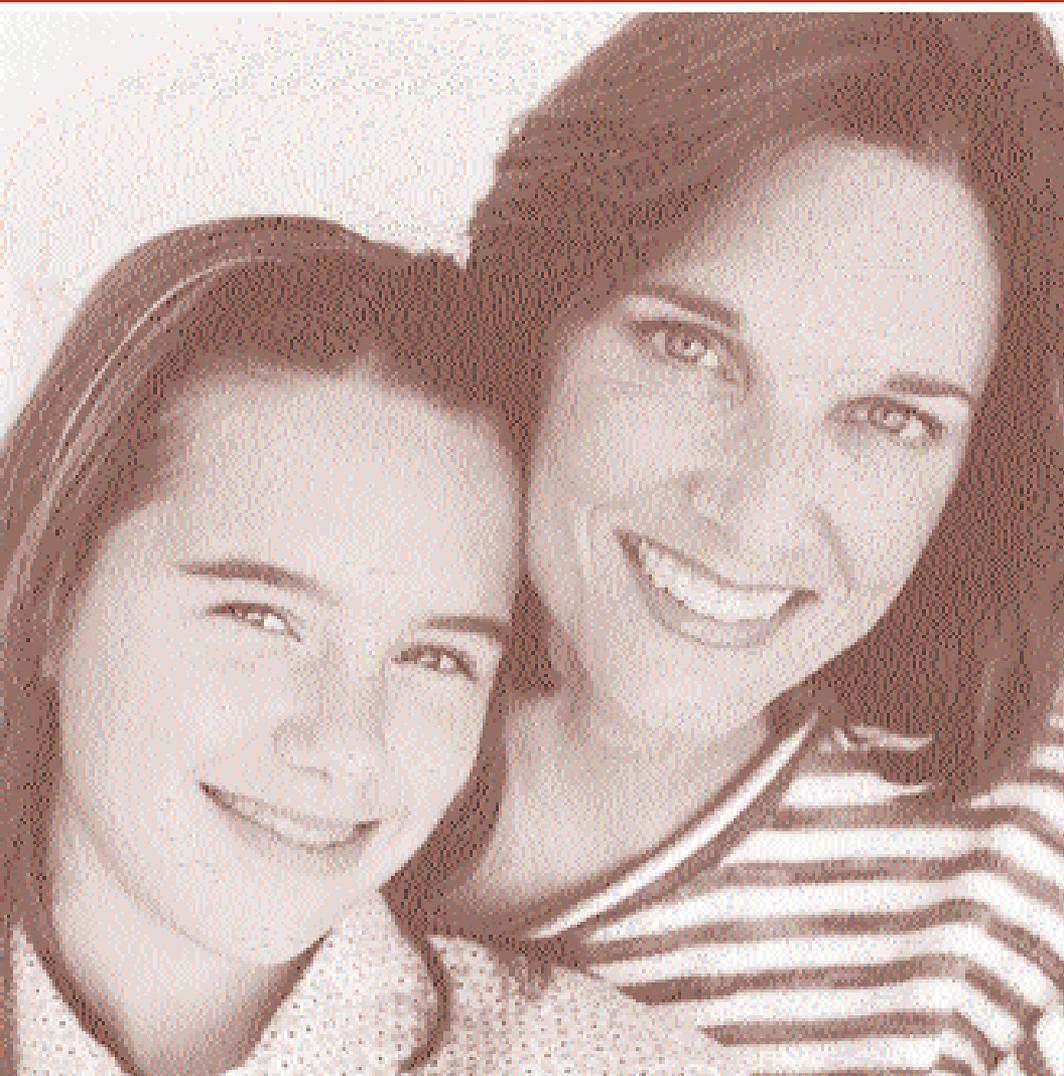




**National Kidney  
Foundation®**

# Health Facts for Teens with Chronic Kidney Disease

What You Should Know About Lipids and Your Heart



## **What are lipids?**

Lipids are fats in your bloodstream and all the cells in your body. You've probably heard about cholesterol ("ko-less-ta-rawl")—a common type of lipid. Your body needs a certain amount of cholesterol to make hormones, vitamin D and bile acid to help you digest fats. Cholesterol is made in your body and also comes from eating foods from animal sources like meats, egg yolks, whole milk, ice cream and some cheeses. Foods like fruits, vegetables and grains have no cholesterol. There are good and bad types of cholesterol. Triglycerides ("try-gli-sir-ides") are another important type of lipid.

