Cystinuria Dietary Tips

Why Reducing Sodium and Animal Protein is Important

For those diagnosed with cystinuria, an increased fluid intake is important to reduce urinary concentrations of cystine.

Also important is a diet low in sodium and animal protein which can reduce the cystine burden.

Reducing SODIUM INTAKE

Salt vs. Sodium

The words “salt” and “sodium” are often used interchangeably, but they do not mean the same thing. Salt (also known by its chemical name, sodium chloride) is a crystal-like compound that is abundant in nature. Sodium is a mineral, and one of the chemical elements found in salt.

Why should I reduce sodium?

In addition to increased fluid intake, a diet low in sodium is recommended. Too much sodium draws extra cystine into the urine. Increased cystine levels may result in cystine stone formation.[1]

> The American Urologic Association (AUA) recommends no more than 2,300 mg sodium per day for those diagnosed with cystinuria.[1]

Many foods that do not taste salty may still be high in sodium.

Large amounts of sodium can be hidden in canned, processed and convenience foods. And sodium can be found in many foods that are served at fast food restaurants. Sodium is used as a preservative in many foods.

If a food has a long shelf-life, it’s likely to have a high amount of sodium.

It is important to check the nutrient label of the foods you eat.[2]

Cheeses, lunch meats, salty snacks, frozen foods, canned soups and vegetables and creamy dressings and sauces are all high in sodium.

Despite what many people think, most dietary sodium (over 70%) comes from eating packaged and prepared foods—not from salt added to food when cooking or eating.

You can find the sodium content of specific foods and brands by searching the USDA Nutrient Data Laboratory Website.

The table below includes examples of foods high in sodium.[3]

FOOD ITEM	SERVING SIZE	SODIUM CONTENT (mg/serving)
Teriyaki barbecue marinade	1 fluid ounce	4554 mg
Table salt	1 teaspoon	2300 mg
Salt, onion	1 teaspoon	1587 mg
Salt, celery	1 teaspoon	1495 mg
Meats and fish, canned	3-1/2 ounces	1357 mg
Salt, seasoning	1 teaspoon	1288 mg
Pizza, cheese	1/2 of 10-inch pizza	1127 mg
Soups, canned	1 cup	1061 mg
Soy sauce	1 tablespoon	1035 mg
Smoked link sausage, pork	1 link (2-1/2 oz)	1012 mg
Pickles (all varieties)	1 large (3-1/2 oz)	920 mg
Cottage cheese, creamed	1 cup	851 mg
Vegetable juices, canned	1 cup (8 oz)	736 mg
Ham, cured cooked	3-1/2 ounces	713 mg
Frankfurter (all varieties)	1 frank (1-1/2 oz)	506 mg
Cheese, processed	1 ounce	414 mg
Vegetables, canned with salt	1/2 cup	368 mg
Sausage, pork, cooked	1 patty (1 oz)	345 mg
Bacon, cured, cooked	3 slices	345 mg
Cheese food, processed	1 ounce	322 mg
Chips and snacks	1 ounce	322 mg
Salami (all varieties)	1 slice	299 mg
Bologna (all varieties)	1 slice	276 mg
Cheeses, natural	1 ounce	207 mg

Estimated nutrition information, available at: https://fdc.nal.usda.gov/

This is a general guide. Talk to your doctor about how to reduce sodium as part of your treatment plan.

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Reducing ANIMAL PROTEIN

Look inside pocket for a portable version of the Sodium and Animal Protein tables found in this booklet

Why do I need to reduce animal protein?

Animal proteins are typically rich with methionine. Methionine is broken down to cystine in the body. So reducing this should help limit the amount of cystine passing through the kidneys.

Reducing animal protein intake has been shown to decrease cystine excretion[4]

> General guideline – limit animal protein to no more than 60% of total protein requirements per day[4]

For children, protein is needed to grow and develop appropriately. Talk to your dietitian about your child's protein needs. Be sure to discuss any changes to your child's diet with his or her physician.

Incorporating vegetables into your diet

Replacing animal protein with fruits and vegetables can be used to help lower methionine in your diet. Although they contain methionine, fruits and vegetables are part of a healthy diet and may contain less methionine than animal products. Your doctor may advise you to include them in your diet.

Some people who try getting protein from vegetables do not like them and may not include them in their diet. However, it is important that these people get adequate amounts of protein from animal protein sources but should avoid excessive amounts.

These are common examples of foods containing methionine*

Low Methionine <100mg	
Apple 2	Grapes (1 c.) 19
Berries 2-10	Broccoli 34
Cucumber 3	Sweet potato 42
Lettuce 3	Almonds 45
Pear 4	Corn 50
Watermelon 4	Peas 60
Tomato 5	Potato 60
Banana 9	Baked beans 60
Macadamia nuts 10	Soymilk (1 c.) 65
Kale, cooked 11	Walnuts 70
Carrots 13	Oatmeal (1 pk) 71
Green beans 15	Lentils 75
Mushrooms 17	Peanut butter (2 TB) 85

Med Methionine 100-300 mg	High Methionine >300mg
Refried beans 100	Brazil nuts 315
Cashews 105	Canadian bacon (2 slices) 316
Black beans 110	Fish, salmon 335
Soybeans (edamame) 110	Eggs (2) 390
Tofu 135	Fish, canned tuna 445
Sunflower seeds (2 TB) 140	Turkey, roasted 450
Surimi (imitation crab) 150	Beef, lean, ground patty 475
Cheese, cheddar (1oz) 155	Chicken breast 490
Cheese, mozzarella stick 195	Lobster, tail 530
Vegetarian burger 200	Crab, cooked 730
Milk, 1% (1 c.) 215	Pork chop (1 chop) 1500
Yogurt, low fat, fruit (6oz) 245	Pork, cured ham, 1 slice 2230

* https://www.texaschildrens.org/sites/default/files/uploads/Cystinuria_handout.pdf. Accessed April 4, 2020.

This is a general guide. Talk to your doctor about how to reduce animal protein as part of your treatment plan.

Reducing SODIUM AND ANIMAL PROTEIN

If you have cystinuria, you may have been asked to adjust your diet.

Tips and Reminders

- Try to maintain less than 2,300 mg of sodium per day
- Avoid canned, processed and convenience food that are high in sodium
- Limit animal-protein to one serving per day. These foods are generally high in methionine
- Try protein from plant-foods, such as soy, beans, and nuts.
- Processed meats such as bacon, sausage, pepperoni, and prepackaged deli meats are high in both methionine and sodium, which can worsen cystinuria
- For children, protein is needed to grow and develop appropriately. Talk to your dietitian about your child's protein needs
  - Be sure to discuss any changes to your child's diet with his or her physician.

Talk to your doctor about reducing sodium and animal protein in your diet as part of your treatment plan.

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References: 1. Pearle et al. J Urol. 2014;192(2):316-324. **2.** https://www.fda.gov/food/nutrition-education-resources-materials/sodium-your-diet. Accessed April 27, 2020. **3.** https://fdc.nal.usda.gov/fdc-app.html#/food-search. Accessed April 27, 2020. **4.** Meschi T, Schianchi T, Ridolo E et al. Body weight, diet and water intake in preventing stone disease. Urol Int 2004; 72(Suppl 1):29 – 33.

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