

YOUR KIDNEYS AND HIGH POTASSIUM (HYPERKALEMIA)

Are You At Risk?



National
Kidney
Foundation®

[kidney.org](https://www.kidney.org)

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What is high potassium (hyperkalemia)?

High potassium (called "hyperkalemia") is a medical problem of having too much potassium in your blood. Potassium is an important nutrient found in many of the foods you eat. It helps your nerves and muscles, including your heart, work the right way. But too much potassium in your blood can be dangerous. It can cause serious heart problems.

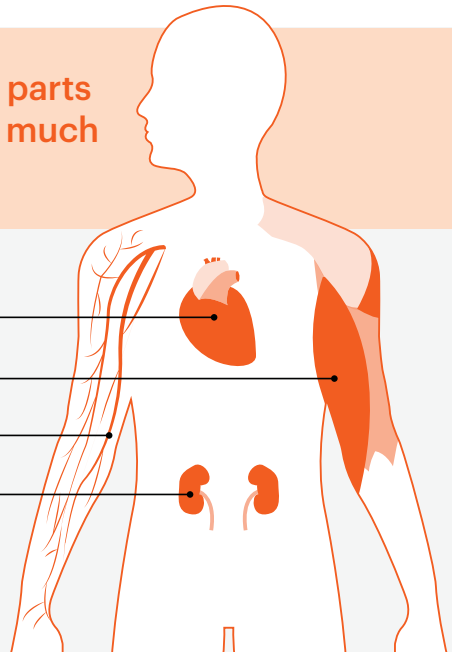
Potassium helps these parts of your body. But—too much can be dangerous

Heart

Muscles

Nerves

Kidneys



What causes it?

Common causes

- **Kidney disease:** High potassium can happen if your kidneys do not work well. Your kidneys balance the amount of potassium taken in with the amount lost in urine. Potassium is taken in through the foods you eat and liquids you drink. It is filtered by the kidneys, and lost through urine. Healthy kidneys can make up for high potassium by removing more. In the early stages of kidney disease, the kidneys can often make up for high potassium. But as kidney function gets worse, they may not be able to remove enough potassium from your body. Advanced kidney disease is a common cause of high potassium. Common causes of kidney disease include diabetes and high blood pressure.
- **A diet high in potassium:** Eating too much food that is high in potassium can also cause high potassium, especially in people with advanced kidney disease. Foods such as melons, orange juice, and bananas are high in potassium. More about potassium in foods on pages 12-15
- **Drugs that affect kidney function:** Some drugs can keep your kidneys from removing enough potassium. This can cause your potassium levels to rise. More about medicines on pages 6 and 11

Less common causes

- **Taking extra potassium:** This includes salt substitutes or certain supplements.
- **A disorder called "Addison's disease":** This disorder can occur if your body does not make enough of certain hormones. Hormones are chemicals produced by different glands and organs, including the kidneys, to trigger certain responses in your body.
- **Burns or other severe injuries**
- **Poorly controlled diabetes**

Medicines that can cause high potassium

Tell your healthcare provider about all the medicines you take, even herbal supplements or over-the-counter drugs. This is very important. Some examples of medicines that can raise your potassium levels are described below. This list does not contain all medicines that can raise your potassium levels. Keep an updated list of all the medicines you take. Have it with you during your healthcare visits.



Some blood pressure medicines: Blood pressure medicines are used to help lower blood pressure. They are also taken by kidney patients to help preserve kidney function and keep kidney disease from getting worse. Many people with kidney disease take blood pressure medicines.



Herbal supplements and remedies: Some people take herbal supplements and remedies for general health. But they may have ingredients that can raise potassium levels, such as milkweed, lily of the valley, Siberian ginseng, Hawthorn berries, preparations from dried toad skin (Bufo, Chan'su, Senso), noni juice, alfalfa, dandelion, horsetail, or nettle. In general, people with kidney disease should not take herbal supplements.



NSAIDs ("nonsteroidal anti-inflammatory drugs"): These over-the-counter medicines are used to treat headache, fever, muscle aches, arthritis, and more. Examples include aspirin, ibuprofen, and naproxen. If taken on a regular basis, they can harm your kidneys and cause potassium levels to raise.



Important reminder

Do not stop taking your prescribed medicines unless your healthcare provider tells you to, especially if you have a medical condition like diabetes, heart disease, high blood pressure, or kidney disease. Call your healthcare provider if you have any questions about the medicines you take.



Nutritional supplements: Some nutritional supplements contain potassium and can raise potassium levels. Do not take any nutritional supplements without first talking to your healthcare provider.



Salt substitutes: Salt substitutes are high in potassium. Most people with kidney disease should not use them.



