Narodowe Centrum Edukacji Żywieniowej

Centrum Dietetyczne Online

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HYPERURICEMIA AND GOUT

Gout, also known as podagra or arthritis, is characterized by recurring inflammatory episodes in the joints, 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 deposits in the joints, tendons, and surrounding tissues in the form of crystals (known as tophi). The concentration of uric acid in the blood depends on its production in the body (including the metabolism of purines provided by the diet) and its excretion by the kidneys.

Diet

Lifestyle modification, including dietary changes, can contribute to lowering blood uric acid concentrations and is an important part of the treatment of gout. **A diet based on healthy eating principles with a purine supply restriction to 300 mg/day (in gout attacks or hyperuricemia to 120 mg/d) is recommended.** This requires limiting the intake of products containing high and moderate amounts of purine compounds, e.g. offal, meat and meat products, seafood, yeast, fish and fish products. In addition, it is important to reduce the intake of simple sugars (especially fructose) and alcohol, which also affect blood uric acid concentrations. At the same time, the diet should be individually adapted to the needs of the patient. For this purpose, consulting a dietitian can be helpful in supporting dietary habit changes.

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Key nutritional recommendations

1. Consume 4-5 meals a day, at regular intervals (every 3-4 hours). Eat your last meal 2-3 hours before bedtime.
2. Limit the consumption of products with high and moderate purine content, e.g. meat and bone broths, fish broths, meat and meat products, offal, fish and fish products, seafood, yeast. A diet rich in purine compounds directly contributes to increased uric acid concentrations in the blood. In addition, a vegetarian diet is recommended during the period of acute gout attacks.
3. Limit products containing added fructose, glucose-fructose syrup and corn syrup, such as sweet drinks, energy drinks, sweets, sweetened dairy products, jams. High amounts of fructose in the diet increase uric acid production in the body.
4. Consume milk (up to 2% fat) and natural dairy products, e.g. yoghurt, kefir or cottage cheese, on a daily basis. Milk is low in purine compounds, and some of its components (casein, lactoglobulin, milk peptides) may have a lowering effect on uric acid concentrations. **Consuming one serving of milk or yoghurt per day reduces blood uric acid concentrations by an average of 0.25 mg/dl.**
5. Include legumes and nuts in your diet. Legumes contain moderate amounts of purines (100-200 mg/100 g product), but their bioavailability is very low. No correlation is 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 be a substitute for meat in the diet.
6. Eat vegetables as often as possible, mainly raw. They are a source of dietary fibre, vitamins and anti-inflammatory ingredients. Make sure that vegetables make up at least half of what you eat (minimum 400 g/day).
7. Consume fresh and/or frozen fruit in smaller quantities relative to vegetables (with a ratio of ¾ vegetables and ¼ fruit), as they contain more simple sugars. Sour cherries or low-sugar sour cherry concentrate may help to support the lowering of uric acid levels in the blood.
8. Ensure adequate intake of vitamin C with the diet, which contributes to increased excretion of uric acid by the kidneys. Its sources are fresh vegetables, fruit and herbs. Particularly rich in vitamin C are, for example, parsley, bell peppers, Brussels sprouts, blackcurrants and strawberries.
9. Avoid heat treatments requiring fat in favour of boiling, steaming, baking in foil or baking sleeves. **Cooking in water is particularly recommended, because of the reduction of purines in the cooked product due to their penetration into the water. For this reason, meat and bone broths are not recommended.**

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10 Drink at least 3 litres of fluids a day to prevent excessive precipitation of uric acid crystals. Dehydration can contribute to increased uric acid concentrations in the blood and increased pain.

11 If you are overweight or obese, try to gradually reduce your body weight - which will lead to health benefits, including a reduction in the frequency of attacks. **A weight reduction of 5-10 kg is associated with a reduction in uric acid concentrations up to 0.6 mg/dl.**

12 **If you are considering an alternative diet, consult your dietitian and/or attending physician about your intention.** Some dietary interventions, e.g. fasting, high energy deficit diets and low carbohydrate diets, can be counterproductive. Their use may be associated with a significant increase in blood uric acid concentrations and increase the risk of acute gout attacks.