## **Why you should read this brochure**

As a teen with kidney disease, you have a lot to handle. We know you would much rather think about trying out for the school play or joining the tennis team than hear that there is another health concern for you to deal with. Yet, it is important for you to know all you can about your kidneys so you will stay healthy and remain active in the things you enjoy.

This brochure tells you about lipids—fatty substances found in your blood. It is important to have the right amount of these lipids in your blood. People who have unhealthy levels of lipids in their blood are more likely to develop heart disease.

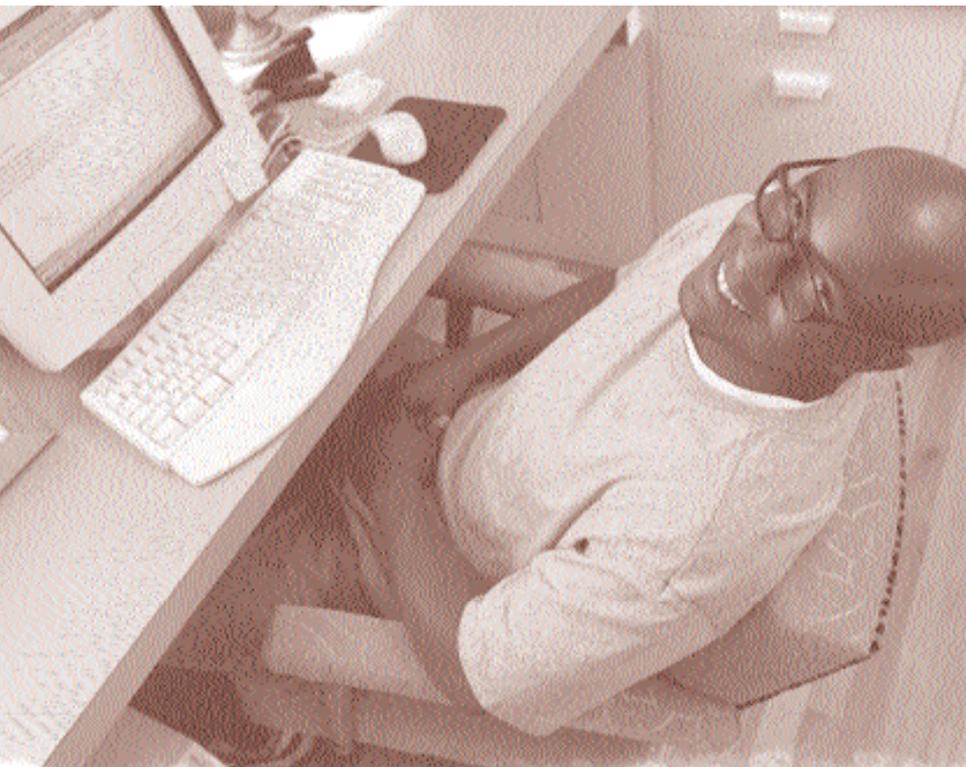
This brochure is written for teens who have chronic kidney disease or a kidney transplant or who are receiving dialysis. We hope this information will be helpful to you and your family. It is a good idea to discuss what you learn with your parents.

## How much do you know about lipids and heart disease?

Take this quiz and find out...then read on and learn more!

1. If you have unhealthy levels of blood lipids, you are more likely to develop heart disease.  
True \_\_\_\_ False \_\_\_\_
2. Cholesterol is a type of blood lipid.  
True \_\_\_\_ False \_\_\_\_
3. Your lipid levels are checked by a urine test.  
True \_\_\_\_ False \_\_\_\_
4. It's best to check your lipid levels after eating.  
True \_\_\_\_ False \_\_\_\_
5. Your body makes cholesterol.  
True \_\_\_\_ False \_\_\_\_
6. Cholesterol is found in foods from animal sources.  
True \_\_\_\_ False \_\_\_\_
7. A high-fat diet can help improve your lipid levels.  
True \_\_\_\_ False \_\_\_\_
8. HDL is a type of cholesterol known to be bad for your heart.  
True \_\_\_\_ False \_\_\_\_
9. Medicines are sometimes used to treat unhealthy blood lipid levels.  
True \_\_\_\_ False \_\_\_\_
10. People with chronic kidney disease rarely have heart problems.  
True \_\_\_\_ False \_\_\_\_

**How did you do? Go to page 10 for the answers.**



## What are the most important lipids?

The major lipids are:

- Low-density lipoprotein, or LDL—a “bad” type of cholesterol that is most likely to clog your blood vessels and keep your blood from flowing through the body as it should.
- High-density lipoprotein, or HDL—a “good” type of cholesterol that carries cholesterol away from the heart and blood vessels and back to the liver, where it can be broken down and sent out of the body. It is good to have more of this type of cholesterol in your blood.
- Triglycerides—the main form of stored fat in your body. Normally, you do not have much of this lipid in your blood. High triglycerides in your blood may not clog your blood vessels, but may mean you

are more likely to develop diabetes (high blood sugar). People with chronic kidney disease or a kidney transplant sometimes have very high triglycerides. This may cause a disorder in your pancreas (“pan-kree-is”)—the gland that helps to control your blood sugar level.

