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Combined Federal Campaign #0508

American
Kidney Fund

reaching out
giving hope
improving lives

Diabetes and Your Kidneys

Large Print Edition

reaching out
giving hope
improving lives



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Diabetes: The #1 Cause of Kidney Failure



Your doctor has told you that you have diabetes. You may have a lot of questions. This guide will help.

You will learn:

- What diabetes is
- How diabetes can hurt the kidneys
- What to ask your doctor
- How to stay healthy
- Where to find more help

While reading this guide, you may see a word in bold you don't know. If so, turn to page 21 and look for the word in the glossary. We know we can't answer all of your questions. So, write down any questions and discuss them with your health care team.

What is Diabetes?

Diabetes is sometimes called “sugar.” It is a disease where your body has problems with a **hormone** called **insulin**. Insulin helps your body use sugar (also called **glucose**) for energy. When there is a problem with your body’s insulin or its response to insulin, too much sugar stays in the blood. Too much sugar can damage parts of your body. There are two main types of diabetes:

Type 1 diabetes

- Your body does not make enough insulin.
- Daily insulin shots or an **insulin pump** are needed.
- Usually appears when you are a child or young adult.
- Only 5% of adults with diabetes have Type 1.



Type 2 diabetes

- Your body can’t use insulin well.
- Diet, exercise, medicines, and/or insulin shots are needed.
- Usually starts when you are over age 40, but can start earlier.
- African Americans, Native Americans, Latin Americans and Asian Americans are more likely to have Type 2 diabetes.



How Can Diabetes Hurt My Kidneys?

Think of your kidneys like a pasta strainer or a filter. Your kidneys keep some things in your body that you need, and get rid of other things that you don’t.

The filters of your kidneys are full of tiny blood vessels (called **glomeruli**). These blood vessels filter your wastes out of the blood and keep in the things you need. High blood sugar can damage these blood vessels. This damage is called diabetic kidney disease (also called diabetic **nephropathy**). The damage to your kidneys does not happen fast. It can sometimes take many years.

Damage to your kidneys can’t be cured. If diabetic kidney disease is not treated, it can lead to **kidney failure**. There is no cure for kidney failure. With kidney failure, you must have **dialysis** or a kidney **transplant** in order to live.

You can get more information on kidney failure, dialysis, or transplant. Call the American Kidney Fund’s HelpLine at (800) 638-8299 or visit <http://www.kidneyfund.org>

Remember! Diabetes causes more than 40% of kidney failure in the United States. You can take steps to control it! Keep reading to learn how!

What Should I Ask My Doctor?

Your doctor knows your health better than anyone else. Trust your doctor. Sometimes your doctor may seem busy, but don't be afraid to ask questions. Here are some things you might want to ask:

1. What tests should I have?

There are many tests that are important to someone with diabetes. Ask your doctor how often you need these:

For Your Diabetes

Blood Glucose Test – A blood test that shows how much sugar (glucose) is in your blood. You can do this test at home using a blood glucose meter (glucometer). Turn to page 10 for more information on this test.

Hemoglobin A1C – A blood test called “hemoglobin A 1C” can tell you if your blood sugars have been normal over the past 2 to 3 months. The test is a “report card” of your blood sugar levels. Your doctor can help you figure out what your A 1C should be. The goal for most people with diabetes is an A 1C less than 7%.

For Your Kidneys



Blood Pressure – Diabetes and high blood pressure are a dangerous combination. High blood pressure can increase your chances of getting kidney and heart disease. A normal blood pressure is *less than 120/80* (120 over 80). Ask your doctor how often your blood pressure should be checked.

Urine Test – Kidney damage can cause **protein** to leak into your urine. This protein is called **albumin**. Your doctor can use a 24-hour urine test to look for albumin. The test is usually done once a year. If the test shows protein in your urine, your doctor may say you have “**proteinuria**” or “**microalbuminuria**.” This can be an early sign of kidney disease.

