NATIONAL CENTRE FOR NUTRITIONAL EDUCATION
Online Dietetic Centre

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HYPERURICEMIA AND GOUT

Gout is also known as podagra or arthritis. A characteristic feature of this disease is the occurrence of recurrent joint inflammation accompanied by pain, redness, tenderness, increased temperature, and swelling. The cause of gout is an excessively high concentration of uric acid in the blood, known as hyperuricemia. Excess uric acid is deposited in the joints, tendons, and surrounding tissues in the form of crystals (so-called tophi). The concentration of uric acid in the blood depends on its production in the body (including as a result of metabolizing purines supplied with the diet) and its excretion by the kidneys.

DIET

Lifestyle modifications, including dietary habits, can contribute to lowering blood uric acid levels and constitute an important element of gout treatment. A diet based on the principles of healthy nutrition is recommended, with a restriction of purine intake to ***300 mg/day*** (during gout attacks or severe hyperuricemia, down to ***120 mg/day***). This requires limiting the consumption of products containing high and moderate amounts of purine compounds, i.e., offal, meat and meat products, seafood, yeast, fish, and fish products. Additionally, it is important to reduce the intake of simple sugars (especially fructose) and alcohol, which also affect blood uric acid levels. The diet should simultaneously be tailored to the individual needs of the patient. For this purpose, you can seek the help of a dietitian, who will support you in changing your eating habits.

KEY DIETARY RECOMMENDATIONS

1. Consume 4–5 meals a day at regular intervals (every 3–4 hours). Eat your last meal 2–3 hours before sleep.
2. Limit the consumption of products with high and moderate purine content, e.g., meat and bone broths, fish stocks, meat and meat products, offal, fish and fish products, seafood, and yeast. A diet rich in purine compounds directly contributes to increased blood uric acid levels. Furthermore, during acute attack periods, a vegetarian diet is recommended.
3. Limit products containing added fructose, glucose-fructose syrup, and high-fructose corn syrup, such as: sweetened beverages, energy drinks, sweets, sweetened dairy products, and jams. A high amount of fructose in the diet increases uric acid production in the body.
4. Consume milk (up to 2% fat) and natural dairy products daily, e.g., yogurt, kefir, or cottage cheese. Milk is low in purine compounds, and some of its components (casein, lactoglobulin, milk peptides) can help lower uric acid levels. Consuming one serving of milk or yogurt daily leads to a reduction in blood uric acid concentration by an average of ***0.25 mg/dl***.
5. Include legumes and nuts in your diet. Legume seeds contain moderate amounts of purines (***100–200 mg/100 g*** of product), but their bioavailability is very low. No correlation has been observed between blood uric acid levels and the consumption of beans, lentils, or peas. At the same time, these products are a good source of protein and can serve as meat substitutes in the diet.
6. Eat vegetables as often as possible, mainly raw. They are a source of dietary fiber, vitamins, and anti-inflammatory components. Ensure that vegetables make up at least half of what you eat (minimum ***400 g/day***).
7. Consume fresh and/or frozen fruits in smaller quantities relative to vegetables (maintaining the correct proportion of vegetables and fruits), as they contain more simple sugars. Cherries or low-sugar sour cherry concentrate can help lower blood uric acid levels.
8. Ensure an adequate intake of vitamin C in your diet, which contributes to increased renal excretion of uric acid. Its sources include fresh vegetables, fruits, and herbs. Particularly high content is found in parsley leaves, bell peppers, Brussels sprouts, blackcurrants, and strawberries.
9. Avoid thermal processing methods that require fat, in favor of boiling, steaming, or baking in foil/roasting bags. Boiling in water is particularly recommended because it reduces the purine content in cooked products due to leaching into the water. For this reason, consuming meat and bone broths is not recommended.