Some immunosuppressant medicines (called tacrolimus and cyclosporine): Transplant patients take immunosuppressants to prevent organ rejection. There are many types of immunosuppressants. These 2 types can increase potassium levels in some people.



Some antibiotics (called trimethoprim and pentamidine): Antibiotics are used to treat infection. Certain antibiotics, such as trimethoprim and pentamidine, can increase potassium levels in some people.



Some potassium-sparing diuretics (called spironolactone, amiloride, and triamterene):

Some types of diuretics (water pills) are used to help you lose extra salt but **keep** extra potassium. Others are used to help you to **lose** salt and extra potassium. If you have high potassium, you may need to take a diuretic that helps you **lose** extra potassium.

What are the symptoms?

Many people have few, if any, symptoms of high potassium. If symptoms do appear, they are usually mild and non-specific. **You may feel:**

- Nausea
- Muscle weakness
- Numbness
- Unusual feelings
- Tingling

High potassium is common in people with kidney disease. It usually develops slowly over many weeks or months, and is most often mild. It can recur.



Important reminder

If high potassium comes on suddenly and you have very high levels of potassium, you may feel:

- Heart palpitations
- Nausea
- Shortness of breath
- Vomiting
- Chest pain

Sudden or severe high potassium is a life-threatening condition. It requires immediate medical care.

Call 911 or go to the emergency room.

Finding out if you have high potassium

For most people, the level of potassium in your blood should be between 3.5 and 5.0. High potassium is usually found by chance during a routine blood test. Be sure to ask your healthcare provider about your potassium level and what your range should be.

At your checkup, your healthcare provider will ask about:



Your medical history



Your diet



Medicines you take

Your answers will help your healthcare provider find out what caused your high potassium and come up with a treatment plan that's right for you.



Check with your healthcare provider

Tell your healthcare provider about all the medicines you take, even over-the-counter products such as herbals and other supplements. Many herbal remedies, supplements, salt substitutes, and over-the-counter products have high amounts of potassium.

Treating high potassium

If you have high potassium, it can be treated with diet and/or medicine. Your healthcare provider will help you develop a treatment plan that's right for you and tell you if any changes in your medicines are needed.

Sticking to a low-potassium diet

You may need to follow a low-potassium diet. You should not take salt substitutes, which are high in potassium. A dietitian can help you create a meal plan that is low in potassium.





Medicines that can help

Some people may also need special medicines to help remove extra potassium from the body and keep it under control. **These may include:**

- **Water pills (diuretics)** help your body remove extra potassium. Diuretics make your kidneys create more urine. Potassium is normally removed through urine.
- **Potassium binders** often come in the form of a powder. They are mixed with a small amount of water and taken with food. When swallowed, they “stick” to the extra potassium in the bowels and remove it. Some potassium binders can also be taken by the rectum (an enema). Follow the instructions carefully when taking potassium binders. For example, potassium binders may change the way other drugs work if you take them at the same time. Potassium binders are not for use in children.

Potassium and your diet

If you have high potassium—or if you are at risk for getting it—you may need to follow a low-potassium diet. **Ask your healthcare provider or dietitian how much potassium is right for you.**



Important reminder

For sudden or severe high potassium, you will need immediate medical care. If you have heart palpitations, shortness of breath, chest pain, nausea, vomiting, or muscle paralysis, **call 911 or go to the emergency room.** These could be signs of a serious heart problem.





Find a balance—and control portion size

Eating too much potassium can be harmful, but having too little can cause problems, too. High-protein foods such as meat, fish, and chicken also have potassium, but you need a balance of high protein foods to stay healthy. Portion size and how you prepare the food is very important. A dietitian can help you create a meal plan that gives you the right amount of potassium and protein to meet your needs. The table on the following page will help you choose fruits, vegetables, and other foods that are lower in potassium.



High-potassium foods



You may need to limit these foods in your diet:



Fruits

Bananas, melons, oranges, nectarines, kiwi, mango, papaya, prunes, pomegranate, dates, dried fruits, dried figs



Vegetables

Avocados, broccoli, Brussels sprouts, sweet potatoes, parsnips, pumpkin, vegetable juices, white potatoes, winter squash, tomato and tomato-based products, deep-colored and leafy green vegetables (such as spinach or Swiss chard) dried beans and peas, black beans, refried beans, baked beans, lentils, legumes



Other

Milk and yogurt, nuts and seeds, bran and bran products, chocolate, granola, molasses, peanut butter, salt substitutes

Lower-potassium foods



You may want to include these in your diet, but limit your portion size:



Fruits

Apples, blueberries, cranberries, grapes, grapefruit, pears, pineapple, raspberries, strawberries



Vegetables

Asparagus, cabbage, carrots, celery, corn, cucumber, eggplant, green or wax beans, green peas or beans, lettuce (iceberg), onions, radishes, turnips, water chestnuts



Other

Rice, noodles, pasta, bread and bread products (not whole grains), angel cake, yellow cake, pies without chocolate or high-potassium fruit, cookies without nuts or chocolate

More tips for managing potassium levels

- ***Eat a variety of foods***, but remember that almost all foods have some potassium. The size of the serving and how the food is prepared is very important.
- ***Drain canned fruits, vegetables, and meats*** carefully before serving. Do not drink or use the liquid.
- ***If you are on dialysis***, do not skip or shorten your dialysis treatments.





