

STAGES
1–5*

*Not on Dialysis

Nutrition and Chronic Kidney Disease

Getting the most out of the foods you eat



NATIONAL KIDNEY
FOUNDATION®

Stages of chronic kidney disease

There are 5 stages of kidney disease as shown in the table below. Your healthcare provider will tell you the stage of kidney disease, based on how well your kidneys are working and your estimated glomerular filtration rate (eGFR). The eGFR number comes from a lab test that measures the amount of blood your kidneys are filtering each minute. As CKD gets worse, the eGFR number goes down.

STAGES OF KIDNEY DISEASE

STAGE	DESCRIPTION	ESTIMATED GLOMERULAR FILTRATION RATE (eGFR)	KIDNEY FUNCTION
1	Kidney damage (e.g., protein in the urine) with normal kidney function	90 or above	
2	Kidney damage with mild loss of kidney function	60 to 89	
3a	Mild to moderate loss of kidney function	45 to 59	
3b	Moderate to severe loss of kidney function	30 to 44	
4	Severe loss of kidney function	15 to 29	
5	Kidney failure	Less than 15	

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Introduction

Nutrition is all about eating a healthy and balanced diet so your body gets the nutrients that it needs. Nutrients are substances in foods that our bodies need to function and grow.

Why is good nutrition important for people with kidney disease?

Making healthy food choices is the key to better mental and physical health and it is even more important if you have chronic kidney disease (CKD). Why? The kind and amount of food you eat affects the way you feel and how your body works.

Eating nutritious foods gives you more energy and can help you:

- do your daily tasks
- prevent infection
- build muscle
- help maintain a healthy weight
- manage your kidney disease and keep it from getting worse

Will I need to change my diet?

There is no single eating plan that is right for everyone with kidney disease. The best foods for you depend on how well your kidneys work and other factors, like if you have diabetes. Your doctor can refer you to a kidney dietitian (a dietitian who specializes in kidney disease) who can teach you how to choose foods that are right for you.

How can a kidney dietitian help?

A kidney dietitian can:

- help you choose foods that will give you the right nutrients in the right amounts
- explain why diet changes are important
- answer your questions



Tip

Help from a dietitian is very important for people with kidney disease. You may be eligible for reimbursement for medical nutrition therapy with a dietitian under Medicare or your health insurance plan. Learn more at medicare.gov

Nutrition basics

A healthy eating plan gives you the right amount of:

- protein
- calories
- vitamins
- minerals

HEALTHY DIET PLANS FOR PEOPLE WITH KIDNEY DISEASE:

- Mediterranean diet
(CKD stages 1–5 not on dialysis)
- Diets high in fruits and vegetables
(CKD stages 1–4)
- Other options include DASH and plant-based diets

Note: These diets are high in potassium. Ask your doctor or kidney dietitian which dietary pattern is best for you.



Tip

If you need help finding a kidney dietitian who specializes in kidney disease, you can ask your doctor for a referral or contact the National Kidney Foundation at kidney.org/ckdrd or the Academy of Nutrition and Dietetics at **800.877.1600** or eatright.org

Why do I need protein?

Protein is an important nutrient. Your body needs protein to help build muscle, repair tissue, and fight infection. But if you have kidney disease, you may need to closely watch the amount of protein you eat to prevent protein wastes from building up in your blood. This can help your kidneys work longer.

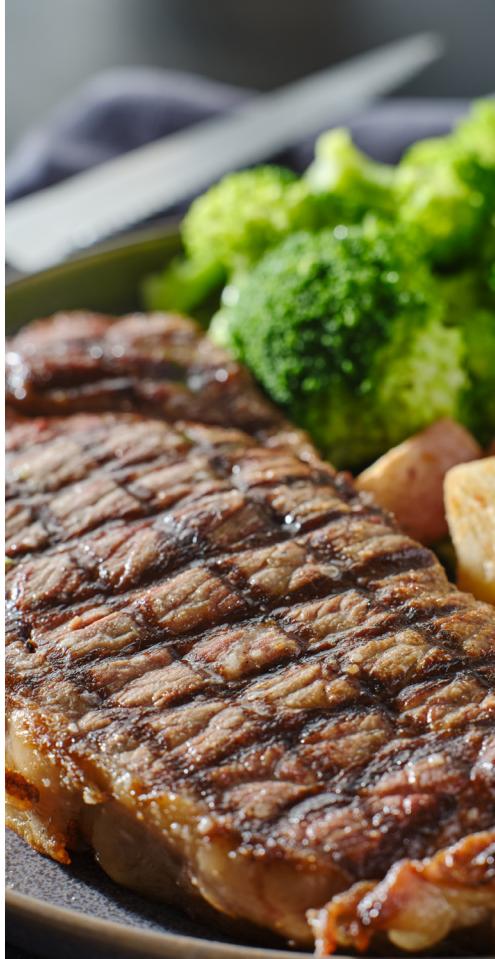
Your doctor will tell you if you need to limit how much protein you eat each day. Decisions are based on your stage of kidney disease, level of nutrition, muscle mass, and other things. Let your kidney doctor and kidney dietitian help you.

