomach cramps) or *Benemid/Probenecid* for lowering the uric acid level; and, for treatment of acute attacks: *prednisone and Toradol shots*, and by mouth, *Prednisone, Colchicine* and some non-steroidal antiinflammatory drugs (NSAIDs) such as *Indocin/Indomethacin, Naproxen, Ibuprofen, Celebrex, and Vioxx*. In July of 2002 my condition was so bad that my rheumatologist increased the daily dosage of Benemid to 500 mg twice a day and Indocin to 25-50 mg three times a day to prevent gout attacks.

While Indocin is the only NSAID that effectively treats my gout, it turned me into an irritable and depressed zombie with gastrointestinal ulcers. In early August of 2002, I had another bad attack despite the fact that I was on 1000 mg of Benemid and 150 mg of Indocin a day for prevention. In a desperate attempt to improve the situation I braced myself to review once more my medical records and the stack of gout literature I collected over the decades. One thing that caught my attention was that my urine pH (an acidity/alkalinity index, 0 means most acidic, 7 neutral, and 14 most alkaline) was 5.5 three years ago. I thought that was too low for the day time pH. I then tested my urine pH and it was low. So **I alkalinized myself by drinking 1/2 (flat) teaspoon of baking soda in water**, once during the day and once before I went to bed. On Day 2, the pain seemed to have subsided so I repeated the same treatment. When I woke up on Day 3, I sensed something very alien yet so familiar. I breathed much easier, felt well rested and fresh, and most of all, the ingrained worry of having to face another day of painful gout was not there any more. Then I noticed the **gout was gone!** In addition, within the week, the conditions of my **tight and puffy toes, the pain in my feet (Neuromas and Metatarsal Capsulitis/Bursitis)** and the **minor pain and stiffness in the joints all over the body were all significantly improved**. I was reborn.

Since the pain was completely gone I stopped taking Indocin on Day 3. Never in my 27 years of gout life was I able to jump from taking 150 mg of Indocin a day on one day to nothing the next day. To play it safe I took 1000 mg of Benemid a day for two more days, cut it down to 500 mg for two more days after that, then stopped. On day 13, I was so confident the gout was gone that I stopped taking baking soda altogether. It has been 24 months now (August 2004) since I have stopped taking Benemid and Indocin, and I have not suffered any gout attacks. After 27 years of suffering excruciating pain, visiting numerous doctors, going to the emergency room for a cortisone shot in the middle of the night, taking endless zombifying medicine, and thinking of having my afflicted hands and feet amputated, I am finally free of gout -- ironically by just

using 12 teaspoons of baking soda which costs almost nothing. (**Warning.** Read Section 2 below for the **side effects** of baking soda and the **dosage**. **Get doctor's approval** before trying baking soda.)

In hindsight I believe there are several reasons why I suffered so badly from gout. My first gout attack was caused by the combination of starvation, dehydration, and prolonged exposed of my feet to the cold. Then I unknowingly ate excessive amounts of acid forming foods that lowered my pH and created a fertile breeding ground for more gout attacks. **With baking soda I was able to raise my pH, eliminate the cause of the gout, and cure it.**

It has been 24 months now (August 2004) since I cured my gout and stopped taking gout medicine, yet there have been no gout attacks and my joints feel fine. The irony is that when I was taking gout medicine (Benemid) and my blood uric acid levels were low/normal (4.7 mg/dL on 4/5/2001 and 4.5 mg/dL on 6/28/2002; normal range: 4.4 to 7.6 mg/dL) I had endless gout attacks. Now that I have stopped taking gout medicine my blood uric acid levels have been high (7.5 mg/dL on 9/19/2002 and 8.1 mg/dL on 7/14/2003), yet I have not had any gout attacks and my joints feel fine. I also purposefully ate large portions of high purine diet such as organ meat, sausages, red and dark meat, shellfish, anchovies, sardines, mackerel, herring ... and enjoy red wine, in order to trigger gout attacks without success. This indicates hyperuricemia is neither a necessary nor sufficient condition for gout. Furthermore, it shows gout can really be cured.

Additional information on gout, diet, pH and the cure is given in [Sections 2 and 3](#) below. Please read Section 2 for proper **dosage** and the possible **side effects** of baking soda.

Section 2: Detailed Information on Gout

Summary. This section describes gout, its causes, prevention, treatment, and the cure.

Metabolism of **purine** in the diet produces **uric acid**, some of which interacts with sodium to form **mono-sodium urate (MSU)**. The proportion of uric acid and MSU in the body is pH dependent -- the higher the pH the more MSU. At body pH, MSU is much less soluble than uric acid therefore the culprit of gout is predominantly MSU. When **MSU crystallizes** in the joints, **the immune system sees these crystals as invading foreign bodies and attacks them with the crack troop type of white blood cells (neutrophils)**. The **result is sudden and rapid development of inflammation**, swelling, warmth, shiny red or purple stretched skin, extreme tenderness and intense and excruciating pain in the afflicted area. It also causes malaise, fever, chills, increased heart rate, and high blood pressure. Gout attacks often occur in these areas: big toes and the joints in feet, ankles, knees, hands, wrists, arms, elbows, and bursas, the ligaments and tendons around these joints; and, in rare cases, shoulders, necks, hips and spine. Gout can attack one or more sites at a time, but the attack sites on either side of the body are usually asymmetrical. Gout attacks occur most often between midnight to 2 a.m., and more frequent in spring than other seasons. Even without treatment, initial **attacks subside** in a few days to several weeks **when the crystals are coated by certain proteins (apolipoprotein E and/or B)** and become unrecognizable to the immune system as foreign bodies. The **inflammation subsides** and the **gout goes into**

remission. The frequency of gout attacks increases from a few times a year to nearly all the time. Ultimately, severe chronic gout attacks cause deformity and destruction of the afflicted joints. For all ages, gout is more common in men than women (20 to 1). Gout is more common in women after menopause (same as men) than before, and occurs more in older people than younger. The high level of uric acid in the body (**hyperuricemia**) may cause **gout, uric acid stones in the kidneys and urinary tracks, and kidney failure.** About 30% of hyperuricemic patients have gout attacks in 10 years; about 20% of gout patients have uric acid stones in kidneys and/or urinary tracks. In **Tophaceous Gout**, tophi (chalky type of MSU) can build up in cartilage, bone, bursa and under the skin around joints in fingers, hands, forearms, elbows, shoulders, feet, knees, body, ear cartilage, and in rare case, under the eyelids and even around hearts and spines. The shapes of tophi under skin can look like pebbles, nodules, knots, lumps, pouches, etc. The word "gout" is often used to denote both the disease and the symptoms. Gout (medical shorthand gtt) is also called gouty arthritis (GA); gout attacks, called gout flare-ups and flares.