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KEY DIETARY RECOMMENDATIONS (CONTINUED)

10. Drink at least 3 liters of fluids daily to prevent excessive precipitation of uric acid crystals. Dehydration can contribute to an increase in blood uric acid concentration and worsen pain symptoms.
11. In case of overweight or obesity, try to gradually reduce body weight; this can bring health benefits, including a reduction in the frequency of gout attacks. A weight loss of 5–10 kg is associated with a reduction in blood uric acid levels by up to ***0.6 mg/dl***.
12. If you are considering an alternative diet, consult this intention with a dietitian and/or your attending physician. Certain dietary interventions, such as fasting, extreme calorie restriction, and low-carbohydrate diets, can trigger counterproductive effects. Their use may lead to a significant spike in blood uric acid concentration and increase the risk of acute gout attacks.

PHYSICAL ACTIVITY

1. Maintain regular physical activity. Strive to make daily activities, such as house cleaning, walking, dancing, or choosing stairs instead of the elevator, part of your routine. Simple activities also yield health benefits, and any physical activity is better than none. Engage in at least 30 minutes of moderate-intensity physical effort (e.g., walking, jogging, cycling, or swimming) every day.

OTHER LIFESTYLE FACTORS

1. Eliminate alcohol from your diet, especially beer (including non-alcoholic beer). Ethanol contained in alcoholic beverages increases blood uric acid concentration, partly by reducing the urinary excretion of this compound. Additionally, beer contains significant amounts of purine compounds alongside ethanol. As beer and spirit consumption increases, blood uric acid levels and the risk of acute arthritis rise.
2. Quit tobacco smoking.

REFERENCES

1. Dalbeth N., Merriman T. R., Stamp L. K.: Gout. *Lancet*. 2016; 388(10055): 2039-2052. doi: 10.1016/S0140-6736(16)00346-9.
2. Ragab G., Elshahaly M., Bardin T.: Gout: An old disease in new perspective. *J. Adv. Res.* 2017; 8(5): 495-511. doi: 10.1016/j.jare.2017.04.008.
3. Beyl Jr, Randall N., Hughes L., Morgan S.: Update on importance of diet in gout. *Am. J. Med.* 2016; 129(11): 1153-1158. doi: 10.1016/j.amjmed.2016.06.040.
4. Towiwat P., Li Z. G.: The association of vitamin C, alcohol, coffee, tea, milk and yogurt with uric acid and gout. *Int. J. Rheum. Dis.* 2015; 18(5): 495-501. doi: 10.1111/1756-185X.12622.
5. FitzGerald J. D., et al.: 2020 American College of Rheumatology guideline for the management of gout. *Arthritis Care Res. (Hoboken)*. 2020; 72(6): 744-760. doi: 10.1002/acr.24180.
6. Mayo Clinic Staff: Gout diet: What's allowed, what's not. Starting a gout diet? Understand which foods are OK and which to avoid [Internet] [Accessed: 7.11.2023]. Available at: https://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/in-depth/gout-diet/art-20048524
7. Kozłowska L.: Terapia dietetyczna hiperurykemii i dny moczanowej [in]: Włodarek D., Lange E. (eds.), *Współczesna dietoterapia*, Warszawa 2023, pp. 499-514.
8. Czapla M., Jankowski P. (eds.): *Żywienie w chorobach serca*. Wydawnictwo Lekarskie PZWL, Warszawa, 2022, pp. 282-293.

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RECOMMENDED AND NON-RECOMMENDED PRODUCTS IN HYPERURICEMIA AND GOUT

Remember that the overall quality of your diet, the composition of individual meals, and the selection of quality products are key. The table below provides examples of foods that should form the foundation of your diet, as well as those you should minimize. These are guidelines to help improve your dietary habits.

