This issue’s Nutrition Hotline explains what kidney stones are, discusses which populations are most likely to develop them, and suggests some dietary tips that may help to reduce the risk of their formation.

QUESTION: “What causes kidney stones? Are there dietary changes that can reduce the risk of kidney stones? Are there different factors for young people?”
A.R., via e-mail

ANSWER: Kidney stones are one of the most common and one of the most painful disorders of the urinary tract. In 2000, more than 600,000 people visited the emergency room because of kidney stones. They are much more common in men than in women; 80 percent of people who develop kidney stones are men. Although kidney stones can occur at any age, they are most common in men in their 40s or older and in women in their 50s. Kidney stones in children are usually due to a genetic condition.

Kidney stones develop when crystals separate from the urine and build up. Usually, urine contains substances that prevent these crystals from forming or limit the size of these crystals. If the crystals combine and produce a large enough stone, it can block urine flow and cause extreme pain.

Kidney stones are categorized by their chemical composition. The most common type of stones contain calcium, either as calcium oxalate or as calcium phosphate. Less common types include struvite stones, which are caused by an infection, and uric acid stones.

Many factors can increase one’s risk of developing kidney stones. These include a family history of kidney stones, recurrent urinary infections, bowel disease, some kidney diseases, certain drugs (including some diuretics, antacids, and steroids), prolonged bed rest, and metabolic disorders. Dehydration, which can be due to heavy sweating or to inadequate fluid intake, can lead to kidney stone formation. The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) recommends drinking enough liquid to produce at least 2 quarts of urine daily if you are susceptible to kidney stones.

Diet also appears to play a role in the formation of some types of kidney stones. Approximately 70 to 80 percent of kidney stones are calcium oxalate and calcium phosphate stones. This type of kidney stone is often due to too much calcium in the urine, a condition called hypercalciuria. Hypercalciuria can be caused by an inherited disorder or by some medications.

It may seem that high dietary calcium could lead to this type of kidney stone. Actually, low calcium intakes are much more likely to lead to calcium oxalate stones and higher calcium intakes to lead to a reduced risk. Apparently, dietary calcium limits the amount of oxalate that is absorbed, and it is excess oxalate that can cause calcium oxalate stones to form. Health care providers may tell people with a history of calcium oxalate stones to limit their use of high oxalate foods and to avoid large doses of vitamin C that can lead to excess oxalate in the urine.

In addition, diet can influence urinary calcium levels. Hypercalciuria can be caused by excess

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vinegar dressing. This salad goes well with Southern delights, such as cornbread and greens.

Speaking of home-cooking, how about a corn salad? This dish can be served as a cold side or used as a cold condiment instead of high-fat gravies or sauces. Start with fresh corn cut from the cob or cooked and chilled frozen corn. Add some canned sliced pimentos, chopped parsley, chopped scallions, and diced bell peppers. Then, toss with vinaigrette, and voilà! A perfect pick for picnics or veggie barbecues.

Another great choice for the basis of a crunchy salad is fresh English peas. These are naturally sweet and crunchy. Simply toss them with plain vegan yogurt or vegan sour cream, garlic powder, and canned water chestnuts for a unique side dish.

VEGGIES MAKE GOOD SALAD STARTERS, TOO!

In the mood for more traditional, produce-based side salads? You still have plenty of interesting options from which to choose. How about fresh yellow squash and/or zucchini? Slice thin and toss with a soy yogurt, sour cream, or silken tofu dressing sprinkled with chopped fresh parsley for a lightly flavored combination.

Peel and seed cucumbers can be finely chopped and tossed with soy yogurt, onion powder, lemon juice, and black pepper for a cool salad. Mix with chopped ripe fresh tomatoes or canned tomatoes for extra color. Use a low-sodium vegetable juice cocktail combined with soy yogurt to make a creamy tomato dressing with lots of added nutrients.

Or how about stuffing a salad? A vegetable stuffed with salad makes an impressive side dish. Simply scoop out a tomato, onion, pepper, or small zucchini and use it as a serving dish for vegan 'tuna' salad, eggless salad, or diced flavored tofu salads. Instead of vegan mayonnaise, try soy yogurt, soy sour cream, or puréed tofu for different flavors and textures. No matter how you dress your stuffed salads, they are sure to be a hit!

DESSERTS

And, yes, salads can even become desserts! Just chill a combination of your favorite fruits and add a sweet or tangy dressing. For example, you can stuff fresh or canned peach halves and pineapple rings with soy fruit-flavored yogurt and chopped fresh or thawed frozen strawberries, seasonal fresh berries, or cherries. This will make for a sweet—but still nutritious—treat.

Or try the recipe below. It will be such a fabulous way to end a meal that most people won’t even believe that they’re eating a salad!

**BANANA SPLIT SALAD**
(Serves 6)

1 ½ pints crumbled firm tofu
1 ¼ cups fresh berries, such as blueberries or raspberries
½ cup chopped strawberries
½ cup chopped walnuts
6 small bananas
Raisins, dates, or pineapple to garnish (optional)

Place tofu, berries, and walnuts in a bowl and combine well.

Peel bananas and split lengthwise. Line six salad plates with two banana halves each. Top with tofu-berries mixture. If desired, garnish with raisins, dates, or pineapple.

Total calories per serving: 327
Carbohydrates: 35 grams
Protein: 22 grams
Fat: 15 grams
Sodium: 21 milligrams
Fiber: 7 grams

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intakes of meat, fish, and poultry and by excess sodium. A high intake of potassium, a mineral found in fruits and vegetables, is associated with a reduced risk of kidney stones.

Another kind of kidney stone, uric acid stones, is not as common as calcium oxalate stones. Uric acid stones contain uric acid and are more common in people with gout. Recommendations for reducing the risk of developing uric acid stones include limiting meat products and alcohol since consuming these products can worsen gout. Scientists believe that dietary changes, like eating little or no meat, fish, or poultry and increasing fluid, calcium, and potassium intakes are helpful in reducing risk in those who are susceptible to developing kidney stones.
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