Hyperuricemia is caused by over-supply (10% of cases) and/or **under secretion** (90% of cases) **of uric acid.** There are two sources of over-supply: the **body over-produces uric acid on its own**, and a person over consumes foods that are high in purine. Most doctors, as well as recommendations of most medical publications, use the blood uric acid test as the gold standard for diagnosing gout: if one has gout symptoms and the blood uric acid exceeds 8.5 mg/dL for males and 6.6 mg/dL for females, one has gout. However, some recent medical publications point out that the **blood uric acid test alone is the most misused test in the diagnosis of gout and may wrongly rule out gout or mislead to treat other serious illness for out** -- because, on one hand, hyperuricemia is neither the necessary nor the sufficient condition for gout, and, on the other hand, the blood uric acid levels during the gout attacks are low/normal in 1/2 of the hyperuricemic gout patients. **Better methods are also to draw the joint fluid** from the afflicted area and **examine it under a microscope for MSU crystals and other fluid characteristics to diagnose gout and to rule out other causes such as psudogout** (unrelated to gout and hyperuricemia), **fungal, viral or bacterial infection (e.g., septic arthritis); to take the 24 hour urine sample to measure the amounts of uric acid produced and excreted a day; and to have an x-ray of the afflicted area if necessary.**

The standard treatments of gout are Allopurinol or Oxypurinol, to reduce the over-production of uric acid; and, Probenecid/Benemid (or other uricosuric agents, i.e., Sulfinpyrazone/Anturane, Benzbromarone and Benziodarone) to increase the excretion of uric acid by the kidneys. Allopurinol is better because the less uric acid is made the less is to excrete. Also, it is useful to treat or prevent uric acid kidney stones that some gout patients may have. The downside to Allopurinol is that it has stronger side effects many patients cannot tolerate; therefore, Benemid is usually prescribed instead. When Benemid is used to increase the excretion of uric acid by the kidneys, the uric acid may crystallize in the kidneys and the urinary tracks to cause formation of uric acid stones and kidney failure.. Some doctors prescribe Sodium Bicarbonate (baking soda) with Benemid to alkalize the urine to prevent uric acid stone formation. Gout patients should also restrict consumption of foods high in purine and drink a lot of fluids. assymtomatic hyperuricemia patients are generally not treated due to the side effects of the medicine.

Statistics show that the lower the blood uric acid level the lower the chance of gout attacks. However, hyperuricemia alone cannot explain many gout phenomena. For example, some vegetarians and non vegetarians who have low blood uric acid have gout; whereas, some people who have high blood uric acid level do not. Patients who were tested to have normal blood uric acid had gout attacks later. Even people who

were found to have MSU crystals in their joint fluids do not have gout attacks. More gout attacks occur during the night (most often from midnight to 2 a.m.) than the daytime; and, more in the spring than other seasons. Kings and geniuses are more prone to gout.

After a gout attack, when MSU crystals are coated by certain proteins (apolipoprotein E and B), they become unrecognizable to the immune system as the foreign bodies and are lodged inside the joint cavities and tissues. The gout then goes to remission. When conditions are right, these crystals shed their coatings and again are recognized by the body as the foreign bodies and cause neutrophils to attack and cause inflammation. The gout worsens until the crystals are coated again and this vicious cycle repeats. While new gout can be caused by precipitation of new crystals, gout is more likely triggered by the shedding of the coatings of the old crystals. Gout attacks can occur when the blood uric acid level is low or normal because the shedding of the coating of the old crystals is independent of whether the blood uric acid level is normal or not. Since the old crystals are difficult to eliminate by conventional means, gout is considered to be incurable -- which may not be true.

The strategy to avoid, treat, and cure gout is now clear.

- **2.1 Keep warm.** Avoid exposure of one's ears, hands, wrists, elbows, shoulder, necks, feet, and knees to **the cold** which **initiates new crystals and gout attacks**.
- **2.2 Drink plenty of fluids.** Fluids help the kidneys dilute and excrete uric acid. Drink 10~12 8-ounce glasses of water a day.
- **2.3 Avoid excessive intake of foods high in purine and avoid being overweight.** The lower the one's uric acid level the lower the chance for gout attacks. By avoiding excessive intake of foods high in purine one can lower the uric acid level and the chance to have gout attacks. The foods that have very high purine are: organ meat (brain, liver, heart, kidneys, sweetbread, sausages), dark fillet fishes (anchovies, sardines, mackerel, herring), fish roes, and red and dark meat; the foods that have medium high purine are: poultry, fish, shellfish, meat and fish extracts, gravies, mushrooms, peanuts, legumes (dried peas, lentils, soybeans, kidney beans), oatmeal, wheat germ, bran, yeast, asparagus, spinach, cauliflower, radishes and celery. For more information, see the [Dial-A-Dietarian page for Purine Content of Foods](#).
- **2.4 Avoid things that lower the body pH or make sudden changes in body's physical and chemical conditions.** At a low pH uric acid is less soluble and is more difficult to excrete which increases the chance of gout attacks. The low pH may also shed the coatings of MSU crystals to trigger gout. The increase of body uric acid to a high level causes new crystals to precipitate, while sudden changes (either an increase or decrease) in uric acid levels in the blood cause the old crystals in the joints to shed their coating -- both result in gout attacks. In addition, sudden physical and chemical changes in the body can trigger a gout attack. Avoid these conditions if possible: trauma, surgery, injuries to the joints, hemorrhage, sudden severe illness, emotional stress, starvation, fasting, crash dieting, high protein diet, dehydration, fatigue, over-exercise, infections, chemotherapy, toxins from pregnancy, over-production of lactic acid, changes in medication, overweight, rapid weight loss, strenuous exercise, certain medical conditions (psoriasis, hypothyroidism, hyperparathyroidism, hemolytic anemia, lead poisoning); and, excessive ingestion of carbonated drinks, alcohol, tea, coffee, protein, aspirin, Vitamin C, Niacin (nicotinic acid or Vitamin B3), NSAIDs, thiazide and loop diuretics, cyclosporine, and foods and drinks that are

high in chlorine, sulfur, phosphorus, and that lower the body pH.