Protein comes from the following:^{*}

- lentils and dried beans
- poultry (chicken and turkey)
- unsalted nuts
- meats (beef, veal, lamb, pork)
- fish and other seafood
- eggs

*This food list is not complete.

Your kidney dietitian can help you learn how to maintain good nutrition and eat the right amount of protein to help your kidneys and prevent muscle breakdown.



Important Reminder

There are two kinds of protein, animal protein and plant protein. Animal protein is found in products like meat, poultry, fish, and eggs. Plant protein is found in dried beans, lentils, and nuts. A well-balanced diet for kidney patients may include either kind of protein every day.



How many calories do I need?

Every person is different. Calories are like fuel—they provide your body with the energy you need to live. They are important because they:

- help you stay at a healthy body weight
- give you energy to do your daily tasks and remain active
- help your body use the protein in food to build muscles and tissues

It is important to plan meals that give you enough calories each day. Otherwise, your body may not have energy to stay healthy. Your kidney dietitian can help you do this. Some people may be told to eat more calories. They may need to eat extra sweets like sugar, jam, jelly, hard candy, honey, and syrup. Other good sources of calories come from fats such as unsalted nuts and oils like canola or olive oil.

How do I get enough vitamins and minerals?

Most people get enough vitamins and minerals to stay healthy by eating a wide variety of foods each day. However, if you have kidney disease, you may need to limit some foods that would normally give you these important vitamins and minerals. If so, you may need to take special vitamins or minerals instead. Your doctor and kidney dietitian will tell you what choices are good for you.



Other Tips

- Take only the vitamins and minerals your doctor recommends, because some vitamins and minerals may be harmful to people with kidney disease.
- Check with your doctor before taking any vitamins, herbal supplements, nutrition supplements, or medicines you can buy without a doctor's prescription. Some may be harmful to people with kidney disease.



How will I know if I am getting enough calories and nutrients?

Your doctor will test your blood and urine. These tests will help show whether or not you are getting enough nutrients. Your kidney dietitian may also ask you about the foods you eat. You may also be asked to keep track of everything you eat or drink, also known as a “food diary.” To learn more about the tests used to check your nutrition, visit kidney.org or call NKF Cares at **1.855.NKF.CARES** (855.653.2273).

What if I don't want to eat or don't like my food choices?

When you have kidney disease, it may be difficult to get enough nutrients from food, especially if you are on a limited-protein diet. Many people with kidney disease also find it hard to eat enough calories each day.

Many supplements are available, and some are made just for people with kidney disease or diabetes. Check with your doctor or kidney dietitian before taking any supplements.



Important Tip

If you have diabetes and CKD, ask your kidney dietitian how many calories you should have and what you should do to keep your blood sugar under control. Adding sweet, high-calorie foods to your meals may not be a good choice for you.

Will I need nutritional supplements?

Remember, not all people with kidney disease have the same dietary needs. Your doctor and kidney dietitian will tell you if you need to take nutritional supplements. Use only the supplements recommended by your doctor or kidney dietitian.

Other Nutrients

Will I need to control any other nutrients?

You may need to balance fluids and other important nutrients. They are:

- sodium
- phosphorus
- calcium
- potassium



SODIUM

Sodium is a mineral found in most foods. It is also found in table salt. Sodium affects blood pressure and water balance in your body.

Healthy kidneys can control sodium. But, if your kidneys do not work well, sodium and fluid build up in your body. This can cause high blood pressure and other problems, like swelling of your ankles, fingers, or eyes. Your doctor or kidney dietitian will tell you if you need to limit sodium.

