Kidney Stone Diet

A diet for children with kidney stones

Kidney stones can form when there are large amounts of substances such as calcium, oxalate, phosphate and uric acid in the urine. The most common kinds of kidney stones are made from calcium and oxalate. Oxalate is a compound that is naturally found in some foods. When it combines with calcium in the urine, it may cause a kidney stone. Sometimes, following a special diet may be enough to prevent your child from forming more kidney stones. Other times, medicines may be needed. Follow these tips to help prevent kidney stones.

Drink a lot of water

Drinking water is the most important thing your child can do to prevent kidney stones. In addition to other fluids like milk and juice, your child should drink 2 or more liters of water per day. It may be helpful to get a water bottle and have your child drink throughout the day. Small children may need less water. The amount of water your child needs also depends on the weather and their physical activity level. The goal is to drink enough water to make their urine clear. Ask your child’s doctor or dietitian about the right amount of water for your child.

1 liter = 1000 milliliters = 33 ounces = 4 cups

Lower salt intake

A diet high in salt or “sodium” increases the amount of calcium that gets into the urine. Lowering salt intake helps decrease the amount of calcium in the urine. Limit the amount of processed foods your child eats such as hot dogs, canned foods, luncheon meats and frozen foods. They contain high amounts of sodium. To lower salt intake:

• Avoid adding salt to foods in cooking or at the table.
• Limit fast food and processed foods with more than 500 mg of sodium per serving to 1 time each week.
• Read nutrition labels and limit your child’s intake of foods that have more than 200 mg sodium per serving.
• Limit use of condiments and salad dressings.
• When eating out, ask about the sodium content of foods you order.

For more information, recipes, and how to find the sodium amount in food labels, see our handout called “Low Sodium Eating” at www.seattlechildrens.org/pdf/PE386.pdf.
Get normal amounts of calcium

Getting the recommended amount of calcium for your child’s age, can help prevent more kidney stones. Calcium binds oxalate from food and keeps it from entering the urine. Getting too little calcium can cause oxalate levels in the urine to rise. This increases the risk of kidney stones. Make sure your child gets the normal amount of calcium for their age. It is important not to restrict calcium for normal bone development.

<table>
<thead>
<tr>
<th>Age</th>
<th>Calcium Requirements</th>
<th>Servings of Dairy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 3 years</td>
<td>700 mg</td>
<td>2 to 3</td>
</tr>
<tr>
<td>4 to 8 years</td>
<td>1000 mg</td>
<td>3 to 4</td>
</tr>
<tr>
<td>9 to 18 years</td>
<td>1300 mg</td>
<td>4</td>
</tr>
<tr>
<td>Over 18 years</td>
<td>1000 mg</td>
<td>3 to 4</td>
</tr>
</tbody>
</table>

(1 serving of dairy = 8 ounces of milk or yogurt or 1 ½ ounces of cheese)

Non-dairy sources of calcium include: fortified orange juice; almond, soy, oat or rice milk; and soy, coconut or almond milk yogurt. Please see our handout called “Non-Dairy Sources of Calcium” at www.seattlechildrens.org/pdf/PE314.pdf for more suggestions. If your child cannot get enough calcium in their diet from foods, they may need to take a calcium supplement. Talk with your child’s doctor or dietitian about this.

Other tips that may help prevent stones

Potassium and Citric Acid

Citrate may help prevent kidney stones because it helps prevent calcium from binding with phosphate and oxalate in the urine. Fresh lemons and limes contain high amounts of citrate. Potassium from food also increases the kidney’s excretion of citrate. If your child has low amounts of citrate in the urine, eating a variety of fruits and vegetables and drinking fresh lemonade or limeade can help increase the citrate levels in the urine.

• Mix 4 ounces of lemon or lime juice with foods and beverages (including water) daily to increase citric acid (citrate) intake.
• Eat 3 to 5 servings of fruits and vegetables per day.

Animal Protein

Meats and other animal proteins contain large amounts of purines which can increase the amount of uric acid in the urine. If your child has had uric acid stones or high amounts of uric acid in the urine, it is important to not eat a lot of animal proteins. Animal protein can also increase the kidney’s excretion of calcium and decrease the excretion of citric acid which increases the risk of kidney stones. Regular amounts of foods that are high in protein, such as dairy, meat, eggs, chicken, fish, soybeans, and tofu are OK. Unless your child’s doctor prescribes them, avoid protein powders and supplements. Not every patient
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who has had a kidney stone needs to limit how much protein they eat. Ask your child’s dietitian if you do not know how much protein is OK for your child.

**Oxalate**

Some of the oxalate in the urine is made by the body. Eating certain foods with high levels of oxalate can increase the amount of oxalate in the urine. Examples are spinach, rhubarb, beets, nuts, and wheat bran. If your child is getting normal amounts of calcium in their diet and has high levels of oxalate in the urine, it may be important for them to limit some of these foods.

**Vitamin C**

Vitamin C can be turned into oxalate by the body. Too much vitamin C can increase the amount of oxalate in the urine and may cause kidney stones. If your child has high amounts of oxalate in the urine or calcium oxalate stones, limit intake from vitamin C supplements to no more than 100 mg each day. A normal vitamin C intake in the diet is recommended. You do not need to decrease the vitamin C from your child’s food.

**Diet Prescription:**

Water: ____________________________

Salt: ____________________________

Calcium: ____________________________

Other: ____________________________