For acidity of foods see FDA's "**pH of Foods and Food products**" at <http://vm.cfsan.fda.gov/~comm/lacf-phs.html>

- **2.5 Alkalize one's body.** The solubility of uric acid increases exponentially with pH. Therefore by increasing one's pH one can excrete more uric acid, maintain a lower uric acid level, and reduce the chance of gout attack. This can be achieved by eating more foods high in minerals (fruits, vegetables, and dairy products) and less foods that are acid forming (protein and carbohydrates). This can also be achieved by taking mineral supplements or drink mineral water (including baking soda in water). Some brands of supplements are buffered to a pH near 7 therefore they are not helpful in alkalizing oneself. When in doubt, test their pH with pH paper. Normal urine pH has a range of 5.5 to 8 -- high during the day time especially after meals (alkaline tides) and low during the night when the stomach is not producing juice (acid tides). Therefore the best strategy is to take some mineral supplements or drink mineral water before going to bed. One can use pH paper to monitor the urine pH to keep it above 6.8 during the day time.
- **2.6 Think pH.** Gout attacks are a function of both uric acid level and pH -- of course temperature, too. For management and treatment of gout, most doctors and medical literature seem to emphasize uric acid alone and ignore pH. If one properly balances both uric acid and pH levels, one can avoid or cure gout.
- **2.7 The Rescue and the Cure -- in case of a gout attack I do what is given at the very beginning of this webpage**, including drinking baking soda in water. **Baking soda does many wonders in prevention, treatment, and the cure of gout:**
 - It dissolves MSU crystals to stop a gout attack and cures the gout (see Note 1 & 2 below).
 - It makes uric acid more soluble for better excretion to prevent new gout (see Note 1 & 2 below).
 - It increases the efficacy of NSAIDs used in treatment of gout attacks (see Note 2 & 3 below).
 - It increases the body fluid volume and pressure which help the kidneys excrete uric acid.
 - It increases the urine pH which lessens the chance of uric acid stone formation in kidneys and urinary track.

Note 1. MSU crystals do not cause a gout attack if they are formed outside of cells (extracellular), e.g., in synovial fluid. When they are uncoated inside cells (intracellular), they interact with neutrophils and cause a gout attack. Uric acid is a weak acid. Its solubility increases exponentially with the increase of pH. Since baking soda increases the blood and body fluids pH, it makes uric acid more soluble for better excretion by the kidneys, hence, lessens the amount of MSU in the body and the chance of a gout attack. In the contrary, MSU is a weak base. Its solubility increases exponentially with the decrease of pH. When baking soda is consumed or administered through IV, it increases the blood CO₂ level and decreases the pH inside cells (intracellular acidosis) all over the body, increases the solubility of MSU exponentially to dissolve the MSU crystals inside cells, eliminate the cause of current and future attacks, and cures the gout -- a property that the conventional gout medicine do not possess. It is this "paradoxical" property of baking soda (i.e., while it increases the pH outside of cells such as in blood and body fluids, at the same time, it decreases the pH inside cells such as in the joint linings) that provides a double whammy to get rid of gout very quickly.

Note 2. There is a misconception that the normal blood acidity has a very narrow range and cannot be altered significantly. The normal blood pH has a range of 7.35-7.45 -- a difference of only 0.1, or 1.36% between the two extremes, therefore, it is

considered to be in a very narrow range and is very difficult to alter. But pH is a short-hand expression of the number of positively charged hydrogen proton, H⁺ (actually hydronium, H₃O⁺, in water), which is the real McCoy of the acidity. If one takes the anti-logarithm of 7.35 and 7.45 and does some math, one finds the difference between the two extremes of the normal range of blood acidity to be 26%, not 1.36% according to the pH -- a big range with plenty of room to make significant changes.

Note 3. Most NSAIDs are weak acids. At a higher blood pH, more of them are trapped inside cells in the body (ion trapping), they ionize better in the blood, are excreted less by the kidneys, and stay longer in the blood stream. Since baking soda raise the blood pH it substantially increases the efficacy of the NSAIDs used in the treatment of gout attacks and other medical conditions.

Warning. Each 1/2 teaspoon of baking soda contains 616 mg of sodium. When baking soda is consumed it interacts with stomach juice to form salt at a rate of 10 to 7 by weight. Although there are some claims that baking soda does not cause as much edema and hypertension as the equivalent amount of salt due to its lack of chlorine, to be safe, **reduce** one's **salt intake** while taking baking soda. Also, **baking soda is not appropriate for patients with certain medical problems** such as hypertension, edema, appendicitis, intestinal or rectal bleeding, problems with urination, toxemia of pregnancy, and heart, kidney and liver diseases. It may also interfere with such medication as Ketoconazole, Tetracyclines, Mecamylamine, Methenamine, etc. The side effects of baking soda include: hypertension, edema, frequent urge to urinate, continuing headache, continuing loss of appetite, mood or mental changes, muscle pain or twitching, nausea or vomiting, nervousness or restlessness, slow breathing, swelling of feet or lower legs, unpleasant taste, unusual tiredness or weakness, increased thirst, stomach cramps, etc. **Be sure to have doctor's approval, read the following link and the manufacturers' directions before using it:** [National Library of Medicine and the National Institutes of Health's Health Information on Sodium Bicarbonate.](#)

Dosage. The above site states: for alkalizing urine: adults and teenagers, drink one (flat) teaspoon of baking soda in a glass of water every 4 hours, usually no more than 4 teaspoons a day. This may be TOO STRONG for many people. The following is what I would do:

- * First, have my doctor's approval to do the following..
- * Go on low salt or salt free diet.
- * Drink 1/2 (flat) teaspoon (2 mg) of baking soda in a glass of water once before going to bed, once after getting up in the morning, and every 2-4 hours in between during the daytime when the stomach is not very full. Take no more than 4 teaspoons of baking soda a day.
- * Monitor the blood pressure every 30 minutes. If the blood pressure becomes too high, take less baking soda or stop.
- * Monitor other side effects of baking soda listed in the above link. Reduce or stop taking baking soda if the side effects are pronounced.

Section 3: Miscellaneous about Gout, Uric Acid, Hyperuricemia, pH, etc.

The section presents gout information in random order. It will be expanded from time to time.

