

# Nutrition & Transplantation



National Kidney  
Foundation®

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

**LOVE YOUR  
KIDNEYS**

## National Kidney Foundation's Kidney Disease Outcomes Quality Initiative

Did you know that the National Kidney Foundation's Kidney Disease Outcomes Quality Initiative (NKF-KDOQI™) develops guidelines that help your doctor and health care team make important decisions about your medical treatment?

### Know Your Stage of Kidney Disease

Did you know that even after a kidney transplant you are still considered to have kidney disease? There are five stages of chronic kidney disease. They are 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 doctor if you have any questions about your stage of kidney disease or your treatment.

#### Stages of Kidney Disease for Kidney Transplant Recipients

Stage	Description	Glomerular Filtration Rate (GFR)*
1 T <sup>†</sup>	Kidney damage (e.g., protein in the urine) with normal GFR	90 or above
2 T <sup>†</sup>	Kidney damage with mild decrease in GFR	60 to 89
3 T <sup>†</sup>	Moderate decrease in GFR	30 to 59
4 T <sup>†</sup>	Severe reduction in GFR	15 to 29
5 T <sup>†</sup>	Kidney failure	Less than 15

\*Your GFR number tells your doctor how much kidney function you have. If chronic kidney disease gets worse, your GFR number becomes lower.

†Transplant



If you have recently had an organ transplant, you are probably wondering if your diet will be different from the one you followed before your transplant. This brochure describes diet changes you may need to make in order to feel your best. You can get additional help in planning your diet from your doctor and a registered dietitian.

### **Do I need to be on a special diet?**

Yes. After an organ transplant, your diet still plays a big role. If you were on dialysis and had a kidney transplant, you may find that this diet is easier to follow than the one you were on for your dialysis.

## What about my cholesterol and triglyceride levels?

Fat (cholesterol or triglyceride) levels in your blood may be high. High levels of cholesterol and triglyceride can cause heart disease. The following steps can lower the fat and cholesterol in your blood:

- Lose weight if you are over a desirable weight level.
- Limit alcoholic beverages.
- Limit egg yolks to three or four a week.
- Limit all types of fats and oils.
- Use lean meats, poultry or fish.
- Use nonfat dairy products.
- Use salad dressing sparingly, or use fat-free salad dressing.
- Avoid frying foods.
- Avoid shortening, butter or stick margarine.
- Use only small amounts of oils, tub margarine or regular mayonnaise. Avoid those that describe the first ingredient as “hydrogenated” or “partially hydrogenated.”

- Replace high-fat desserts like ice cream, pie, cake or cookies with fruit or other nonfat desserts.

## **What about foods high in carbohydrates?**

You should know some important facts about carbohydrate foods:

- Carbohydrates come from sugars and starches.
- They provide fuel and energy for your body.
- When you take steroid medication, it is difficult for your body to use extra carbohydrates. This can lead to high blood sugar levels and may cause diabetes.

For these reasons, you may need to have fewer "simple" carbohydrates in your diet. Simple carbohydrates include sugar, sweets and soda. "Complex" carbohydrates, such as pasta, bread, unsweetened cereal and grains, should be included in your daily diet.



## **Do I still need to follow a low-salt diet?**

Most transplant recipients still need to restrict salt, although it varies with each person. Transplant medications, especially steroids, may cause your body to retain fluid. Salt makes this problem worse, increasing fluid retention and raising blood pressure. Controlling blood pressure is very important to your transplant. Your doctor will decide how much sodium is best for you.

If you are told to limit your sodium or salt intake, here are some common high-sodium foods:

- table or seasoning salts
- salty seasonings like soy sauce or teriyaki
- cured meats like ham, bacon and sausage
- lunch meats like salami and bologna
- canned, dehydrated or ramen noodle soup
- commercially frozen main dishes or meals
- condiments like pickles

### **What about protein?**

Protein is important for the following reasons:

- It builds and repairs muscles and tissues.
- It helps you heal after surgery.



Your protein intake will need to be higher than normal right after your transplant to help build up the muscle tissue that will be broken down by the large doses of steroids. Later, you can return to moderate amounts of protein.

Protein-rich foods include:

- meat, poultry and fish
- milk, yogurt and cheese
- eggs
- dried or cooked beans and peas

### **What about potassium?**

As long as your transplant is working well, you should be able to take in normal amounts of potassium from your food. However, some transplant medications can increase your blood level of potassium, while other medications you need to take will decrease it. If your blood level of potassium is too high or too low, your doctor may recommend some changes in your dietary potassium. If so, your



registered dietitian will be able to guide you. Some foods high in potassium are:

- oranges
- bananas
- avocados
- tomato sauce
- potatoes (white or sweet)
- milk and yogurt
- salt substitutes

### **Are calcium and phosphorus a problem?**

You may need to pay close attention to your calcium and phosphorus levels. If you have been ill for a period of time, your body probably lacks the balance of calcium and phosphorus needed for healthy bones, especially if you had kidney disease. Whether you have received a heart, liver, lung or kidney transplant, you are at risk for bone loss.

In the months after your transplant, your doctor will check for possible bone loss and talk

to you about the best way to keep your bones as healthy as possible. In the meantime, every adult needs about two servings a day from the dairy group (milk, cheese and yogurt).

