



A VIDEO SERIES



living
WELL
with kidney failure



HEMODIALYSIS



National **Kidney** Foundation™

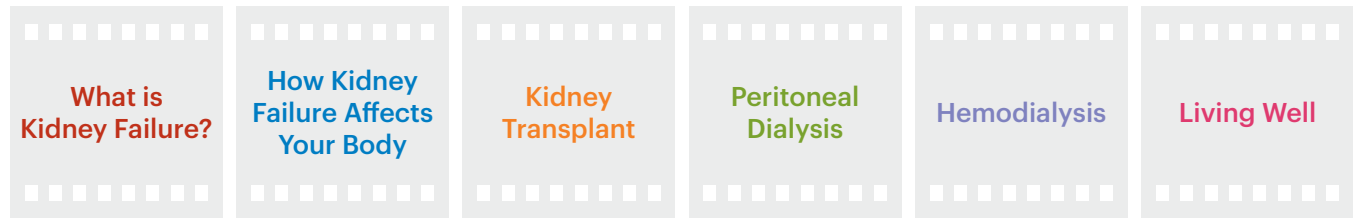


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Introduction

“Living Well with Kidney Failure” is a video series created by the National Kidney Foundation to help you understand kidney failure and its treatments. There are six videos. Each video has a companion booklet to provide more information and to help you review what you’ve learned. The six videos and booklets are:



This booklet will tell you about hemodialysis as a treatment choice. It also describes the healthcare professionals who make up the healthcare team in hospitals and dialysis centers. But, more importantly, it focuses on the role you play in your own care. That role begins with learning as much as you can about kidney disease and its treatment.

What will I learn?

You'll learn about kidney failure, and what it means when your kidneys don't work. This is discussed in the video and booklet called "What is Kidney Failure?"

You'll learn about other health problems that can happen as a result of having kidney failure, and what you can do about them. These are discussed in the video and booklet called "How Kidney Failure Affects Your Body."

You'll learn about the two basic treatments available—kidney transplant and dialysis. There are two kinds of dialysis: hemodialysis and peritoneal dialysis. Each is discussed in this booklet, and in the videos and booklets called "Kidney Transplant" and "Peritoneal Dialysis."

You'll learn about some lifestyle changes you can expect, and how you and your loved ones can learn to cope with them. These are discussed in the video and booklet called "Living Well."



Finally, you will be introduced to some medical terms and important words that may be new to you. To help you get to know them, there's a list of "Words to Know" at the end of each booklet.



“Hemodialysis has proven to be effective, reliable, and safe.”

Who is on my healthcare team?

The healthcare team will help you understand and deal with your kidney failure. They do that best when you work with them as part of the team. You do that by telling them what your concerns are, asking them questions, and by learning as much as you can about kidney failure and its treatment. If you choose hemodialysis as your treatment choice, you will have the following team members:

Nephrologists are doctors trained in treating kidney disease and kidney failure. Your nephrologist will give you regular checkups, monitor your health, prescribe medicines, oversee your monthly blood tests, and much more.

Advanced practitioners are also trained in treating kidney disease and kidney failure. They work closely with your nephrologist to give you checkups, medicines, and other medical care.

Nurses work closely with other team members to coordinate all medical aspects of your care at the dialysis center. They perform and monitor your dialysis treatments.

Dialysis technicians keep an eye on you and the dialysis machine while you're having your treatment to make sure all is going well—and to make sure that you are as comfortable as you can be.

Dietitians will be working with you, too, teaching you to eat and drink the right things in the right amounts.

Social workers help you and your family cope with kidney disease. They provide counseling, identify sources of emotional support, and help you access services provided by federal, state, and community agencies.

What is kidney failure?

You have two kidneys. Each is about the size of your fist, and they're on both sides of your spine at the bottom of your rib cage. Together, they weigh about one pound.

When your body uses the food you eat and the liquids you drink, there are waste products that your kidneys filter out as urine.

When your kidneys are healthy, they keep your whole system in balance. They help your body to make red blood cells. They also release hormones



that help to regulate blood pressure and keep your bones healthy and strong.

Usually, you don't have to worry about any of this. But when your kidneys fail, it's a different story.

Waste products and fluids build up in your body. You may feel weak or tired. You may feel sick to your stomach. You may lose your appetite, feel irritable, or have trouble thinking clearly. And, you'll need dialysis treatment or a kidney transplant to stay alive.

What treatments are available for kidney failure?

There are two treatments for kidney failure: kidney transplant and dialysis.

In a transplant, a healthy kidney is put inside your body to do the work of your own kidneys. To learn more about kidney transplant, see the video and booklet called "Kidney Transplant."