- **3.1 Gout in youngsters can be very serious and need special medical attention.** Gout can inflict on infants (Pediatric Gout), children and juveniles (Juvenile Gout). More often than gout in grownups, gout and hyperuricemia in youngsters can be caused by genetic deficiencies. Mere use of Allopurinol to lower their blood uric acid level may mask the seriousness of the genetic illness and can result in dialysis, kidney transplant, or death. It is recommended that gout in youngsters be examined by a rheumatologist or a pediatric rheumatologist. For detailed information see [Paediatric Gout by H Anne Simmonds](#)
- **3.2 Hyperuricemia protects against multiple sclerosis (MS).** Uric acid is a powerful antioxidant; MS patients do not have enough of it. If one has hyperuricemia and/or gout, one is most likely protected from MS. Lucky gout patients.
- **3.3 Cherries help gout.** Studies of the sour Tart Cherries in Michigan , which produces 70-80% of the U. S. output, found tart cherries contain anthocyanins which are anti-inflammatory therefore soothe the gout. To achieve the similar effect of an NSAID one has to eat about 20 tart cherries a day. Studies of the sweet Bing Cherries in California, which produce about 75% of the U. S. output, found women age 22-40 lowered their blood uric acid level by eating 45 fresh, pitted cherries for breakfast; therefore, Bing cherries help prevent gout. Will other kinds of dark colored cherries and berries help gout? Probably.
- **3.4 The results of blood uric acid tests given during gout attacks are likely to be low or normal and are misleading.** During the gout attacks, the kidneys excrete more uric acid therefore the blood uric acid levels are significantly lower. A study shows about one half of the hyperuricemic patients have normal blood uric acid levels during the gout attacks. Consequently, the results of blood uric acid tests given during gout attacks are useless and misleading. The proper time for such test is some weeks after the attack subsides.
- **3.5 An anti-hypertensive drug has favorable effect on gout.** Loop and thiazide diuretics and some other anti-hypertensive drugs used to lower the blood pressure can reduce excretion of uric acid, elevate blood uric acid level, and cause gout -- a catch 22 situation: hypertension drugs cause gout and the pain and the stress from gout cause hypertension. But there is a bright spot. A study shows that taking 50 mg a day of hypertension drug Losartan, a ACEII receptor blocker or ARB, increases uric acid excretion by 17% and lowers the blood uric acid level by 8%. Thus Losartan both decreases blood pressure and helps reduce the chance of gout attacks. (Note. Other -sartan drugs are much less effective as Losartan in lowering the blood uric acid level.)
- **3.6 On Nostradamus.** Nostradamus (1503-1566) is well known for his prophesies. The less known is that he was a practicing physician before he became a prophet. He died of complications from gout. Terrible.
- **3.7 Diagnosis of Gout is Not an Exact Science.** The American Rheumatology Association's criteria for diagnosis of acute gout are: the presence of MSU crystals in the joint fluid and/or in a tophus, and/or presence of 6 or more of the following 13 criteria based on the clinical, laboratory, and X-ray phenomena. How many combinations are there to have 6 or more out of 13? The answer is: 5,812.
 - More than one attack of acute arthritis (joint inflammation).
 - Maximum inflammation developed within 1 day.
 - Attack of a single joint.
 - Redness over joints.
 - Metatarsophalangeal joint (the joint between the second and third bones) of the big toe painful or swollen.

- Attack of the the big toe in one foot.
 - Attack of heel joint in one foot.
 - Tophus, deposits of MSU crystals in tissues (proven or suspected).
 - Hyperuricemia.
 - Asymmetric swelling within a joint on x ray.
 - Subcortical cysts without erosions on x ray.
 - MSU crystals in joint fluid during attack.
 - Joint fluid culture negative for organisms during attack.
- **3.8 Allopurinol is a Very Potent Gout Trigger.** Allopurinol can reduce the blood uric acid level by about 2.5~3.5 mg/dL (normal 4.5~7.0 mg/dL) in weeks after it is initiated. This causes the imbalance of MSU concentration between the blood and the joint fluids, shedding of the MSU crystal coatings, and the gout attack. For proper use of Allopurinol:
- DO NOT initiate Allopurinol during a gout attack because it will worsen and prolong the attack.
 - Initiate Allopurinol in a gradually increased dosage with Indomethacin or Colchicine (for weeks or months) to prevent an attack.
 - If Allopurinol is re-initiated after discontinuation, repeat steps (1) and (2) again to prevent an attack.
- **3.9 Probenecid, how to take it?** Probenecid and other uricosuric agents are very effective in lowering the blood uric acid level by increasing the excretion of uric acid in the kidneys. For proper use of Probenecid:
- DO NOT initiate Probenecid during the gout attack. DO NOT STOP it if it has been taken before the attack.
 - Initiate Probenecid with Indomethacin or Colchicine (for weeks or months) to prevent gout attacks.
 - Take Probenecid twice a day. The half-life of Probenecid is rather short -- only 3~8 hours in 500 mg dose, and 6~12 hours in >500 mg dose. Taking Probenecid twice a day (in 1/2 of the daily dosage) can prevent large fluctuations of the levels of Probenecid and uric acid in the blood to prevent gout attacks.
 - Drink extra alkaline (pH>7) water, including baking soda in water, to prevent uric acid stone formation in the kidneys and urinary tracks.
- **3.10 Thanksgiving and Gout.** There are more gout attacks after thanksgiving. Of course, people blame dark turkey meat for causing the trouble. Is turkey really to blame? First of all, a high purine diet does not always cause gout attacks. Second, people who are strictly on a low purine diet can reduce only about 1 mg /dL of the uric acid level in the blood (normal, 4.5~7 mg/dL). Third, a turkey dinner is unlikely to raise the uric acid level suddenly and significantly enough to cause the shedding of the MSU crystal coatings to trigger gout. Why then are there more gout attacks after thanksgiving? It's because of the very acidic cranberry sauce (pH= 2.5~3.0) and the alcohol beverages that that go with the turkey. Have small portions of cranberry sauce and drinks and enjoy turkey in peace.
- **3.11 Tomatoes Trigger Gout.** Tomatoes contain little purines. Why then they are known to trigger gout attacks. The answer is: they have low pH. For example, the pH of Cherry tomatoes is 4.0, Beefsteak 4.6, Roma and Vita Gold 5.1; and Super Marzano 5.2 -- i.e., Cherry tomatoes are 4 times as acidic as Beefsteak, 12.6 times as Roma and Vita Gold, and 15.8 times as Super Marzano. If one likes tomatoes, eat the kind that have higher pH and are vine ripen. Drink some baking soda in water if one eats too many tomatoes.

- **3.12 Gout Doctor, Beer Drinker, Gout Sufferer, Instant Celebrity and Hot Book Seller.** Just read in a news flash that Dr. Osame, a 63 year old gout specialist in Japan, is also a nightly beer drinker -- sometimes up to 9 litres (about 24 12-oz. cans) of beer a day. Gout finally caught up with him about 3 1/2 years ago. In the name of science, he kept drinking beer while trying to find a way to beat it. His findings: he can beat the gout if he drinks less than 750 milliliters (24 oz.) of beer a day -- so little, how sad. What did he accomplish? His just published a book on his gout experiment and gout advice. It is a hot seller in Japan and he has become an instant international celebrity. Gout isn't always bad after all. Kanpai. (3/12/05)
- **3.13 Creatine supplement and gout.** Creatine is a natural amino acid which is produced by one's liver, kidneys and pancreas (2 g a day). It is also obtained from the diet (2 g a day). Some athletes take creatine supplement to boost the physical performance. When the kidneys can't excrete the extra creatine, it accumulates in the blood and can cause kidney damage, especially if one is on such drugs as Cimetidine (for heartburn & ulcer), diuretics, NSAIDs (e.g., Indocin, Naproxin, Ibuprofen...), and Probenecid/Benemid (for lowering the uric acid level). Once the kidneys have problem, conceivably, it may elevate the blood uric acid level and cause gout. If one is taking creatine supplement, be sure to have regular blood test to monitor the blood creatine level.
- **3.14 Fructose Intolerance triggers gout.** Fructose Intolerance (FI) is a rare (one in 20,000) hereditary disease caused by body's lack of certain enzyme. When an FI patient consumes fructose and sucrose, they raise the blood uric acid level and cause gout. The treatment of FI is to avoid food and drinks that contain fructose, sucrose, and sorbitol. In certain cases, a patient can take uric acid lowering drugs to lower the uric acid level to prevent gout attacks. More info can be found at:
www.nlm.nih.gov
www.merck.com
- **3.15 Overhydration is bad for health.** Gout patients are advised to drink plenty (2~3 litres a day) of water. Depending on one's body weight, physical activity, weather,..., one may need to drink more. But drinking too much water can cause overhydration (also called Water Intoxication). The symptoms of overhydration include headache, muscle cramps, weakness, fatigue, confusion, dizziness, nausea, vomiting, disorientation, blur vision, twitching, confusion, seizure, acidosis, cyanosis, coma, hemorrhage, shock, and even death. To avoid overhydration, do not force one to drink much more water than one wants to drink and take mineral supplement and sports drinks to replenish electrolytes. Ready made sports drinks are expensive. One can use salt (for chlorine and sodium), baking soda (for sodium and bicarb), salt substitute (for potassium), ... to make one's own sports drink. One can find different recipes in the net.
- **3.16 Allopurinol put Mr. Finkle in hospital for 2 1/2 months.** It's rare. But after taking Allopurinol to treat his gout, Mr. Finkle was put in hospital for 2 1/2 months, on a ventilator, on dialysis, in a drug induced coma, in bad shape. Allopurinol caused Mr. Finkle Stevens-Johnson Syndrome, a rare and life-threatening allergic reaction to the med. More info can be found at: www.syracuse.com
- **3.17 pH of some fruits, juice and drinks.**