Reducing potassium in the vegetables you eat

If you want to include some high-potassium vegetables in your diet, eat smaller portions or leach them before using.

How to leach vegetables:

- 1** *Peel and place* vegetables such as potatoes, sweet potatoes, carrots, beets, winter squash, and rutabagas in cold water so they won't darken.
- 2** *Slice* the vegetable 1/8-inch thick.
- 3** *Rinse* in warm water for a few seconds.
- 4** *Soak* for a minimum of 2 hours in warm water. Use 10 times the amount of water to the amount of vegetable. If soaking longer, change the water every four hours.
- 5** *Rinse* under warm water again for a few seconds.
- 6** *Cook* vegetables with 5 times the amount of water to the amount of vegetable.

Important points to remember

Here's a quick recap of some of the most important information included in this brochure. Please keep it in mind—whether you're concerned about high potassium, or already living with it.

1

Kidneys are key

High potassium can happen if your kidneys do not work well.

2

A blood test tells the story

A simple blood test can determine the level of potassium in your blood.

3

High potassium develops slowly

In most people, high potassium develops slowly over weeks or months and is usually mild.

4

Diet matters

Many people can control high potassium by following a low-potassium diet, and reducing or avoiding certain medicines, at the direction of their healthcare provider.



5

Medicine may be necessary

Some people may need to take water pills or potassium binders to help control high potassium.

6

Sudden or severe changes? Take action!

Sudden or severe high potassium can be life-threatening and requires immediate medical care.

7

Know when to call 911

Call 911 or go to the emergency room if you experience heart palpitations, shortness of breath, chest pain, nausea, or vomiting.

Want more information? Just ask.

Always ask your healthcare team if you have questions, but you can also contact us:

**The National Kidney Foundation
Cares Patient Help Line at
855.NKF.CARES (855.653.2273)
or e-mail nkfcares@kidney.org.**
A trained professional will respond to your concerns and help answer your questions.

The National Kidney Foundation does not provide medical advice. Your healthcare provider is the best source of information about your health.



Get materials that can help

The National Kidney Foundation has many other publications that cover many subjects:

- What kidney disease is and who is at risk for getting it
- GFR (glomerular filtration rate)
- Nutrition and diet
- Diabetes and your kidneys
- High blood pressure and your kidneys
- Lifestyle issues for people with kidney disease, including:
 - Staying fit
 - Coping with kidney disease



National Kidney Foundation's Kidney Disease Outcomes Quality Initiative

Did you know that the National Kidney Foundation's Kidney Disease Outcomes Quality Initiative (KDOQI®) offers guidelines and commentaries that help your doctor and healthcare team make important decisions about your medical treatment? The information in this booklet is based on those recommended guidelines.

Stages of kidney disease

There are 5 stages of kidney disease, shown in the table below. Your doctor determines your stage of kidney disease, based on the presence of kidney damage and your glomerular filtration rate (GFR), which is a measure of your level of kidney function. Your treatment is based on your stage of kidney disease. Speak to your healthcare provider if you have any questions about your stage of kidney disease or your treatment.

5 Stages of Kidney Disease

STAGE	DESCRIPTION	GLOMERULAR FILTRATION RATE (GFR)*
1	Kidney damage (eg, protein in the urine) with normal GFR	90 or above
2	Kidney damage with mild decrease in GFR	60 to 89
3a	Moderate decrease in GFR	45 to 59
3b	Moderate decrease in GFR	30 to 44
4	Severe reduction in GFR	15 to 29
5	Kidney failure	Less than 15

*Your GFR number tells your healthcare provider how much kidney function you have. As chronic kidney disease progresses, your GFR number decreases.

Fueled by passion and urgency, **National Kidney Foundation** (NKF) is a lifeline for all people affected by kidney disease. As pioneers of scientific research and innovation, NKF focuses on the whole patient through the lens of kidney health. Relentless in our work, we enhance lives through action, education and accelerating change.

Help us fight kidney disease. Learn more at [kidney.org](https://www.kidney.org)



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