## **Why you should be concerned about your lipid levels**

People with chronic kidney disease or a kidney transplant have an increased chance of developing lipid problems and heart disease. Lipids such as LDL cholesterol cause problems when you have too much in your blood.

When LDL cholesterol builds up in your blood over time, it causes fatty deposits called plaque (“plack”) to form in the walls of your arteries, the tubes that carry blood to your heart and other organs and tissues. Plaque causes your arteries to become thicker, harder and narrower, which decreases blood flow. This condition is called hardening of the arteries.

When this affects the arteries leading to your heart, you are more likely to have a heart attack or stroke. This is why it is so important to start paying attention to your lipid levels as a teen, so you can delay or prevent serious health problems in the future.

## **What causes unhealthy lipid levels?**

People are more likely to have unhealthy lipid levels if they:

- Are overweight or obese.
- Have a history of cholesterol problems or heart disease in their family.
- Eat a diet that is high in saturated fat (“sach-uh-ray-ted” fat) and cholesterol. Saturated fat is any fat that is solid at room temperature. It comes mainly from fatty meats, whole milk products, butter, palm oil and coconut oil.
- Do not get enough exercise.
- Drink too much alcohol (beer, wine, liquor).
- Are older (the risk of cholesterol problems increases as you get older).

## How are blood lipids measured?

Your doctor will do a blood test to check your total cholesterol, LDL, HDL and triglyceride levels. Since food affects this test, you may be asked not to eat for 9 to 12 hours before the test. If you are a hemodialysis patient, you should have this test before your treatment, or on days you do not have dialysis. If you are a peritoneal dialysis patient, you should have the test in the morning.

Your doctor may also check your non-HDL cholesterol. This is another way to tell if you have unhealthy lipid levels. You do not need another test for this. Your doctor can find your non-HDL cholesterol by subtracting your HDL from your total cholesterol.

Your lipids should be checked:

- At least once a year
- About 2 or 3 months after any change in your treatment.

## What are healthy lipid levels for teens?

You are less likely to develop heart disease if:

- Total cholesterol is less than 200
- LDL is less than 130
- HDL is above 40
- Triglycerides are less than 150.

## Can unhealthy lipid levels be improved?

Yes. If your lipids are not at a healthy level, your doctor will recommend some steps for you to follow:

- Follow a diet low in saturated fat and cholesterol. You and your family can speak to a registered dietitian for help in planning your meals. (See “Food tips for reducing lipids in your diet” on page 8 for general suggestions.)

- Lose excess weight.
- Get regular exercise. Activities like walking, biking and swimming help you to strengthen your heart, lower your cholesterol and triglyceride levels and lose those extra pounds.