pH	Fruit, juice or drink
5.8	Aspirin (325 mg in 25 mL water)
7.7	Baking soda (1/2 tsp. in 50 mL water)
5.5	Coffee
2~2.8	Lime and lemon juice

6.4~6.8	Milk, cow
2.7	Cola and clear soda drinks
5.0	Club soda
3.6	Seltzer
2.5	Tonic water
4~6.5	Tea
2.4~3.4	Vinegar
3.4~4	Apple
3.9~4.5	Blackberry
3.1~3.3	Blueberry
3.3~4.5	Cherry
2.3~2.5	Cranberry
2.8~3.8	Grape
3~3.8	Grapefruit
3~4.2	Orange
3.3~4.2	Peach
3.2~4	Pineapple
2.8~4.3	Plum
4	Prune
3.2~4	Raspberry
3~3.9	Strawberry
4~4.6	Tomato
2.8~3.5	Wine
3.3~3.7	Wheat beer
4.4~4.7	Lager beer
4.1	Brandy
4.0	Whisky
4.5	Vodka

- **3.18 "Dietary purines contribute only a small amount to the serum urate levels,"** so says British Medical Journal's BMJ Learning module on gout. It's available at: <http://www.bmjlearning.com/>
- **3.19 Golf and gout.** Dr. Osame of Japan, a gout specialist and gout patient, a golf aficionado, and a beer drinker, has shown in his hot selling gout book that:
 - Anticipation to play a golf game raises the blood uric acid (UA) level by about 1 mg/dL (Normal: 4.5~7 mg/dL).

- Playing a 18-hole game raises UA by another 1 mg/dL.
- Drinking sufficient alcohol beverage raises UA by 1 mg/dL.
- Players with 15 or more handicap raises more UA level than players with less than 15 handicap. So, depending on one's handicap and if one had some drinks during or after the game, one's blood UA level could be jolted up by 2~3 mg/dL by the time one leaves the club. This is sufficient to cause the shedding of the MSU coatings and trigger the gout attack. No wonder some golfers with gout start having gout attacks on the way home from the tournaments.
- **3.20 On pistachio, cashew, almond, ...** Phosphorus and sulfur increase acid load to the body. Pistachio, almond and cashew are loaded with phosphorus. (I have no data about sulfur.) They are bad for gout if one consumes too much of them. The mineral contents of some nuts, dates, etc. (per 100 grams) are:

	Calcium	Magnesium	Phosphorus	Potassium	Sodium
RDA (in mg)	1000	400	1090	4000	2400
Almond	270	303	523	758	1
Cashew	45	260	490	565	16
Pistachio	110	120	485	1024	405
Date	64	54	62	696	1
Broccoli crown	48	25	66	325	27
Beef, sirloin, raw	19	21	189	317	52
Chicken, breast, meat only, raw	11	28	196	255	65
Salmon	12	29	200	490	44

- **3.21 NSAIDs increase the chance of heart attacks.** A recent study of 650,590 patients who treated their arthritis with nsaids reports that the use of nsaids increases the chance of heart attacks: indomethacin/indocin by 71%, sulindac by 41%, ibuprofen by 11%, vioxx by 32% and celebrex by 9%. See www.Medscape.Com for more details.
- **3.22 "A rigid purine restricted diet is of dubious therapeutic value and can rarely be sustained for long,"** so says a gout expert, Professor A. G. Fam in "Gout, diet, and the insulin resistance syndrome at www.jrheum.com.
- **3.23 Spring Break(g)out.** There are more gout attacks in springtime than other seasons. It occurred in Chicago (40% of annual total), Philadelphia (32%), and Ferrara, Italy (36%). But in Australia, gout failed to notice it's down under and attacks Aussies in the fall, autumn that is.
- **3.24 Baking soda tablets.** Sodium bicarbonate (baking soda) tablets are available over the counter in drugstores. BS tablets from drugstores cost 20~30 times or more than baking soda from grocery stores. BS in water may work better for gout than BS tablets.

- **3.25 Apple Cider Vinegar has no medical properties.** There is no scientific evidence that apple cider vinegar has any medical properties," said Beth Fontenot, MS, LDN, RD, of McNeese State University and Lamar University in TX. Her comprehensive report on ACV can be found at: www.findarticles.com

In addition, ACV is known to:

- ruin the enamel on the teeth.
- cause corrosive esophageal injury.
- cause serious health problems -- hypokalemia, hyperreninemia and osteoporosis.