Physical activity:

1 Try to get regular physical activity and perform daily activities such as housework, walking, dancing or choosing the stairs instead of the elevator, as a part of your routine. Simple activities also have health benefits, and any physical activity is better than no activity. Do at least 30 minutes of moderate-intensity exercise (e.g. walking, running, cycling or swimming) each day.

Other lifestyle elements:

1 Eliminate alcohol from your diet, especially beer (including non-alcoholic beer). The ethanol contained in alcoholic beverages increases the concentration of uric acid in the blood by, among other things, reducing the excretion of this compound in the urine. In addition to ethanol, beer contains significant amounts of purine compounds. With increased consumption of beer and spirits, the concentration of uric acid in the blood and the risk of acute arthritis increases.

2 Give up smoking.

Literature:
1. Dalbeth N., Merriman T. R., Stamp L. P.: 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].[Dostęp: 7.11.2023]. Dostępny w: https://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/in-depth/gout-diet/art-20048524
7. Kozłowska L.: Terapia dietetyczna hiperurykemi i dny moczanowej [w]: Włodarek D., Lange E. (red.), Współczesna dietoterapia, Warszawa 2023, s. 499-514.
8. Czapla M., Jankowski P. (red.): Żywienie w chorobach serca. Wydawnictwo Lekarskie PZWL, Warszawa, 2022, pp. 282-293.

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Foods recommended and not recommended in hyperuricemia and gout

Remember that the entirety of your diet, the composition of individual meals and the quality of the products you choose are important. The table below contains examples of products that should be the basis of your diet and those that you should keep to a minimum. These are guidelines for changing your eating habits for the better.

Product group	Recommended	Not recommended
Vegetables 	• all fresh and frozen	• vegetables with fatty sauces, roux
Fruit 	• all fresh and frozen • dried fruit in moderation	• candied fruit • fruit in syrup
Grain products 	• wholemeal flours • whole wheat and graham bread • natural cereal flakes: oat, barley, spelt, rye • wheat bran, rye bran, oat bran • groats: buckwheat, pearl barley, bulgur, quinoa • rice: brown, wild, red • whole wheat pasta: wheat, rye, buckwheat, spelt	• refined flour • confectionery, light bread (toast, Kaiser rolls, bread, butter rolls) • breakfast cereals with added sugar (corn, chocolate, • muesli, crunchy) • fine groats: couscous, semolina, cornmeal • white rice • light pasta: wheat, rice noodles
Potatoes 	• cooked • baked	• potatoes with fatty additives like cream or butter • fried • chips, crisps • fried potato pancakes
Milk and dairy products 	• reduced-fat milk (up to 2%) • dairy products: natural (no sugar added), fermented, up to 3% fat (e.g. yoghurt, kefir, buttermilk, skyr, grain cheese, soured milk). • lean and semi-skimmed cottage cheese • light mozzarella • cheese spreads (in moderation)	• whole milk • condensed milk • cream, coffee creamer • fruit yoghurts with added sugar, dairy desserts • cheeses: full-fat cheese, processed cheese, feta-type cheeses, soft cheeses such as brie, camembert, roquefort, full-fat mozzarella, mascarpone
Eggs 	• soft-boiled, hard-boiled, poached eggs, scrambled eggs and omelette fried with little or no fat	• eggs fried in large amounts of fat (e.g. butter, bacon, lard, salo) • eggs with mayonnaise
Meat and meat products 	In moderation: • lean meats without skin: veal, chicken, turkey, rabbit • lean beef and pork (e.g. loin, sirloin) • lean cold cuts, preferably home-made: sirloin, cooked ham, poultry cold cuts, roast pork loin, roast turkey/-chicken breast	• fatty meats: pork, beef, mutton, goose, duck • fatty cold meats (e.g. gammon, salami, brawn, bacon, spam) • tinned meat, offal meat, pâtés, sausages, kabanos sausages
Fish, fish products and seafood 	• lean sea and freshwater fish (e.g. cod, sole, hake, blue grenadier, zander, bream, pike, perch, pollock)	• fatty sea fish (tuna, halibut, salmon, anchovy, mackerel, trout, herring) • seafood (shrimp, mussels, clams) • canned fish, smoked fish
Legumes and legume products 	• all, e.g. chickpeas, peas, lentils, beans, broad beans • legume spreads • soy flour, soy drinks with no added sugar, soy products: tofu, tempeh • pasta made from legumes (e.g. beans, peas)	• low-quality ready-made legume products (e.g. soy sausages, breaded soy cutlets, soy pâtés, veggie burgers)

