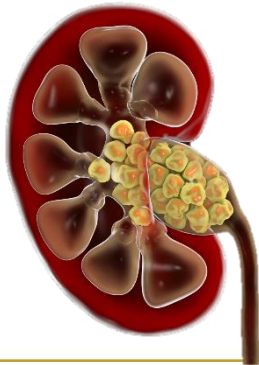




جامعة الإمام عبد الرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY

مستشفى الملك فهد الجامعي
King Fahad Hospital The University

Kidney stones



What are the kidney stones?

A kidney stone is a hard mass that forms from crystals in the urine. In most people, natural chemicals in the urine stop stones from forming.

Diet can affect the growth and formation of kidney stones. Using a diet to prevent kidney stones means changing what you eat. Depending on your individual risk factors and the type of kidney stone you form, you may be advised to make some dietary changes. Nutrition therapy is individualized and differs from patient to another based on their risks and needs.



What are the types of kidney stones?

- Calcium stone
- Cystine stone
- Uric acid stone
- Struvite stone

What are the risk factors?

- Personal or family history
- Dehydration
- Being Obese
- Digestive diseases and weight loss surgery
- Medical Conditions such as: Renal tubular acidosis, cystinuria, hyperparathyroidism and urinary tract infections.



What are the nutritional tips?

Drinking more fluids to increase urine volume.

- Drinking 2 to 3 liters of fluid/day is the best way to reduce your risk of forming new stones, you may need to drink more if you exercise heavily or in hot weather for long time.
- Divide your fluid intake throughout the day and night, drink 1 cup (250ml) 1 hour before and after each meal.
- All drinks count to your fluid intake, fruit juices, coffee, tea, milk and soda.
- Avoid drinking beverages high in sugar.



What are the nutritional tips?

Reduce urine calcium by reducing sodium intake.

Reducing the intake of sodium (salt) is an efficient way to minimize urine calcium, most diet contain too much sodium. This may increase the amount of calcium your kidneys let out into the urine, remember that only 10% of our salt intake comes from the salt shaker, the rest comes mostly from processed foods.

The recommended amount of sodium is 1500-2000 mg/day, start minimizing salt by eating less than usual amount, choose "no salt added" or "low salt" foods as much as possible



What are the nutritional tips?

Avoid high salt foods:

Cheese (all types)	Most frozen foods and meals	Salty, cured meats
Hot dogs and sausages	Canned soups and vegetables	Salty snacks (chips, crackers)
Salad dressing	Pickles and olives	Canned pasta sauce
Fast foods	Table salt and some spice blends	Certain breakfast cereals



What are the nutritional tips?

Reduce urine calcium by balancing your diet.

Balancing diet for acid is important if the urine calcium is high. A high “acid load” diet may cause your bones to release more calcium into the bloodstream than they should, this can add to high urine calcium.

Examples of foods that can increase the acid load:

Fish and sea foods	meats of all types
Cheese	Poultry

Reduce the number of times you eat these foods in a week and eat smaller portions of these foods.

- Eating milk and dairy products 3 times a day is recommended.
- Vegetables and fruits have the opposite impact of acid, eating your needs serving size will help balance the acidic effects of cheese and meat.



What are the nutritional tips?

Reduce urine oxalate: 4 strategies

There are different ways to depress the amount of oxalate in your urine, here are some:

1. Eat or drink something with about 300 mg of calcium at each meal and snack.

Oxalate and calcium bind in the digestive tract and get eliminated in the stool so less oxalate is absorbed and obtainable to the urine, foods and beverages are best for including calcium and calcium supplements may be included if physician or dietitian recommend that.



What are the nutritional tips?

Reduce urine oxalate: 4 strategies

2. Eat less “high oxalate” foods.

The more oxalate absorbed from the digestive tract the more in the urine, here are some of the high oxalate foods:

Strawberries	Beets	Spinach
Potato chips	French fries	Nuts and nut butter
	Tea	Chocolate

3. Stop taking vitamin C supplements

When the body gets more vitamin C than it needs, some of it breaks down into oxalate, then it goes to the kidneys and into the urine, don't need to limit your intake of fruits and vegetables with vitamin C.