www.ncbi.nlm.nih.gov

www.ncbi.nlm.nih.gov

content.karger.com

- **3.26 Aspirin and gout.** Aspirin impacts on the blood uric acid level in two opposite ways. At a high dosage (>3 grams, about 9 or more regular 325 mg tabs, a day), aspirin can help kidneys excrete more uric acid thus lower the blood uric acid level. In the contrary, at a low dosage (< 2 grams, 6 or less regular tabs a day), aspirin can increase the blood uric acid levels. Aspirin at the low dosages is known to trigger, aggravate and prolong gout attacks. This includes daily use of a baby aspirin (80 mg). If one has gout, it is better to avoid aspirin at a low dosage. Consult the doctor before discontinuing the daily aspirin intake.
- **3.27 Pregnancy, Childbirth, and Gout.** Pregnancy and childbirth have a lot to do with the mothers' blood uric acid (ua) level which can be related to gout. The normal ua level of pre-menopausal women is less than 6 mg/dl. Interestingly, the ua level of neonates in gestation decreases from 7.7 in weeks 29~33, 6.0 in weeks 34~37, to 5.2 in weeks 38~40. In the contrary, the ua level of the pregnant mothers decreases significantly by 8 weeks gestation until about 24 weeks. Thereafter, the ua level is increased such that by term and through 12 weeks after the delivery, the ua level is higher than pre-pregnancy levels in most mothers. The ua levels of some pregnant mothers who had pre-eclampsia or eclampsia were 9.1~11.0 mg/dl or higher. Acute gout attacks can be triggered by sudden decrease of the blood uric acid level because the sudden change can cause the shedding of the protective protein coatings on mono-sodium urate (msu) crystals to expose the raw crystals to trigger the attacks. This gout triggering phenomenon can occur to the mothers who have coated msu crystals inbedded in their joints, and whose ua levels were very high 12 weeks after the delivery and then suddenly decreased to 6 mg/dl or lower afterwards.
- **3.28 Allopurinol may prevent obesity and lower blood lipid levels. (2/18/2007)** Xanthine oxidoreductase (XOR) is an enzyme which is necessary for the liver to change hypoxanthine to xanthine, and then to uric acid. Allopurinol (also called Zyloprim, Zyloric, Pro gout, etc.) is an XOR inhibitor (XORI) that has been used to reduce the production of uric acid and to prevent gout attacks. Now, in a report from the 2/7/2007 issue of Cell Metabolism, it has been shown that XORIs such as Allopurinol can block fat formation and may reduce levels of lipids (cholesterol, etc.) and oxidative stress commonly seen in obese individuals.

For more info, see:

<http://www.cellmetabolism.org/>

<http://www.sciencedaily.com/>

- **3.29 High-does (600 mg/day) Allopurinol improves blood flow in chronic heart failure patients** by reducing vascular oxidative stress. For more info see: <http://www.circ.ahajournals.org/> . (2/25/07)
- **3.30 Icing is beneficial and heating is not, in treating gout attacks and may help diagnose gout.**(2/25/07) The recommendations on whether icing or heating is beneficial to treat gout attack have been contradictory in the gout literature. Not any more. The data in a recent study has shown that significantly higher percentage of gout patients have found icing the gout attack sites helped relieve their pain as compared with patients with rheumatoid and other forms of arthritis. None of the gout patients benefited from heating the affected joints during the attacks. The result is so significant that the report goes so far as to suggest using icing to diagnose gout during the attacks, i.e., if one feels better by icing the attack site, it's gout; if not, it's not gout and is some other forms of arthritis. For more info see the original report at: <http://www.jclinrheum.com/>
- **3.31 Surgery, Anesthesia and Gout Attacks.** Surgery is known to trigger gout attacks, especially in gout patients. Can the anesthesia used in surgery be part of the problem? The answer is: very likely, depending on the kind of anesthesia used. As shown in the data below, anesthesia Propofol can lower the significant amount of the blood uric acid from 4.7 mg/dL to 3.7 (21% reduction) in 3 hours, and from 4.7 to 3.0 (36% reduction) in one day. Since sudden reduction of the blood uric acid is a major cause of triggering gout attacks, the use of Propofol in an hours-long surgery is potentially the gout trigger. If a gout patient is having a surgery, it is better to discuss the problem with the anesthesiologist ahead of time to determine on using the anesthesia that is less likely to trigger a gout attack.

Anesthesia Blood uric acid level (mg/dL) after anesthesia treatment

	Baseline	1 hr.	2 hrs.	3 hrs.	1 day
Propofol	4.7	4.2	4.1	3.7	3.0
Sevoflurane	4.9	4.7	4.6	4.7	4.0

- **3.32 Weight loss and gout.** In a study, 13 non-diabetic men who had at least 2 gout attacks during the previous 4 months were put on a 1600 kilocalories diet -- providing 40% of energy from complex carbohydrates, 30% from protein, and 30% from mono- and polyunsaturated fat. After 16 weeks, the average weight loss was 17 pounds. Their serum uric acid level decreased from 9.7 to 8.0 mg/dL -- with 7 (58%) of the 13 previously hyperuricemic patients having the normal UA level of 7 mg/dL. The frequency of monthly

attacks also decreased from 2.1 to 0.6. Quite impressive, considering no drug was used. For more info visit:

<http://ard.bmj.com/cgi/content/abstract/59/7/539>

- **3.33 Gout may prevent rheumatoid arthritis (RA), and vice versa.** It is extremely rare that gout and RA coexist. So if one has gout the chance to develop RA is near zero. Conversely, if one has RA, the chance to develop gout is nil.
- **3.34 Why fasting, rapid weight loss, and low-carb-high-fat diet trigger gout attacks.** When the body does not get enough energy from carbohydrates intake, it "burns" more fat for energy and produce extra ketones in the process. Ketones (the cousins of the powerful paint thinner acetone) are very acidic. When the ketones level is too high in the body, they cause ketoacidosis and trigger gout attacks.
- **3.35 Elevated Urate Levels May Slow the Progression of Parkinson's Diseases.** For more details, visit: www.hsph.harvard.edu
- **3.36 Orange, apple, and sweet fruit juices are quite bad in causing gout.** Fructose is long known to be bad for gout because it can raise the blood urate level. Now (2008), H. K. Choi and G. Curhan report that fructose, regular sugar-sweetened soft drinks, as well as, orange, apple, and, fruit juices high in fructose, can increase the relative risk of incident gout (i.e., the chance of having the first gout attack). Their report (in part, reformated here):

Relative risk of incident gout in men

Frequency of intake

	<1/month	1/month~1/week	2~4/week	5~6/week	1/day	>=2/day
Diet soft drinks (servings)	1	1.18	1.15	1.09	1.07	1.12
Regular (sugar-sweetened) soft drinks (servings)	1	1	.99	1.29	1.45	1.85
Total fruit juices* (small glass)	1	1.34	1.57	1.55	1.74	1.81
Orange or apple juices (small glasses)	1	1.41	1.59	1.55	1.53	1.82
Orange or apple	1	1.24	1.22	1.43	1.64	--

* Includes: orange, apple, grape, and other fruit juices.

For the original report, visit: <http://www.bmj.com/cgi/reprint/bmj.39449.819271.BEv1>

How to avoid gout? Reduce sugar intake and eat more vegetables and less sweet fruits and their juices.

- **3.37 Gout reduces the chance of having Parkinson's disease in 65 years or older by 30%.** For more info see "Gout and the risk of parkinson's disease: A cohort study" by De Vera et.al. at: <http://www.ncbi.nlm.nih.gov/pubmed/18975349> . (11/16/08)

- **3.38 What is the quality of physicians' care for gout in UK and the US?** Not very commendable according to the reports below:
 - "Suboptimal physician adherence to quality indicators for the management of gout and asymptomatic hyperuricaemia: results from the UK General Practice Research Database (GPRD)" by T. R. Mikuls, J. T. Farrar, W. B. Bilker, S. Fernandes and K. G. Saag (<http://rheumatology.oxfordjournals.org/cgi/reprint/44/8/1038>)
 - "Quality of care for gout in the US needs improvement" by SINGH Jasvinder A.; HODGES James S.; TOSCANO John P. ; ASCH Steven M. ; (<http://www3.interscience.wiley.com/cgi-bin/fulltext/114269937/PDFSTART>).