In dialysis, the job of your kidneys is done in one of two ways: hemodialysis or peritoneal dialysis. Both remove waste products and extra fluid from your blood.

With peritoneal dialysis, a special sterile cleansing fluid flows into your abdominal cavity through a tube in your belly called a catheter.

The lining of the abdominal cavity (called the peritoneum) acts as a natural filter. Waste products from your blood flow through this lining into the fluid, which is then drained from your body through the catheter. Your blood never leaves your body.

The process is done daily, and you do the procedure yourself. It can be done at home, at work, anywhere—even while you sleep.

To learn more about peritoneal dialysis, see the video and booklet called “Peritoneal Dialysis.”



What is hemodialysis?

In hemodialysis, your blood is pumped through soft tubes into a dialysis machine. Inside the machine, there is a special filter called a dialyzer (also called an “artificial kidney”). The dialyzer allows waste and extra fluid to pass through it, but holds back the important things your body needs, like blood cells and nutrients.

The wastes and extra fluids are carried away into a cleansing fluid inside the dialysis machine (called “dialysate”), and your cleaned blood flows back to you. Only a small amount of blood is out of your body at any time. On average, the process takes four hours. Most people have treatment three to four times a week. While you’re having your hemodialysis treatment, you can read, sleep, and even watch TV.

In order to be connected to the dialysis machine, you need to have an access, or entrance, to your bloodstream. This is done with minor surgery,

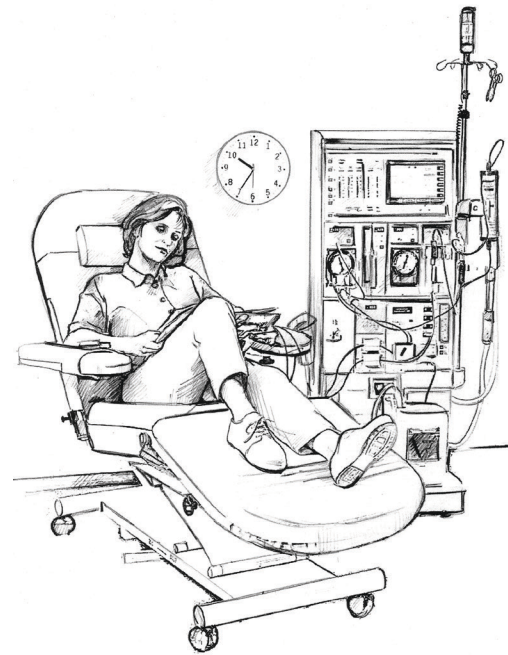


Photo credit: National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health

usually to the arm. This access is permanent for as long as you’re on dialysis.

If you need to go on dialysis before your access heals, a temporary one is placed in your neck or groin. Your healthcare team will teach you how to care for your access.

What are the types of hemodialysis access?

There are three types of hemodialysis access:



Fistula

A fistula is the recommended choice for an access. It is made by joining an artery to a nearby vein under your skin to

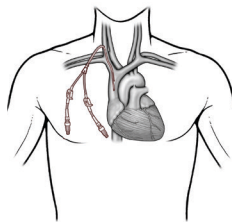
make a bigger blood vessel. This type of access is recommended because it has fewer problems and lasts longer. A fistula should be placed early (several months before starting dialysis) so it has plenty of time to heal and is ready for use by the time you begin hemodialysis. You should be evaluated by a special doctor, called a vascular surgeon, at least six months before you start dialysis.



Graft

If your blood vessels are not suitable for a fistula, a graft may be used. This involves joining an artery and nearby vein with a small, soft tube

made of synthetic material. The graft is entirely beneath your skin.



Catheter

The third type of access, called a catheter, is inserted into a large vein in your neck or groin. The ends of the tubes sit on your skin

outside your body. This type of access is generally used temporarily if a fistula or graft is not ready or if it needs repair. Catheters may be used as a permanent access, but only when a fistula or a graft cannot be placed.

What happens after the fistula or graft heals?

After the fistula or graft has healed and dialysis is started, two needles will be placed in your blood vessels every time you have treatment. The needles are then connected to soft plastic tubes. One tube carries your blood from the needle to the dialyzer (the artificial kidney) where it is cleaned. The cleaned blood is returned to you through the other tube.



What might be some common problems during treatment?

During hemodialysis, water, salt, and waste products are taken out of your body faster than they would be by a normal kidney, so you may experience low blood pressure, cramps, nausea, headaches, and tiredness—especially in the first few weeks before you become used to treatment.