Test results for a 24-hour urine test:

Less than 30 mgs –	Normal
Between 30 and 300 mgs –	Microalbuminuria
More than 300 mgs –	Proteinuria

GFR – (Glomerular Filtration Rate) This is the best way to tell how your kidneys are doing. This test can tell your doctor how well your kidneys clean your blood. Your doctor will test your blood for **creatinine**. Then, your doctor or lab will put the result from the test (creatinine) into a math formula. Your age, race, and gender will also be used to figure out your GFR. Your GFR will put you into one of these stages:

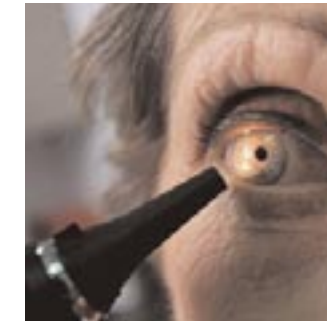
GFR Level	Stage	Description
90-130, no protein in the urine	Normal	Normal kidney function
90 or more, and continuous protein in the urine	Stage 1	Slight decrease in kidney function
60 to 89	Stage 2	Mild decrease in kidney function
30 to 59	Stage 3	Moderate decrease in kidney function
15 to 29	Stage 4	Severe decrease in kidney function
Less than 15	Stage 5	Kidney failure (dialysis or transplant will be needed soon) ¹

¹ From the National Kidney Foundation's Kidney Disease Outcomes Quality Initiative

For more information on GFR and Chronic Kidney Disease (CKD), order the American Kidney Fund's brochure *Living Well with Chronic Kidney Disease*. Call (800) 638-8299 or visit <http://www.kidneyfund.org>

For the Rest of Your Body

Eye Exam – Just like your kidneys, diabetes can damage the tiny blood vessels in the back of your eyes. The damage can even cause blindness. Ask your doctor how often you should have your eyes checked.



Foot Exam – Diabetes can damage your body's nerves. This can keep you from feeling sores or problems on your feet. These sores sometimes don't heal and can get infected. Very bad infections in your feet can lead to the need for an **amputation**.

Dental Exam – Diabetes can also hurt your teeth and gums. See your dentist at least twice a year.

2. Who else should be on my health care team?

Treating diabetes is a team effort. Ask your doctor who else might be able to help you. Your doctor might refer you to a:

- Kidney Doctor (Nephrologist)
- Eye Doctor (Ophthalmologist)
- Foot Doctor (Podiatrist)
- Dentist
- Dietitian
- Diabetes Educator



3. What should I change in my diet?

The way you eat affects your diabetes. Ask your doctor if you need to change how much you eat:

- Protein (meats, fish, eggs, milk, etc.)
- Carbohydrates (sugars, breads, cereals, rice, potatoes, sweets, some fruits, etc.)
- Sodium (salt, cheese, fast food, bacon, pizza, Chinese food, etc.)
- Fats (butter, oil, mayonnaise, etc.)
- Calories

4. Should I take a medicine called an ACE Inhibitor or ARB?



Ask your doctor if these pills are right for you. They are a special kind of blood pressure medicine. They can help prevent, slow, or stop kidney damage.

5. What should I look out for?

Many problems related to diabetes can be treated if caught early. Ask what signs or symptoms you should be looking for.

Kidney disease often has no symptoms – that is why it is so important to be tested. But, make sure to tell your doctor if you have any of the following:

- A sick feeling in your stomach often.
- A tired or dizzy feeling often.
- Swelling in your feet, hands or face.
- Pain in your back.
- Bloody, foamy or dark-colored urine.
- A change in how often you urinate (either more or less).

How Can I Stay Healthy?

Your health care team is key, but YOU are the most important part. Here are some things you can do:

1. Test your blood sugar at home.

How do I test at home?

You can test your blood sugar at home using a blood glucose meter. You can get a blood glucose meter at your local drug store, hospital, clinic, or on the Internet. Your health care team can help you find a meter that is right for you.

How do I do the test?

Your health care team can show you how and when to use your meter. Read the meter's instructions. Most meters will use a tiny pin (called a **lancet**) to prick your finger. This makes a tiny drop of blood. Put the drop of blood on the test strip. The meter will show a number. This is your blood sugar level.



What should my blood sugar level be?

Before eating	After eating	Bedtime
90-130	80-180	100-140

What do I do with these numbers?

Write them down every time. Make sure to write down when you took the test. Share these numbers with your health care team. Here is an example:

	Day 1 Morning,	
	before breakfast –	101
●	Day 1 Morning,	
	2 hours after breakfast –	165
	Day 1 Late afternoon,	
	before dinner –	108
●	Day 1 Evening,	
	after dinner –	167
	Day 1 Bedtime –	126
●		

What do I do if my blood sugar is too high?

- Make sure to write down when you took the test and what you ate.
- Tell your doctor if it happens a lot.