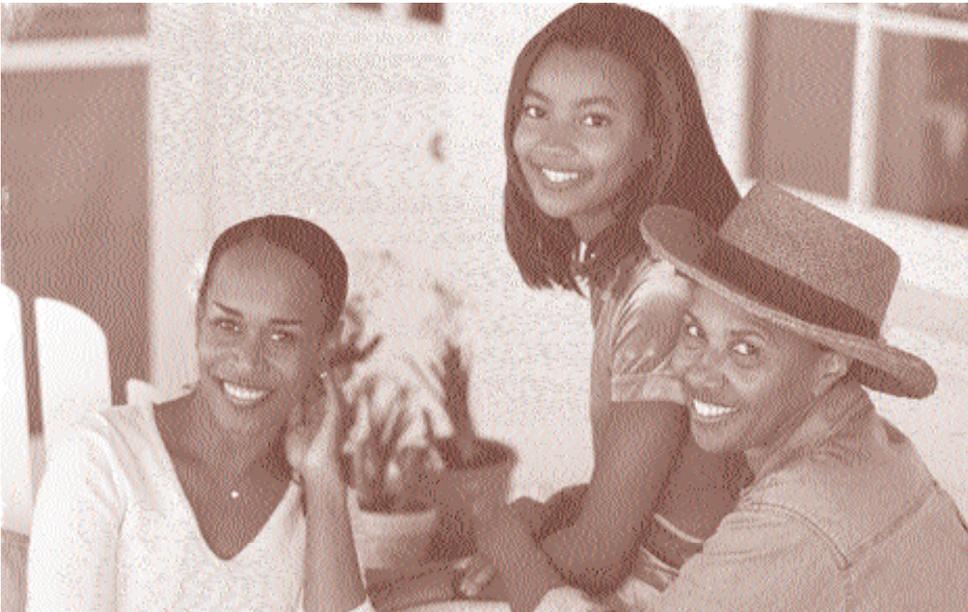
### **Are medicines ever needed?**

Sometimes. Diet and exercise are not always enough to improve your lipid levels. If your doctor prescribes medicine for you, make sure you continue to follow your diet and exercise program. Combining all these steps may reduce the amount of medicine you need or make your medicine work better.

### **Are there other steps to help prevent heart disease?**

In addition to keeping your blood lipids at a heart-healthy level, the following steps can help reduce your chances of developing heart disease:

- Make sure high blood pressure and diabetes are under control if you have either of these disorders.
- If you have started smoking, stop. If you are not a smoker, don't start.

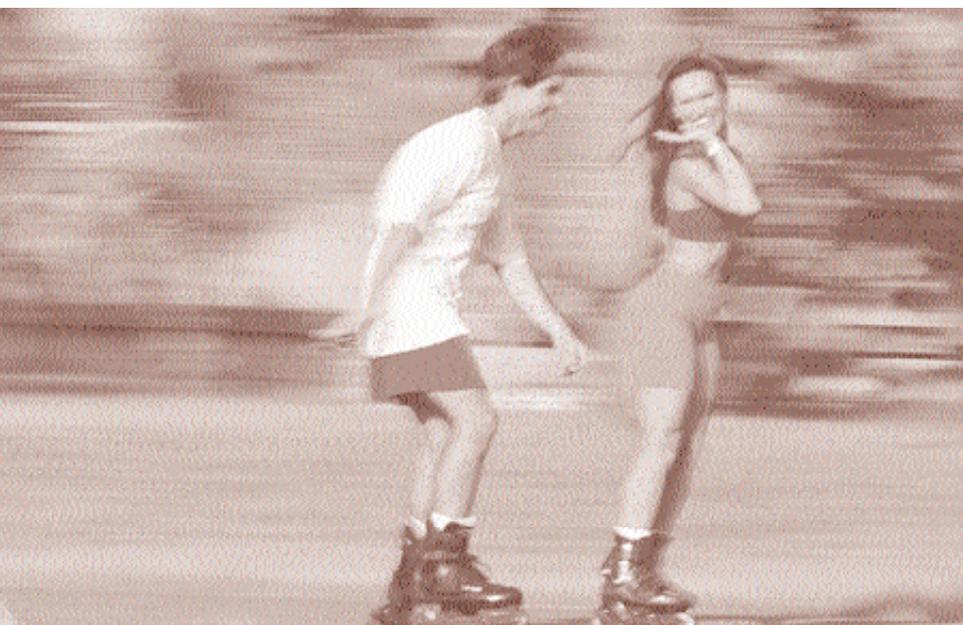


- Stay at a healthy weight.
- Get enough exercise.

## **Food tips for reducing lipids in your diet**

The following list gives some general suggestions. If you and your family need help, ask your doctor to refer you to a registered dietitian with special training in diets for kidney patients. If you are a dialysis or kidney transplant patient, speak to the dietitian at your treatment center.

- Limit egg yolks to two a week or use egg whites or cholesterol-free egg substitutes.
- Increase high-fiber foods like fruits, vegetables and whole grain breads and cereals. Dialysis patients should speak to their dietitian about how to do this safely.
- Choose fish or lean cuts of meat and poultry (chicken and turkey). The loin and round cuts of meat tend to be leaner than rib cuts and organ meats (like liver and kidneys).