Unless your doctor or dietitian has told you not to use these foods, try to include them in your meals. Your doctor may decide you need more calcium and phosphorus than this allows and may have you take a supplement. Do not start any supplements on your own, however, as this could affect your transplant.

### **Will any of my medications affect my diet?**

Yes. Your diet will be affected by the use of necessary medications given to prevent rejection of your transplant. Some common anti-rejection medications that may affect your diet include:

- steroids (Prednisone)
- cyclosporine (Sandimmune, Neoral, Gengraf)



- tacrolimus (Prograf)
- azathioprine (Imuran)
- mycophenolate (CellCept)

This list will continue to grow as new medications are developed. These medications may change the way your body works in the following ways:

### **Steroids (Prednisone)**

The most common effects of taking steroids are increases in your:

- appetite, causing unwanted weight gain
- level of blood fats like cholesterol or triglyceride
- blood sugar levels

- sodium (salt) and fluid retention
- breakdown of muscle and bone

These effects are greater when steroid dosages are high.

## **What are common side effects?**

The most common possible effects of other important transplant medications are increases in your:

- level of blood fats like cholesterol or triglyceride
- blood sugar levels
- blood pressure

Changes in potassium, magnesium and phosphorus levels are also common. These levels may return to normal as the doctor carefully lowers the amount of medication you need to prevent rejection of your transplant.



## Will I gain weight?

Many people have a better appetite after they get a transplant, and they gain unwanted weight. Weigh yourself often. Avoid high-calorie foods, such as fatty foods, sweets, pastries and other foods rich in fat or sugar. You can help control your calories by eating:

- raw vegetables and fruits
- lean meat, skinned poultry and fish
- nonfat dairy products
- sugar-free beverages like diet soda

Controlling your weight will help to keep you from developing problems, such as heart disease, diabetes and high blood pressure. If you gain unwanted weight, you will

need to increase your physical activity and follow a low-calorie diet. Ask your doctor to refer you to a registered dietitian to plan low-calorie meals and snacks.

It is very important that you establish an exercise and activity plan. In addition to controlling your weight, regular physical activity helps to:

- strengthen your heart muscle
- give you better form and appearance
- improve your endurance
- keep your bones healthy

Make sure you set up an exercise program with your doctor's advice and get started with it as soon as you are permitted.

### **What if I have diabetes?**

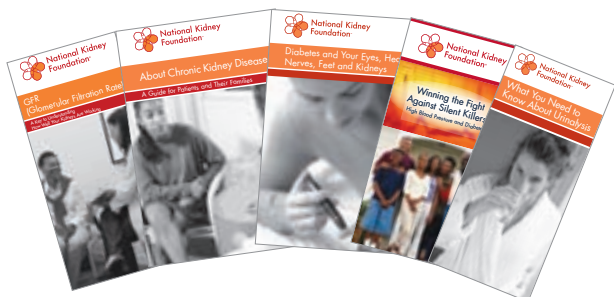
After a transplant, your new diet may be higher in protein and lower in simple carbohydrates due to the effects of steroids and other medications. Work with your doctor and a registered dietitian to keep your diet and blood sugar in good control.

## **Is there anything else I should know?**

Yes. You may be surprised or alarmed to be on a special diet for a short while after your transplant. For example, a kidney transplant may sometimes be slow in getting started, so the doctor will have you follow a kidney diet for a while. This usually is needed for only a short time. Or, you may be asked to drink a lot of water (something you were told to stay away from in the past).

Your doctor and dietitian will guide you through these changes if they happen. Just remember, if your doctor tells you to change what you eat or drink, it is very important for your health and the health of your transplant that you do so.

## Where can I 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.

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

- Call the National Kidney Foundation at 800.622.9010.
- Visit the National Kidney Foundation website ([www.kidney.org/store](http://www.kidney.org/store)).  
(All publications are free, but there is a limit of five per person.)

Becoming an educated patient is very important to being healthy!

## NOTES

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# National Kidney Foundation

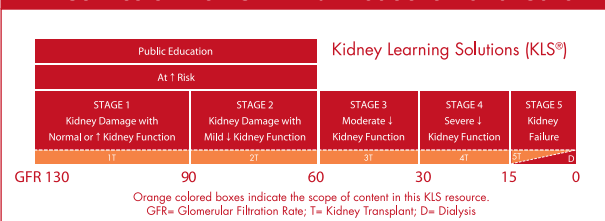
The National Kidney Foundation (NKF) is dedicated to preventing kidney diseases, improving the health and well-being of individuals and families affected by these diseases and increasing the availability of all organs for transplantation.

With local offices nationwide, the NKF provides early detection screenings and other vital patient and community services. The Foundation conducts extensive public and professional education, advocates for patients through legislative action, promotes organ donation and supports kidney research to identify new treatments.

In 2009, NKF launched a groundbreaking multifaceted collaborative initiative to **“END THE WAIT!”** for a kidney transplant in the United States in 10 years by using proven strategies to eliminate barriers to donation and institute best practices across the country.

The NKF relies on individual and corporate donations, foundation and government grants, membership and special events to support its range of programs, services and initiatives.

## A Curriculum for CKD Risk Reduction and Care



**National Kidney Foundation®**

**Kidney Learning Solutions™**

National Kidney Foundation

30 East 33rd Street

New York, NY 10016

800.622.9010

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



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