Management of Kidney Stones

Managing your kidney stones with medical nutrition therapy may require that you decrease your intake of protein from animal flesh, purines, oxalate, and salt, and increase your intake of fluids, fruits and vegetables, and calcium at meal times. The Metabolic Stone Clinic nutritionist, a Registered Dietitian, will evaluate your specific needs -- based on your medical history, stone history, and relevant biochemical findings. An individualized therapeutic plan will be designed for you.

** NOT EVERYTHING ON THIS WORKSHEET MAY APPLY TO YOU **
The clinical nutritionist will identify and explain those items that do.

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**Check if applicable**

☐ Animal Protein (from meat, fish, seafood, and poultry)
Protein from certain animal sources, such as animal flesh, increases the uric acid, calcium, phosphorus, and acidity of urine. Therefore, your intake of protein from animal flesh may need to be limited. **This includes meat, fish, seafood, and poultry.** Limit your intake of meat, fish, seafood, and poultry to one serving or ______ ounces per day to avoid excessive uric acid production. In some cases, you may also be asked to limit your intake of legumes, as the protein structure of legumes may also increase your uric acid production.

> Egg whites and low-fat dairy products, eaten in moderation, are not known to cause the same excessive uric acid production as the flesh from animals and seafood.

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**Purines**
The following purine-rich foods contribute directly to your body’s production of uric acid. If too much uric acid builds up in your urine, you are at greater risk for forming kidney stones. Avoid these foods:

- anchovies
- bouillon
- broth
- broth-based soups
- consommé
- goose
- herring
- mussels
- mackerel
- meat extracts
- mincemeat
- organ meats
- partridge
- sardines
- scallops

*Note: If you consume large amounts of Brewer’s or Baker’s yeast, such as in shakes or specially formulated drinks, you may need to limit them; they are purine-rich.*

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☐ Oxalate (oxalic acid)
- Vitamin C from supplements should not exceed 500-1000 mg per day as metabolism of ascorbic acid may result in excess oxalate in your urine.
- The foods listed below are known to cause high urinary oxalate. You may be advised to reduce or limit your intake of these foods. *Alternatively, eating a calcium-containing food at the same time as eating these foods will reduce the amount of oxalate that is absorbed.*

- beets (roots & greens)
- black & green tea
- spinach & Swiss chard
- rhubarb
- cocoa powder & chocolate
- nuts (esp. almonds, hazel nuts, cashews, peanuts, peanut butter)
- seeds (esp. sesame and sunflower)
- soybeans/ soy foods (such as tofu, tempeh)
**Fruits and Vegetables**

Eating 5 or more servings of a variety of fruits and vegetables daily will decrease your risk for stone formation by providing potassium, which helps maintain a urinary pH (acid-base level) that inhibits stone formation. Fruits and vegetables also provide magnesium, fiber, and citric acid, all of which inhibit stone formation.

**Calcium**

Calcium is important for your bones and may decrease your risk for forming stones, especially calcium-oxalate stones, by binding oxalate in the GI tract. Calcium needs are:

- 1000 mg – for men up to age 65 years
- 1500 mg – for men 65 years and older
- 1000 mg – for women 25-50 years
- 1500 mg – for women over 50 years

Eat 3 servings of calcium-rich foods daily, with meals. Distribute your calcium intake throughout the day, and consume calcium-containing foods with each meal for optimal stone prevention.

<table>
<thead>
<tr>
<th>Foods containing calcium</th>
<th>Amount</th>
<th>Calcium (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk &amp; calcium-fortified drinks</td>
<td>1 cup</td>
<td>300</td>
</tr>
<tr>
<td>Yogurt</td>
<td>3/4 cup</td>
<td>200</td>
</tr>
<tr>
<td>Ice cream</td>
<td>3/4 cup</td>
<td>150</td>
</tr>
<tr>
<td>Pudding</td>
<td>1/2 cup</td>
<td>150</td>
</tr>
<tr>
<td>Salmon (with bones)</td>
<td>1/4 cup</td>
<td>150</td>
</tr>
<tr>
<td>Broccoli</td>
<td>1½ cup</td>
<td>150</td>
</tr>
<tr>
<td>Cheese*</td>
<td>1 ounce</td>
<td>200</td>
</tr>
<tr>
<td>Cottage cheese*</td>
<td>1 cup</td>
<td>150</td>
</tr>
</tbody>
</table>

*Eat these foods in moderation as they are high in sodium and may increase urinary calcium.

- In some cases, a calcium citrate supplement may be recommended. Discuss this with the dietitian.

**Fluids**

Drinking 3 or more liters (quarts) daily is the #1 way to lower your risk for forming stones. Drink at least 80-100 ozs. a day. Distribute fluids throughout the day, including in the evening, at bedtime, and during the night after voiding. All beverages count -- including water, milk, lemonade (recommended for its citric acid content), soda, juice, coffee, and tea (provided you are not advised to limit oxalate).

**Salt (sodium)**

The typical American diet contains too much sodium. Sodium contributes to excessive calcium loss in the urine. The salt shaker accounts for only ~15% of our total sodium intake; the remainder is added to foods during manufacturing and processing. Your 24-hour urine excretion of sodium reflects your sodium intake. Based on your urine analysis, your intake of sodium is ________ milligrams (mg).

Limit sodium to 3000 mg/ day or less by avoiding the following sodium-rich foods:

- salt & salt blends in cooking
- salty, cured meats/ deli meats
- canned soups/ vegetables
- convenience foods
- restaurant foods

- salt at the table
- salty snacks
- fast foods
- pickles/ olives
- sports beverages

- canned/ bottled tomato sauce
- cheese (esp. processed)
- onion and garlic salt
- soy sauce
- miso

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