- **3.39 A successful gout management story.** Kingsmonarch was overweight and had gout. She was pondering to have a gastric bypass to solve both problems. Then she decided to try to reduce her weight first. As of March, 2009, she has lost 25 lbs a year for two years and has been gout free. Here is what she wrote: "... I have, however, remained on a lifestyle change of eating that has enabled me to remain free from gout attacks AND loose weight. I have lost 25 lbs a year for the past two years. (This is an average of 1/2 lb a week.) Loosing this slow has helped prevent me from having a gout attack. I continue taking allopurinal throughout this time as well. I eat a high fiber, low fat diet, and eat 5 small meals a day. I eat foods high in purine levels, but I space them out throughout the day. It used to be that high acid foods like tomatoes and citris would bother me, but I also eat them in moderation. It has been wonderful to be gout free for six years!" Congratulations, Kingsmonarch! (Her original messages can be found at: <http://ehealthforum.com/health/topic33768.html>) -- 3/15/09

Section 4: Uric Acid Content and pH of Foods and Drinks

pH and uric acid content of different foods and drinks (also called "purine content of foods") are given below. There is no reason why we cannot enjoy these foods and drinks even they are high in uric acid content. The idea is: the higher the uric acid content, the smaller the amount we eat. For people whose kidneys are unable to excrete sufficient acids in urine, it is important to avoid acidic (low-pH) foods and drinks because they can lower the blood and joint fluid pH which is bad for gout. How to apportion low pH foods and drinks in this case is a little more complicated. pH is on a logarithmic scale, e.g., a food of pH=2 is 10 times as acidic as pH=3, and 100 times as acidic as pH=4. Therefore, for these patients, it is better to consume only very small amounts of food and drink that have pH=2~4 and stay mostly with the ones that are near pH=7 or higher.

Food & Drink	pH	Uric Acid Average (range) (mg/100g)
Abalone		112
Almond, sweet		37
Anchovies	6.5	239
Apple	3.3~4.0	14
Apricot	3.3~4.8	73
Artichoke	5.5~6.0	78
Asparagus	6.0~6.7	23 (20~30)
Aspirin (325 mg in 25 mL water)	5.8	
Aubergine (eggplant)	5.5~6.5	21
Avocado	6.3~6.6	19
Bamboo shoots	5.1~6.2	29
Banana	4.5~5.2	57
Baking soda (2.5 mg in 50 mg water)	7.7	
Barley, whole grain	5.2~5.3 (cooked)	96
Bean, black		146 (137~146)
Beans, French (string beans)	5.6	37 (20~43)
Beans, French, dried		45 (40~50)
Bean, Indian		83
Bean, kidney		30

Bean, lentil, seed, dry	127 (114~165)
Bean, Mung	94
Bean, mungo, seed, dry	222
Bean, soybean cured (tofu)	68
Bean, soy	141
Bean, soy, seed, dry	190
Bean, soy sauce	6 (1~10)
Bean sprout, soy	80
Bean, Uzura	71
Bean, white, seed, dry	128
Beef, brain	75
Beef, brain, calf's	92
Beef, chest gland	1032
Beef, chuck	120
Beef, corned	57
Beef, fillet	110
Beef, fore rib	120
Beef, heart	256 (256~408)
Beef, kidney	269 (200~269)
Beef, kidney, calf's	218 (218~240)
Beef, liver	554 (333~554)
Beef, liver, Calf's	460
Beef, lungs (lights)	399
Beef, lungs, calf's	147

Beef, muscles only		133
Beef, roast, sirloin		110 (110~120)
Beef, shoulder		110
Beef, spleen		444
Beef, spleen, calf's		343
Beef, tongue		160
Beef, calf's chop, cutlet with bone		140
Beef, calf's fillet		140
Beef, calf's knuckle with bone		150 (140~160)
Beef, calf's leg, with bone		150
Beef, calf's, liver		233
Beef, calf's lungs		147
Beef, calf's, muscle only		172
Beef, calf's, neck with bone		150
Beef, calf's, shoulder		140
Beer, alcohol free		8
Beer, Lager	4.0~4.7	
Beer, regular	3.3~3.7	13
Beer, light		14
Beet root	5.3~6.6	19 (15~21)
Bilberry, blueberry, huckleberry		22 (15~40)
Blackberry	3.9~4.5	
Blueberry	3.1~3.3	

Brandy	4.1	
Bread, wheat	5.0~6.2	14
Bread, rolls		21
Broccoli	6.3~6.5 (cooked)	81
Brussel sprouts	6.0~6.3	69
Cabbage, red	5.6~6.0	32 (20~37)
Cabbage, savoy	6.3	37 (20~42)
Cabbage, white	6.2	22
Cantelope		33
Carp	6.0	160
Carrot	5.9~6.4	17 (14~25)
Cauliflower	5.6	51
Caviar	5.7~6.0	144
Caviar substitute		18
Celery, root (celeriac)	5.7~6.0	30
Cherry	3.3~4.5	
Cheese, Brie	7.1	7
Cheese, Cheddar, 50% fat	5.9	6
Cheese, cottage	4.8~5.0	9
Cheese, edam, 30~45% fat	5.4	7
Cheese, Limburger, 20% fat		32
Cherry, Morello		17
Cherry, sweet	4.0~4.5	7

Chicken, breast		137
Chicken (breast with skin)		175
Chicken (for roasting)		115
Chicken, boiling fowl		159
Chicken, leg with skin, without bone		110
Chicken, liver		243
Chicory		12
Chives	5.2~6.3	67
Clams		221
Club soda	5.0	
Cocoa powder, part of oil removed		71
Coffee, brewed	5.5	
Cod	5.3~6.1 (boiled)	109
Cola & clear soda drinks	2.7	
Corn, sweet	5.9~7.3	52
Crab	6.5~7.0	168
Cranberry	2.3~2.5	
Crayfish		60
Cress		28
Crispbread		60
Cucumber	5.1~5.8	7
Currant, red		17
Dates, dried		35

Deer, back		105
Deer, leg		138
Deer, meat		111
Duck		138 (138~153)
Duck, heart		147
Egg, Chicken		~0
Eggplant (aubergine)	5.5~6.5	21
Eel		115
Eel, smoked		78 (45~115)
Elderberry, black		33
Endive		17
Fennel leaves	5.5~5.9	14 (10~16)
Fig (dried)		64
Fish, anchovy	6.5	239
Fish, avalone		112
Fish, carp	6.0	160
Fish, cod	5.3~6.1	109
Fish, crayfish		60
Fish, eel		115
Fish, eel, smoked		78 (45~115)
Fish, haddock	6.2~6.8	139
Fish, halibut		178
Fish, herring roe		190