- Trim all fat you can see from meat and remove skin from poultry.
- Steam, broil, roast or bake meat, poultry and fish. Place the food on a rack to allow the fat to drain away. Do not fry foods.
- Steam, boil, bake or microwave vegetables and fruits unless eating them raw. Do not fry foods.
- Use nonstick pans or vegetable sprays for sautéing.
- Use herbs and spices to season foods instead of sauces, butter or margarine.
- Try wine, lemon juice or flavored vinegar to give flavor with limited fat and calories.
- Instead of whole milk, use low-fat or nonfat milk, yogurts and cheeses. Dialysis patients should make sure to use milk and other dairy products only in allowed amounts.
- Limit hydrogenated fats ("high-drah-juh-nay-ted" fats). These are found in some margarines, peanut butter, packaged baked goods and snacks and in fried foods. Try baked crackers instead of fried crackers. Buy grilled or baked dishes when eating out.
- Instead of butter or regular margarine, use one of the special margarines made with ingredients that help to lower cholesterol.
- Limit foods made with coconut oil, palm kernel, palm oil, lard, shortening, bacon fat and cocoa butter.
- Use canola or olive oils instead of shortening, butter or other oils when cooking.
- Decrease trans fatty acids, which are partially hydrogenated oils found in stick margarines, most fried snack foods like potato chips, most fat-containing crackers and some cookies.
- Try sherbet, sorbet, Italian ices, low-fat frozen yogurt or popsicles instead of ice cream.

- Use low-fat snacks like fig bars, gingersnaps, jelly beans, hard candy and plain popcorn instead of chocolate, potato chips and buttered popcorn.

Read the nutrition information labels on the foods you buy. They tell you how much saturated fat and cholesterol are in these foods. Watch out for foods that are cholesterol-free but have large amounts of saturated fat. Your body turns saturated fat into cholesterol.

## Check It Out

### Kidney Learning System (KLS)<sup>™</sup> Web Site

You can find more information and lots of cool resources at

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

### NKF Brochures

You and your family may want to take a look at:

*About Chronic Kidney Disease: A Guide for Patients and Their Families*

(Order No.: 11-50-0160/En Español: 11-50-0166)

*Dining Out With Confidence: A Guide for Kidney Patients*

(Order No.: 11-10-0405)

*Nutrition and Chronic Kidney Disease* (Order No.: 11-50-0135)

*Nutrition and Hemodialysis* (Order No.: 11-50-0136)

*Nutrition and Peritoneal Dialysis* (Order No.: 11-50-0140)

*Nutrition and Transplantation* (Order No.: 11-10-0404)

*Staying Fit With Kidney Disease* (Order No.: 11-10-0502)

## Answers to True or False Quiz

- |      |       |
|------|-------|
| 1. T | 6. T  |
| 2. T | 7. F  |
| 3. F | 8. F  |
| 4. F | 9. T  |
| 5. T | 10. F |

The National Kidney Foundation’s Kidney Disease Outcomes Quality Initiative (NKF-KDOQI) is developing clinical practice guidelines to improve patient outcomes. The information in this booklet is based on the recommendations of these guidelines. The guidelines are not intended to define a standard of care but to provide information and assist your doctor or health care team in making decisions about your treatment. The guidelines are available to your doctor or clinic. If you have any questions about these guidelines, you should speak to your doctor.

## Stages of Chronic Kidney Disease (CKD)

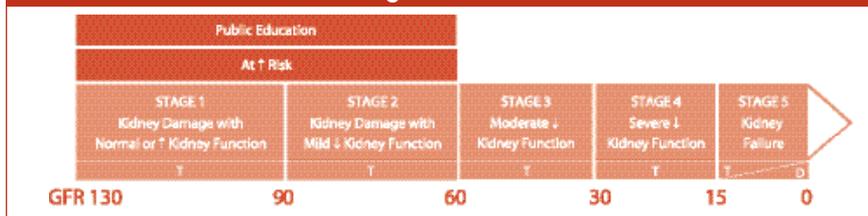
In February 2002, the National Kidney Foundation published clinical care guidelines for chronic kidney disease. These help your doctor determine your stage of kidney disease based on the presence of kidney damage and glomerular (glow-mer-yoo-ler) filtration rate (GFR), which is a measure of your level of kidney function. Your treatment is based on your stage of kidney disease. (See chart below.) Speak to your doctor if you have any questions about your stage of kidney disease or your treatment.

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

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

More than 20 million Americans—one in nine adults—have chronic kidney disease, and most don't even know it. More than 20 million others are at increased risk. The National Kidney Foundation, a major voluntary health organization, seeks to prevent kidney and urinary tract diseases, improve the health and well-being of individuals and families affected by these diseases, and increase the availability of all organs for transplantation. Through its 47 affiliates nationwide, the foundation conducts programs in research, professional education, patient and community services, public education and organ donation. The work of the National Kidney Foundation is funded by public donations.

## Education Along the Continuum of Care



This arrow illustrates the potential scope of content for KLS resources. Lightshaded boxes indicate the scope of content targeted in this resource.

GFR = Glomerular Filtration Rate; T = Kidney Transplant; D = Dialysis



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