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Foods recommended and not recommended in hyperuricemia and gout

Product group	Recommended	Not recommended
Fats 	• olive oil, canola oil, linseed oil • blends of butter with vegetable oils not containing palm oil in their composition • soft margarines • margarines with added plant sterols and stanols	• butter and clarified butter in limited quantities • lard, bacon, tallow • hard margarines (blocks) • tropical oils: palm, coconut • mayonnaise
Nuts, seeds 	• nuts (e.g. walnuts, hazelnuts), almonds • seeds (e.g. pumpkin, sunflower)	• nuts and seeds: salted, in chocolate, caramel, honey, sprinkles, breading and chips
Sugar and sweets, salty snacks 	• dark chocolate min. 70% cocoa • natural yoghurt with fruit, fruit yoghurt with no added sugar • natural sweeteners (e.g. xylitol, stevia, erythritol) • home-made baked goods with no added sugar	• fruit purees, mousses, sorbets with no added sugar • sugar (e.g. white, cane, brown, coconut) • honey, maple syrup, date syrup, agave syrup • sweets with a high sugar and fat content (e.g. cakes, biscuits, chocolate bars, milk and white chocolate, halva, doughnuts, angel wings, sweets) • low-sugar jam • jellies and kissels with no added sugar • salty snacks (e.g. chips, salty bread sticks, crisps, crackers, nachos, puffed crisps)
Beverages 	• water • drinks with no added sugar (e.g. coffee, cereal coffee, teas, herbal and fruit infusions, kompots, cocoa) • vegetable juices • homemade unsweetened lemonade	• fruit juices • alcoholic beverages • sweetened carbonated and non-carbonated drinks • energy drinks • nectars, high-sugar fruit syrups • drinking chocolate
Spices and sauces 	• fresh and dried single-ingredient 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 yoghurt, herbs • potassium sodium salt in limited quantities	• salt (e.g. table salt, Himalayan salt, sea salt) • spice mixtures containing a high proportion of salt • bouillon cubes • liquid flavour enhancers • ready-made sauces
Soups 	• soups with vegetable broth • seasoned with milk up to 2% fat or yoghurt	• soups with meat broth • soups with roux, seasoned with sour cream • instant soups
Prepared meals 	• mix of frozen fruit and vegetables • mixtures of groats and legumes • instant oatmeal • creamy soups • ready-made stir-fry vegetable dishes • salt-free vegetable spreads and purees **Read labels, compare ingredients and pay attention to added sugar, salt and fat content.*	• fast food (e.g. toasted open-faced sandwiches, hot dogs, hamburgers, kebabs) • frozen pizzas or toasted open-faced sandwiches • ready-made foods in bread crumbs, in fatty sauces, containing refined flours • instant dishes (e.g. sauces, soups)
Technological processing of food 	• cooking in water, steaming (grains, vegetables cooked al dente) • grilling (electric grill, grill pans) • baking in foil, parchment paper, roasting sleeve, ovenproof dish • fat-free frying • stewing without pre-frying **Occasionally you can use a small amount of a recommended vegetable fat, e.g. olive oil or canola oil.*	• deep-frying • stewing with pre-frying • baking in a lot of fat • breading

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Example of a quality menu in gout

BREAKFAST:

Pancakes with basil cottage cheese

- wheat flour
- rye flour
- eggs
- carbonated water
- sesame seeds
- semi-skimmed cottage cheese
- natural yoghurt
- tomato
- fresh basil

LUNCH:

Sandwiches with red lentil spread, olives and parsley

- whole wheat bread
- red lentils
- green olives
- parsley
- onion
- olive oil

DINNER:

Pumpkin and chickpea curry

- pumpkin
- potatoes
- chickpeas
- carrot
- onion
- garlic
- basmati rice
- cumin seeds, coriander, turmeric
- canola oil

AFTERNOON SNACK:

Sour cherry cocktail

- frozen sour cherries
- water
- apple
- blueberries
- linseed

SUPPER:

Rocket salad with grilled nectarine and croutons

- rocket
- lamb's lettuce
- nectarine
- mozzarella cheese
- walnuts
- lemon juice
- balsamic vinegar
- honey
- linseed oil

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