Fish, herring, Atlantic	6.1	210
Fish, herring, Matje cured	4.5~5.0	219
Fish, mackerel	6.1~6.5 (boiled)	145 (95~194)
Fish, pike		140
Fish, pike-perch		110
Fish, pedfish (ocean perch)		241
Fish, paithe (coalfish)		163
Fish, salmon	5.4~6.5	170 (110~250)
Fish, sardine		345
Fish, sardines in oil	5.4~5.9	480 (399~560)
Fish, shellfish, shrimp, brown	6.5~7.0	147 (60~234)
Fish, sole		131 (125~137)
Fish, trout		297
Fish, tuna		257
Fish, tuna in oil		290
Frankfurter sausages		89 (69~130)
Goose		165 (165~240)
Gooseberry	2.8~3.1	16
Grape	2.8~3.8	27
Grape, dried, raisin, sultana		107
Grapefruit	3.0~3.8	
Grass, viper's (black salsify)		71
Ham, cooked		131
Horse meat		200

Kale	6.4~6.8	48
Kiwi fruit		19
Kohirabi		25 (11~30)
Lamb, muscles only)		182
Lamb, heart		241 (241~408)
Lamb, kidney		195 (195~336)
Lamb, sparerib		125
Lamb, spleen		773
Shrimp, brown	6.5~7.0	147 (60~234)
Leek	5.5~6.2	74
Lentil, seed, dry		127 (114~165)
Lemon, juice	2.0~2.8	
Lettuce	5.8~6.5	13 (10~29)
Lettuce, lamb's		38
Lime juice	2.0~2.8	
Linseed		105
Liver	6.8	
Liver, beef		554 (333~554)
Liver, calf's		460
Liver, chicken		243 (243~645)
Liver, Pork		516 (516~548)
Lobster	7.1~7.4	118 (60~175)
Maize		10

Meat extracts		280 (160~400)
Melon, cantelope	6.1~6.6	33
Milk, cow	6.4~6.8	
Millet, shucked corn		62
Morel		30
Mushroom	6.0~6.7	58 (55~215)
Mushrooms, canned, solid & liquid		29
Mushrooms, chanterelle, canned, solid & liquid		17
Mushroom, flat, edible boletus, cep		92
Mushroom, flat, edible boletus, dried		488
Mushroom, morel		30
Mushroom, oyster		50
Mussels	6.0~6.9	112
Neck sweet bread, Calf's		1260
Nuts, almond, sweet		37
Nuts, brazil		23
Nuts, hazelnut (cobnut)		37 (27~42)
Nuts, peanut		79
Nuts, walnut		25
Oat		60

Oats, whole grain		94
Olive, green, marinated		29
Onion	5.3~5.8	13
Orange	3.6~4.3	19
Oyster		90
Oysters		239 (Hong Kong site)
Parsley, leaf	5.7~6.0	57
Pasta made with egg		40
Pea, pod and seed, green		84
Pea, seed, dry		95 (85~167)
Peach	3.3~4.1	21
Peanut		100
Pear	3.5~4.6	12 (2~17)
Peas, chick (garbanzo), seed, dry	5.2~5.9	109
Peppers, green		55
Pineapple	3.2~4.0	19
Plaice		93
Plum	2.8~4.5	24
Plum, dried		64
Prune	4.0	
Poppy seed, dry		170
Pork belly		100 (80~110)
Pork belly, raw, smoked dried		127

Pork brain		83
Pork chop with bone		145 (140~150)
Pork chuck		140 (135~145)
Pork fillet		150 (145~150)
Pork ham, cooked		131
Pork heart		530 (408~530)
Pork kidney		334 (240~336)
Pork leg (hind leg)		160 (150~160)
Pork liver		515 (516~548)
Pork, lungs (lights)		434
Pork muscles only		166 (154~166)
Pork shoulder with skin		150 (145~150)
Pork, sparerib		118
Pork, spleen		516
Pork tongue		136
Potato	5.4~5.9	16
Potato, cooked with skin		18
Pudding, black		55 (37~91)
Pumpkin	4.9~5.5	44
Quince	3.1~3.4 (stewed)	30
Rabbit meat, with bone		112 (95~150)
Rabbit/Hare		105
Radish		15
Radishes	5.5~6.1	13

Raspberry	3.2~4.0	18
Rhubarb	3.1~3.4	12
Rye, whole grain		51 (47~63)
Sauerkraut, dripped off		16 (12~20)
Sausage "Bierschinken"		85
Sausage "Fleischwurst"		78
Sausage "Jagdwurst"		112
Sausage, Franfurter		89 (69~130)
Sausage "Mortadella"		96 (79~130)
Sausage "Munich Weisswurst"		73
Sausage salami, German		104
Sausage, liver (liverwurst)		165
Sausage, Vienna		78
Sausage, frying, from pork		101
Sausage, frying, from veal		91
Sausage, German (Mettwurst)		74
Scallop	6.0	136
Scallop, dried		390
Seaweeds		274
Seltzer	3.6	
Sesame seed, Asian, dry		62
Sheep's heart		241 (241~408)

Sheep's kidney		195 (195~336)
Sheep's, sparerib		125
Sheep's spleen		773
Shellfish, scallop		112
Shellfish, crab	6.5~7.0	168
Shellfish, mussels	6.0~6.9	112
Shellfish, oyster		90
Shellfish, oysters		239
Shellfish, shrimp, brown	6.5~7.0	147 (60~234)
Soybean		141
Soy, bean sprouts		80
Soy, Tofu		68
Soy, seed, dry		190
Soy, sauce		6 (1~10)
Spinach	5.5~6.8	57 (57~70)
Sprat, smoked		804
Squash, summer	5.2~6.5 (cooked)	24
Strawberry	3.0~3.9	21 (12~26)
Sunflower seed, dry		143
Sweetbreads		825
Sweetbread, calf's neck		1260
Tea, brewed	4.0~6.5	
Tench		80
Theobromine		2300

Tofu	7.2	68
Tomato	4.0~4.6	
Tonic water	2.5	
Trout		297
Tuna		257
Tuna, in oil		290
Tomato	4.3~4.9	11
Turkey, young, average, with skin		150
Veal chop, cutlet with bone		140
Veal fillet		140
Veal knuckle with bone		150 (140~160)
Veal, leg, with bone		150
Veal, muscle only		172
Veal, neck with bone		150
Veal, shoulder		140
Venison back		105
Venison haunch (leg)		138 (105~154)
Vinegar	2.4~3.4	
Vodka	4.5	
Wheat, whole grain		51 (40~83)
Whisky	4.0	

Wine	2.8~3.5	
Yeast, baker's		680 (589~680)
Yeast, brewer's		1810
Yogurt, min 3.5% fat		8