You can limit sodium by limiting table salt and foods such as:

- seasonings like soy sauce, sea salt, teriyaki sauce, garlic salt, onion salt, or seasoned salt
- most canned foods and frozen dinners (unless they say “low sodium” check the label)
- processed meats like ham, bacon, hot dogs, sausage, and deli meats
- salted snack foods, like chips and crackers
- canned or dehydrated soups (like packaged noodle soup)
- most restaurant foods, takeout foods, and fast foods*

**This food list is not complete.*

Your kidney dietitian can teach you how to choose lower sodium foods. Learning how to read food labels can help you find foods with less sodium.

Tips

- Learn to read food labels so you know what you are eating. Reading labels can help you shop for foods with lower sodium and to check for “added” nutrients that may be bad for you.
- Do NOT use potassium chloride salt substitutes unless approved by your doctor.
- Try fresh or dried herbs and spices instead of table salt to bring out the flavor of foods. Also, try adding a dash of hot pepper sauce or a squeeze of lemon juice for flavor.



PHOSPHORUS

Phosphorus is a mineral found in many foods. People with kidney disease may need to closely watch how much phosphorus is in their food. As kidney disease gets worse, the kidneys are not able to remove extra phosphorus. Large amounts of phosphorus are found in:

- dairy products such as milk, cheese, yogurt, ice cream, and pudding
- nuts and peanut butter
- nondairy creamer
- beverages such as cocoa, beer, and dark cola drinks
- pancake mix
- processed, convenience, and fast foods, including meats that have phosphate additives to make them tender*

**This food list is not complete.*

Eating high-phosphorus foods can raise the level of phosphorus in your blood. However, phosphorus from plant foods is less absorbed than phosphorus from animal foods or phosphate additives.

What happens when phosphorus builds up in your blood? Your blood calcium levels drop and calcium is pulled from the bones. Over time, your bones will become weak and break easily. A high level of phosphorus in your blood may also cause calcium to

build up in your blood vessels, heart, joints, muscles, and skin, where it does not belong. This may cause serious problems such as:

- damage to the heart and other organs
- poor blood circulation
- bone pain
- skin ulcers

To keep phosphorus at safe levels in your blood, you may need to limit phosphorus-rich foods. You may also need to take a type of medicine called a *phosphate binder*. These binders are taken with your meals and snacks to block some of the phosphorus from the foods you eat from entering your body. Your doctor and kidney dietitian will tell you if you need to limit high-phosphorus foods or take phosphate binders.



Tips

Using recommended milk substitutes without added phosphorus is one way to lower the amount of phosphorus in your diet.

CALCIUM

Calcium is a mineral that is important for building strong bones. However, foods that are good sources of calcium are often high in phosphorus. The best way to prevent calcium loss from your bones is to limit high-phosphorus foods.

You may also need to take phosphate binders and avoid eating calcium-fortified foods. Your doctor may also recommend that you take a special form of vitamin D to help keep calcium and phosphorus levels in balance, and to prevent bone disease.

Do not take over-the-counter vitamin D or calcium supplements unless recommended by your kidney doctor.



POTASSIUM

Potassium is another important mineral found in most foods. Potassium helps your muscles and heart work properly. Large amounts of potassium are found in:

- certain fruits and vegetables (like bananas, melons, oranges, potatoes, tomatoes, dried fruits, nuts, avocados, dark colored and leafy green vegetables, and some juices)
- milk and yogurt
- dried beans and peas
- potassium chloride salt substitutes
- protein-rich foods, such as meat, poultry, pork, and fish*

**This food list is not complete.*

A simple blood test can check your potassium level. Too much or too little potassium in the blood can be dangerous. Some people with kidney disease need more potassium; others need less. How much you need depends on how well your kidneys are working. It also depends on whether or not you are taking any medicine that changes the level of potassium in your blood.



Tips

Choose low potassium fruits and vegetables such as tangerines, grapes, cherries, berries, apples, canned fruit, lettuce, cucumber, green beans, cabbage, celery, corn, peas, and cauliflower.

Use long moist cooking methods that lower the potassium amount in food. Example: peel, cut, and double boil potatoes to lower potassium by half.



FLUID

Most people in the early stages of with kidney disease do not need to limit the amount of fluids they drink. If you do not know your stage of kidney disease, ask your doctor.