What do I do if my blood sugar is too low?

- Eat a glucose tablet, raisins, hard candy or honey. You can also drink fruit juice, milk or a sugary soft drink.
- Check your blood sugar again in 15 minutes to make sure you are not still low.
- Tell your doctor if it happens more than once.

How do I pay for my supplies?

Medicare and some insurances will help cover most of the cost for your supplies. Talk to your health care team before you order.



2. Eat right.



What kind of foods should I eat?

Your doctor or diabetes dietitian can help you plan a diet. In general, do not eat foods high in fat, **saturated fat**, salt (sodium) and **cholesterol**. Eat foods that are high in **fiber**. Drink water instead of soda or other drinks high in sugar.

Do I need to eat less protein?

Eating too much protein can make your kidneys work harder. This can cause more kidney damage. Since your body needs some protein, a careful balance is needed. Many people eat more protein than they need. *Be sure to ask your doctor how much protein you should eat.*

Here are some examples of protein in foods:

1 egg	= 7 grams protein
1 chicken thigh	= 14 grams protein
8 ounces milk	= 8 grams protein
1 slice bread	= 2 grams protein
1/2 cup corn	= 2 grams protein
1 cup rice	= 4 grams protein

3. Take Your Medicine.

Are there any medicines I should take?

Only your doctor can answer this question. Your doctor may give you some pills to help you control your diabetes. If so, make sure you are told about any side effects. Do not skip a pill or take an extra pill without talking to your doctor.



What is an ACE Inhibitor or an ARB?

These are special kinds of blood pressure medicines. Your doctor may give you one of these to take, even if you don't have high blood pressure. They are special because they may also help prevent kidney disease. These medicines can also treat protein in your urine.

4. Control High Blood Pressure.

What is normal blood pressure?

A blood pressure reading *less than* 120/80 (120 over 80) is normal. If your blood pressure stays higher than normal over time, it is called high blood pressure (also called **hypertension**).

What does high blood pressure have to do with my kidneys?

Your kidneys help control your blood pressure. But, the kidneys can also be damaged when your blood pressure is too high. In fact, high blood pressure is the second leading cause of kidney failure. High blood pressure can also cause protein to be in your urine.

What can I get more information?

Order the American Kidney Fund's brochure *High Blood Pressure and the Kidneys*. Call (800) 638-8299 or visit <http://www.kidneyfund.org>



5. Live healthy.

What else can I do to keep my kidneys healthy?

- Exercise. Exercise helps your body use insulin better. Talk to your doctor before starting any exercise program.
- Keep a healthy weight. Even losing just a few pounds can help lower your blood sugar.
- Stop smoking or using tobacco of any kind. Smoking increases your risk for many diseases, including heart attacks. Smoking increases your risk for protein in your urine and may hurt your kidneys. Your health care team can help you find a way to quit.
- Be careful with painkillers. Tell your doctor before starting to use any over-the-counter or prescription painkillers. Some painkillers can hurt the kidneys.
- Treat bladder and kidney infections fast. Some infections can damage your kidneys. Tell your doctor as soon as you think you are sick.



Where Can I Find More Help?

American Kidney Fund

6110 Executive Boulevard
Suite 1010
Rockville, MD 20852
HelpLine: (800) 638-8299
<http://www.kidneyfund.org>
Email: HelpLine@kidneyfund.org
En Español: (866) 300-2900



The toll free HelpLine can help you find more information on diabetes, kidney disease, high blood pressure, dialysis and transplant. Patients and family members can order free brochures. Grant programs are available to low-income dialysis and kidney transplant patients.

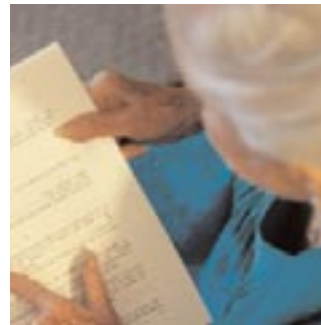
American Association of Diabetes Educators

100 West Monroe Street, Suite 400
Chicago, IL 60603
(800) 338-3633
<http://www.aadenet.org>

Get more information on diabetes. Find a diabetes educator in your area. Diabetes educators can teach you how to live a full and healthy life.

American Diabetes Association

ATTN: National Call Center
1701 North Beauregard Street
Alexandria, VA 22311
(800) 342-2383 (800-DIABETES)
<http://www.diabetes.org>



Get more information on diabetes and diabetes research. Find information on what to eat, eye care, and foot care. There are local chapters across the country.