What are the nutritional tips?

Reduce urine oxalate: 4 strategies

4. Increase the amount of oxalate-eating bacteria in your digestive tracts.

Different types of bacteria in the digestive tract (probiotics) can eat oxalate, which reduces the amount available to be absorbed and released with urine, include foods with live cultures such as: yogurt, kefir, you may need large dose of probiotics which can be provided through probiotics supplement by the advice of your doctor or the clinical dietitian.

In certain cases, vitamin B6 and/or fish oil supplements are recommended.



What are the nutritional tips?

Reduce urine uric acid: 2 strategies

1. All the types of meat, including fish and poultry, contribute to uric acid production in the body. You are advised to eat fewer of these foods within a week and/or to eat smaller portions. Organ meats, waterfowl, game meats, and certain types of seafood (herring, anchovies, and sardines) are mostly high in purines. When purines are consumed, they increase uric acid levels.

Here are some tips for reducing purines:

- Make 2 or more days a week “non-meat” day (you may use dairy and eat non-meat protein foods like beans).
- Limit yourself to one serving per day of meat, fish, poultry or seafood.



What are the nutritional tips?

Reduce urine uric acid: 2 strategies

- Limit portion sizes of meat, fish, poultry, or seafood to no more than one-quarter of your plate (or 3 to 4 ounces by weight).

2. There are other potential contributors to high urine uric acid. If applicable and depending on your current intake, you may be advised to reduce your consumption of alcohol and/or of fructose, a carbohydrate found naturally in moderate amounts in fruits but used in large amounts in processed foods.

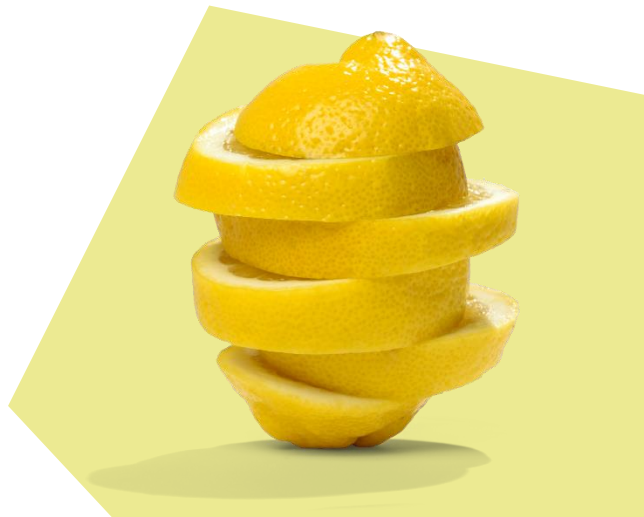


What are the nutritional tips?

Increase urine citrate

If your citrate is very low, it can increase by using medications. In addition to medication, eating more vegetables and fruits 5 times a day, and choosing beverages high in citric acid will increase urine citrate.

Pure lemon juice (not lemonade) and lime juice are best sources of citric acid. You may try using 2 ounces of lemon or lime juice diluted in water or another beverage two times a day. Beverages with citric acid in them include some diet sodas and powdered drink mixes.



What are the nutritional tips?

Increase urine magnesium

You may need to take magnesium supplement if your urine magnesium is low, which is available over the counter. Clinical dietitian can determine how much magnesium you need; the range is normally between 300-500 milligrams per day, but it depends on your intake of foods containing magnesium.



Sources and references:

Academy of Nutrition and Dietetics
nutrition care manual 2021 – 2022

All pictures used are from Canva.com

Review and audit:

The content of this booklet was written and reviewed by clinical nutrition
specialists at King Fahd University Hospital.

Clinical Nutrition Department

Health Awareness Unit

IAU-22-113



جامعة الإمام عبد الرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY

مستشفى الملك فهد الجامعي
King Fahad Hospital The University