If your kidney disease gets worse, your doctor will let you know if you need to limit fluids and how much fluid is okay for you each day. To avoid dehydration, let your doctor and kidney dietitian help plan your fluid intake.

To learn more about CKD contact the National Kidney Foundation **855.NKF.CARES** (855.653.2273).

What if I have diabetes?

You may need to make a few changes in your diet if you have diabetes and kidney disease. If your doctor says that you should eat less protein, your diet may need to include more carbohydrates or high-quality fats to give you enough calories. Work with your kidney dietitian to make a meal plan that is right for you.

Ask your doctor how often to test your blood sugar levels. Try to keep your levels under control. Your dosage of insulin or other medicines may need to change if your kidney disease gets worse. Contact your doctor if your blood sugar levels are too high or too low.

What about plant-based or meatless diets?

Plant-based or meatless diets may have a positive effect on health. Eating a variety of plant foods and getting enough calories is important. Without enough calories, your body will break down the protein you eat to create energy instead. If protein is broken down, more waste products have to be removed by your kidneys.

Ask about ways to check that the amount of protein you are eating is right for you. Talk with your kidney dietitian about the best sources of plant protein that have the right amounts of potassium and phosphorus to best meet your dietary needs. Your doctor or kidney dietitian can check your blood to make sure you are getting the right amount of protein and calories.

How is nutritional health is checked?

You will be checked regularly by your doctor and dietitian to make sure you are getting the right nutrients that you need. Some tests are:

PHYSICAL NUTRITION EXAM

Your dietitian may give you an exam to check your body for signs of nutrition problems. This exam is called a *Subjective Global Assessment* (SGA). Your dietitian asks you about the foods you eat and looks at the fat and muscle levels in your body.

The dietitian notes:

- changes in your weight
- changes in the tissues around your face, arms, hands, shoulders, and legs
- your food intake
- your activity and energy levels
- problems that might interfere with eating

DIETARY INTERVIEWS AND FOOD DIARIES

Your dietitian will ask about what you eat. You may also be asked to keep a food diary of everything you eat and drink each day. Your dietitian wants to see if you are getting the right amount of protein, calories, vitamins, and minerals.

Questions for your healthcare professional

If you have questions or are unsure about anything, write down your questions before you go to your doctor or kidney dietitian because it is easy to forget what you wanted to talk about.

Make sure you ask what each test result means and what your options are. You need to understand the treatment plan that your doctor or dietitian thinks is good for you. This is your health, so never feel uncomfortable about asking anything.





EXAMPLES OF QUESTIONS TO ASK:

- How many grams of protein should I eat each day?

- Does that mean I need to increase or lower the amount of protein I currently eat?
 Yes No

If I do, what do I need to do?

- How many calories should I have in a day?

- How many ounces of fluid should I drink each day?

- Is my potassium level too high or too low?
 High Low

- 
- What should I do to correct my potassium levels?
-

- Do I need a nutritional supplement?

Yes No

If I do, what would be best for me?

- Should I take vitamins?

Yes No

If I should, which ones should I take?

Where can you get more information?

If you have questions, speak with your healthcare team. They know you and can answer questions about you.

If you want to read more about kidney disease, the National Kidney Foundation has more than 50 other publications that cover many subjects, such as:

- *CKD risk factors like hypertension and diabetes*
- *Complications of chronic kidney disease such as cardiovascular disease, anemia, or bone problems*
- *Nutrition for CKD patients with information about carbohydrates, protein, sodium, phosphorus, and potassium*
- *Treating kidney disease early*
- *Treating kidney failure with transplantation or dialysis transplantation or dialysis.*

There are two ways to learn about the many free resources available to you:

- Call the NKF Cares Patient Help Line toll free at **855.NKF.CARES** (855.653.2273).
- Visit the National Kidney Foundation website at **kidney.org/store**.

Becoming an educated patient is very important to being healthy!

Setting a standard for care

The National Kidney Foundation, through its *Kidney Disease Outcomes Quality Initiative* (KDOQI®), defines stages of kidney disease and offers guidelines 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.



The information contained in this publication is based on current data and expert guidance available at the time of publication. The information is intended to help patients become aware of their disease and its management. This publication is not intended to set out a preferred standard of care and should not be construed as one. Neither should the information be interpreted as prescribing an exclusive course of management. Patients should always consult with their healthcare providers regarding decisions about their individual plan of care.



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

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