**Kidney Stones**

Kidney stones are small, hard deposits that form in the kidneys. They develop when there is a decrease in urine or an increase in certain substances, such as minerals and salts. Changes in diet can help prevent them.

Common types of kidney stones include:

calcium oxalate stones

calcium phosphate stone

struvite stones

uric acid stones

cystine stones

**Kidney stone diet**

People who wish to prevent kidney stones developing for the first time or reduce the risk of recurrence if they have already had stones should follow these main steps:

* drink plenty of water
* limit their intake of salt and animal protein
* restrict foods that contain high levels of oxalates
* get enough calcium

**Foods to eat**

**Calcium and oxalate-rich foods**

A person should include foods rich in calcium, especially if they consume many foods that are higher in oxalate, such as spinach. A diet low in calcium increases the risk of developing kidney stones. Calcium and oxalate bind together in the intestines, interrupting the formation of stones.

Some foods to include are:

low-fat or fat-free milk products

calcium-fortified foods, such as cereals, bread, and juices

beans

calcium-rich vegetables, such as broccoli

**Fruits And vegetables:**

Increasing the number of fruits and vegetables in their diet can help a person prevent stone formation. Fruits can be dried, frozen, or fresh.

Fruits with high levels of citric acid, such as oranges and lemons, have also demonstrated a positive effect in preventing kidney stones according to a 2014 review of studies.

People should become familiar with fruits and veg that have high oxalate content, including spinach, and try to limit the amount in the diet. Alternatively, people can combine them with foods that contain high amounts of calcium.

Foods high in oxalate include:

* Beer.
* Beets.
* Berries.
* Chocolate.
* Coffee.
* Cranberries.
* Dark green vegetables, such as spinach.
* peanut
* sweet potatoes

**Plant-based protein**

Small amounts of animal-based proteins are safe to consume. However, too much animal protein can increase a person’s risk of kidney stones.Red meat, organ meats, and shellfish have high amounts of a natural chemical compound known as purines. High purine intake leads to a higher production of uric acid and a larger acid load for the kidneys to excrete. Higher uric acid excretion leads to more acidic urine. The high acid concentration of the urine makes it easier for uric acid stones to form.go for plant based protein.

Examples include beans, peas, and lentils.

**Water**

Including extra water in the diet can help prevent kidney stones, as they often occur due to dehydration. Drinking some other fluids as well as water is acceptable. However, it is important to check sodium levels in the beverage, as many drinks have a high salt content.

It is also best to avoid particularly sugary drinks, such as sweetened juices and sodas.

**Herbal supplements**

Traditionally, people have used apple cider vinegar to prevent and treat kidney stones, and studies in the lab have shown that it can reduce the development of stones.

According to one cross-sectional study, the acetic acid in apple cider vinegar reduces pain and inflammation.

People have also used wheatgrass for centuries to improve health and because it contains certain compounds that cause increased urine output, reducing the risk that kidney stones will develop.

 **General Guidelines**

limit salt intake

Extra sodium causes you to lose more calcium in your urine.Sodium and calcium share the same transport in the kidney so if you eat high sodium foods it will increase calcium leakage in the urine. Therefore, a high sodium diet can increase your chances for developing another stone.

* Your diet should contain less than 2,300 milligrams of sodium each day.
* Buy fresh food often. Sodium (a part of salt) is added to many prepared or packaged foods you buy at the supermarket or at restaurants.
* Cook foods from scratch instead of eating prepared foods, “fast” foods, frozen dinners, and canned foods that are higher in sodium. When you prepare your own food, you control what goes into it.
* Use spices, herbs, and sodium-free seasonings in place of salt.
* Check for sodium on the Nutrition Facts label of food packages. A Daily Value of 20 percent or more means the food is high in sodium.
* Rinse canned vegetables, beans, meats, and fish with water before eating.
* Look for food labels with words like sodium free or salt free; or low, reduced, or no salt or sodium; or unsalted or lightly salted.

**Eat foods that are healthy for your heart**

 To help keep fat from building up in your blood vessels, heart, and kidneys eat heart healthy food

* Grill, broil, bake, roast, or stir-fry foods, instead of deep frying.
* Cook with nonstick cooking spray or a small amount of olive oil instead of butter.
* Trim fat from meat and remove skin from poultry before eating.
* Try to limit saturated and trans fats. Read the food label.

Heart-healthy foods:

* Poultry without the skin
* Fish
* Beans
* Vegetables
* Fruits
* Low-fat or fat-free milk, yogurt, and cheese

**Eat food less in potassium and phosorous**

To help protect your bones and blood vessels. When you have CKD, phosphorus can build up in your blood. Too much phosphorus in your blood pulls calcium from your bones, making your bones thin, weak, and more likely to break. High levels of phosphorus in your blood can also cause itchy skin, and bone and joint pain.

Many packaged foods have added phosphorus. Look for phosphorus—or for words with “PHOS”—on ingredient labels.

 meat and poultry can have added phosphorus

Foods Lower in Phosphorus

* Fresh fruits and vegetables
* Breads, pasta, rice
* Rice milk (not enriched)
* Corn and rice cereals
* Light-colored sodas/pop, such as lemon-lime or homemade iced tea

Foods Higher in Phosphorus

* Meat, poultry, fish
* Bran cereals and oatmeal
* Dairy foods
* Beans, lentils, nuts
* Dark-colored sodas/pop, fruit punch, some bottled or canned iced teas that have added phosphorus

Avoid high doses of vitamin C supplements

It is recommend to take 60mg/day of vitamin C based on the US Dietary Reference Intake

Excess amounts of 1000mg/day or more may produce more oxalate in the body