Food Group	Recommended	Not Recommended
Vegetables	• All fresh and frozen	• Vegetables with added fatty sauces, roux
Fruits	• All fresh and frozen • Dried fruits in moderate quantities	• Candied fruits • Fruits in heavy syrup
Cereal Products	• Whole-grain flours • Whole-meal and graham bread • Natural cereal flakes: oat, barley, spelt, rye • Wheat, rye, oat bran • Buckwheat, pearl barley, bulgur, quinoa • Brown, wild, red rice • Whole-grain pasta: wheat, rye, buckwheat, spelt	• Refined flour • Confectionery bakery goods, white bread (toast, Kaiser rolls, regular white bread, sweet brioche buns) • Breakfast cereals with added sugar (cornflakes, chocolate cereal, muesli, crunchy) • Fine groats: couscous, semolina, corn semolina • White rice • White pasta: wheat, rice
Potatoes	• Boiled • Baked	• Potatoes with added fatty sauces, roux, sour cream, butter • Fried • French fries, potato chips • Potato pancakes fried in fat
Milk and Dairy Products	• Low-fat milk (up to 2%) • Dairy products: natural (unsweetened), fermented, up to 3% fat (e.g., yogurt, kefir, buttermilk, skyr, cottage cheese, curdled milk) • Low-fat and semi-skimmed curd/cottage cheese • Mozzarella light • Sandwich spread cheeses (in moderate amounts)	• Whole-fat milk • Condensed milk • Heavy cream, coffee creamer • Fruit yogurts with added sugar, dairy desserts • Cheeses: full-fat white and yellow cheeses, processed cheese, feta-type, mold cheeses (brie, camembert, roquefort), full-fat mascarpone
Eggs	• Soft-boiled, hard-boiled, poached eggs, scrambled eggs and omelet prepared without fat or with a minimal amount	• Eggs fried in large amounts of fat (e.g., butter, bacon, lard, pork fat) • Eggs with mayonnaise
Meat and Meat Products	*In moderate amounts:* • Lean skinless meats: veal, chicken, turkey, rabbit • Lean beef and pork (e.g., pork loin, tenderloin) • Lean cold cuts, preferably homemade: tenderloin, cooked ham, poultry cold cuts, baked pork loin, baked turkey/chicken breast	• Fatty meats: pork, beef, mutton, goose, duck • Fatty cold cuts (e.g., baleron, salami, head cheese, bacon, luncheon meats) • Canned meats, offal cold cuts, pâtés, frankfurters, kabanos sausages, sausages
Fish and Fish Products	• Lean marine and freshwater fish (e.g., cod, sole, hake, blue whiting, zander, bream, pike, perch, pollock)	• Fatty marine fish (tuna, halibut, salmon, anchovy, mackerel, trout, herring) • Seafood (shrimp, mussels, clams) • Canned fish, smoked fish
Legume Seeds and Products	• All, e.g., chickpeas, peas, lentils, beans, broad beans • Legume pastes • Soy flour, unsweetened soy drinks, soy products: tofu, tempeh • Legume pastas (e.g., bean, pea)	• Low-quality ready-made legume products (e.g., soy frankfurters, breaded soy cutlets, soy pâtés, vegetarian burgers)

RECOMMENDED AND NON-RECOMMENDED PRODUCTS (CONTINUED)