American Association of Kidney Patients

3505 East Frontage Road, Suite 315
Tampa, FL 33607
(800) 749-2257
<http://www.aakp.org>

Information available on kidney disease. Order or download their "Nutrition Counter" to help you plan your meals and to see what foods are high in protein, sodium, and calories.

Medicare

Centers for Medicare and Medicaid Services
7500 Security Boulevard
Baltimore, MD 21244-1850
(800) 633-4227 (800-MEDICARE)
<http://www.medicare.gov>

Find out how Medicare can help pay for your diabetes test supplies. The toll-free number is answered 24 hours a day, 7 days a week.

National Kidney Foundation

30 East 33rd Street
New York, NY 10016
(800) 622-9010
<http://www.kidney.org>

Information on diabetes and kidney disease is available. Find a chapter in your area.



National Institute of Diabetes and Digestive and Kidney Diseases

3 Information Way
Bethesda, MD 20892-3580
(800) 891-5390
<http://www.niddk.nih.gov>

Order brochures on kidney disease and diabetes.
Call the toll-free number with your questions.
The National Diabetes Information Clearinghouse is part of the National Institutes of Health.



Glossary

Albumin – A protein made by your liver that circulates in the blood.

Amputation – Removing a body part (like a foot, hand, arm) through surgery.

Cholesterol – A kind of fat found in food from animal sources. Many fast food items (French fries, cheeseburgers, etc.), eggs, meats and whole-milk products like milk, cheese and ice cream are high in cholesterol. High cholesterol levels in your blood are bad for your heart and your blood vessels.

Creatinine – A waste product in the blood that usually comes from the normal use of your muscles.

Dialysis – A way of cleaning wastes from the blood artificially. The kidneys normally do this job. If the kidneys fail, the blood must be cleaned artificially with special machines.

Fiber – Sometimes called “roughage.” It is the part of plants that your body cannot digest. It is found in fruits, vegetables and whole grain (like whole wheat) breads.

Glomeruli – The tiny blood vessels in the kidneys that filter the body’s wastes. The wastes are filtered into urine.

Glucose – The main sugar found in your blood. Your body turns many of the foods you eat into glucose. It is also the main source of the body's energy.



Hormone – A natural chemical made in one part of the body and released into the blood. Hormones control specific body functions.

Hypertension – (also known as high blood pressure) Blood pressure is the force of your body's blood against the walls of your blood vessels. Blood pressure that stays above normal over time is called hypertension or high blood pressure. High blood pressure is the second leading cause of kidney failure. Kidney disease can also cause high blood pressure.

Insulin – A hormone made by your pancreas. It helps your body burn sugar (glucose) for energy.

Insulin pump – This is a special tool that gives your body quick doses of insulin. The pump works 24 hours a day through a tiny tube placed under the skin. If you have Type 1 diabetes, ask your doctor if this would be right for you.

Ketones – A chemical made by your liver. High amounts of ketones can show up in your urine when your blood sugar is very high.

Kidney Failure – The point when your kidneys can't work well enough to clean your blood. There is no cure. In order to live, a person with kidney failure needs either dialysis or a kidney transplant.

Lancet – A small, needle-like blade used to prick the skin. The prick creates a tiny drop of blood. The blood is used to measure your blood sugar in a blood sugar monitor.

Microalbuminuria – Small amounts of protein found in the urine (between 30-300 mgs/24-hours.) This can be a sign of early kidney disease.

Nephropathy – The medical word for kidney damage.

Protein – The building block of many of your body's tissues. It makes up most of your body's muscle. It is also found in your hair and skin.

Proteinuria – Protein found in the urine (more than 300 mgs/24-hours.) This can be a sign of kidney disease.

Saturated Fat – A kind of fat in your foods. It is found in red meat, butter, creams, animal fats, whole-milk cheese and lots of fast food items. Eating a lot of saturated fat can increase your risk of having heart disease, high cholesterol and strokes.

Transplant – To move an organ from one body to another. A kidney transplant may come from a living donor, or from someone who has just died. A pancreas transplant can only come from someone who has just died.

Urine – Liquid waste product filtered from the blood by the kidneys, stored in the bladder, and sent out of the body through the act of urinating.



We are grateful to the following health professionals for their review and contributions to this guide:

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