Food Group	Recommended	Not Recommended
Fats	• Olive oil, rapeseed oil, linseed oil • Butter and vegetable oil blends without palm oil • Soft margarines • Margarines with plant sterols and stanols ** Occasionally, you may use a small amount of recommended plant fat (e.g., olive oil or rapeseed oil).*	• Butter and clarified butter (in limited amounts) • Lard, pork fat, tallow • Hard stick margarines • Tropical oils: palm, coconut • Mayonnaise
Nuts, Seeds, Kernels	• Nuts (e.g., walnuts, hazelnuts), almonds • Seeds and kernels (e.g., pumpkin, sunflower, flaxseed)	• Nuts and seeds: salted, chocolate-covered, caramelized, honey-coated, spiced, breaded, or chip-flavored
Sugar, Sweets, Salty Snacks	• Dark chocolate (min. 70% cocoa) • Plain yogurt with fruit, fruit yogurt without added sugar • Natural sweeteners (e.g., xylitol, stevia, erythritol) • Homemade baked goods without added sugar • Fruit purées, mousses, sorbets without added sugar • Low-sugar jam • Jelly / gelatin desserts without added sugar	• Sugar (e.g., white, cane, brown, coconut) • Honey, maple syrup, date syrup, agave syrup • High-sugar and high-fat sweets (e.g., cakes, cookies, candy bars, milk and white chocolate, halva, donuts, angel wings, candies) • Salty snacks (e.g., potato chips, salted pretzel sticks, puffed corn snacks, crackers, nachos)
Beverages	• Water • Unsweetened beverages (e.g., coffee, grain coffee, tea, herbal and fruit infusions, unsweetened fruit compote, cocoa) • Vegetable juices • Homemade unsweetened lemonade	• Fruit juices • Alcoholic beverages • Sweet carbonated and non-carbonated drinks • Energy drinks • Fruit nectars, highly sweetened fruit syrups • Drinking hot chocolate
Spices and Sauces	• Single-ingredient fresh and dried herbs (e.g., basil, oregano, turmeric, cinnamon, ginger), Herbes de Provence • Spice blends without added salt • Homemade salad dressings made from lemon, a small amount of oil or yogurt, herbs • Sodium-potassium salt in limited amounts	• Salt (e.g., table, Himalayan, sea salt) • Spice mixes containing large amounts of salt • Bouillon cubes • Liquid flavor enhancers / seasonings • Commercial ready-made sauces
Soups	• Vegetable broth-based soups • Soups thickened with up to 2% fat milk or yogurt	• Meat broth-based soups • Soups made with roux or cream • Instant soups
Ready Meals	• Frozen vegetable and fruit mixes • Grain and legume seed mixes • Instant oatmeals • Cream soups • Ready-to-cook stir-fry vegetable mixes • Vegetable pastes and purées without added salt	• Fast food items (e.g., toasted sandwiches, hot dogs, hamburgers, kebabs) • Frozen pizzas, casseroles • Delicatessen products in breading, fatty sauces, or made from refined flours • Instant meals (e.g., sauces, soups)
Culinary Processing Techniques	• Boiling in water, steaming (cereal products and vegetables cooked al dente) • Grilling (electric grill, grill pans) • Baking in foil, parchment paper, roasting sleeve, heat-resistant dish • Pan-frying without added fat • Stewing without prior browning/frying	• Deep-fat frying • Stewing with prior browning/frying • Baking with large amounts of fat • Breading / batter coating

Read labels, compare ingredients, and pay attention to added sugar, salt, and fat content.

SAMPLE QUALITATIVE MENU IN HYPERURICEMIA AND GOUT

BREAKFAST

Pancakes with Basil Cottage Cheese

- Wheat flour
- Rye flour
- Chicken eggs
- Sparkling water
- Sesame seeds
- Semi-skimmed cottage cheese (twaróg)
- Natural yogurt
- Tomato
- Fresh basil

SECOND BREAKFAST

Sandwiches with Red Lentil Spread, Olives, and Parsley

- Whole-grain bread
- Red lentils
- Green olives
- Parsley leaves
- Onion
- Olive oil

LUNCH

Pumpkin and Chickpea Curry

- Pumpkin
- Potatoes
- Chickpeas
- Carrot
- Onion
- Garlic
- Basmati rice
- Cumin seeds, coriander, turmeric
- Rapeseed oil

AFTERNOON SNACK

Cherry Smoothie

- Frozen cherries
- Water
- Apple
- Blueberries
- Flaxseed

DINNER

Arugula Salad with Grilled Nectarine and Croutons

- Arugula
- Lamb's lettuce
- Nectarine
- Mozzarella cheese
- Walnuts
- Lemon juice
- Balsamic vinegar
- Honey
- Linseed oil
- Almonds
- Graham bread

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