After you've been on treatment a while, you'll learn to recognize the first signs of these symptoms. You'll be able to tell your nurse or technician about them, so they can make you more comfortable or, even stop them from happening.

What role do diet and medicines play in hemodialysis?

Hemodialysis does a good job of removing waste products and extra fluid—but it can't completely take over the work healthy kidneys do in balancing important substances in your blood. That's done

through the medicines you'll need to take, and the diet plan you'll need to follow.

You and your dietitian will work out a diet plan that's based on your overall health, any medicines you take, and what you and your family like to eat. Limiting how much salt you eat will be an important part of your diet.

Eating too much salt, drinking too much fluid, or having the wrong kinds of foods between treatments can make your dialysis treatment uncomfortable. And it can have serious effects on your health.

Too few calories can also cause problems, so don't be surprised if your dietitian asks you to eat more than you think you should. You need to keep your strength and weight at healthy levels.

Taking all your medicines as instructed is also very important. You may need to take blood pressure pills, medicines to keep your bones and blood healthy, and vitamins and iron.



How is my treatment monitored?

You'll have monthly blood tests. They're very important, since they let your healthcare team know how well you're doing and if any changes are needed to your diet, medicines, or even the length of time you spend on the dialysis machine.

Can I do hemodialysis at home?

Many centers also offer hemodialysis at home, which can allow you more freedom and control.

To do your treatment at home, your medical condition should be stable. You'll need to set up your home for the machine and other equipment—and this could include some changes to your home's plumbing and electricity. You'll also need a care partner to help you, and you'll need room to store supplies.

If you're interested in home dialysis, you and your care partner will get special training on how to do your treatment safely.

Talk to your healthcare team to see if home dialysis might be right for you. If you're a candidate, your center will arrange for you to get the equipment and regular deliveries of supplies. The team will still follow you very closely and see

you when you come in for your monthly blood tests and checkups. You'll be given a 24-hour telephone number in the event of an emergency.

Are there different types of home hemodialysis?

With home hemodialysis, you have three different types of treatment schedules to choose from. These choices are:

Conventional home hemodialysis

Treatments are usually done three times a week. On average, each treatment lasts about four hours.

Short daily home hemodialysis

This involves more treatments each week for shorter periods. For example, you might do six treatments a week (compared with the usual three). Each treatment would last about 1½ to

2½ hours. Many people feel that their quality of life improves with this type of dialysis because they sleep better and have better control of blood pressure, anemia (low red blood cell count), and blood phosphorus levels (an important mineral in the blood that is essential to cells and bones).

Nocturnal (nighttime) hemodialysis

This involves long, slower treatments, which are done during the sleep hours, usually for six to eight hours. Many people sleep better and have better control of blood pressure, anemia, and blood phosphorus levels with this type of dialysis. Nocturnal hemodialysis can be done at home or in a dialysis center. However, not all centers offer nocturnal hemodialysis as an option. To learn more about this option, ask your healthcare provider.



Comparing hemodialysis: At home versus in a center

	Advantages	Disadvantages
At Home	<ol style="list-style-type: none">1. Dialysis is done in the comfort of your own home.2. You do not need to travel to a dialysis center.3. You have more flexibility to choose the time of day to do dialysis.4. You and your dialysis care partner learn how to do treatments independent of the center staff.5. Being able to fit the treatment schedule into your life and work schedule may give you more independence and control.	<ol style="list-style-type: none">1. You must have enough space in your home to keep the machine, a water system (if needed), and supplies.2. Your electric and water bills may increase.3. You will need a dialysis care partner.4. Both you and your dialysis care partner must take time off work or your regular routines to attend training.
Dialysis Center	<ol style="list-style-type: none">1. Trained staff does all parts of treatment. (You may be able to do some things yourself, like inserting the needles.)2. Since other people are dialyzing at the same time, friendships may develop.	<ol style="list-style-type: none">1. Treatment days and times are scheduled by the center.2. You must travel to the center at least three times a week.3. Other people are doing dialysis at the same time, so you have less privacy.

Is hemodialysis safe?

Hemodialysis—at a center or at home—has proven to be effective, reliable, and safe.

Some people might have concerns about diseases like AIDS and hepatitis being spread through treatment, but every step is taken to make sure this can't happen. If you have any concerns about this, talk to your nephrologist or another member of your healthcare team.



How will I pay for treatment?

You'll be relieved to know that most of the costs for hemodialysis are covered by Medicare. Private insurers and state programs may cover some costs as well. Your social worker can answer questions you may have about coverage or direct you to others who can help.

What is the best choice?

What's happened to you is very serious and will mean changes in your life. But with the right treatment and outlook, you can live a long, full life.

Learning about your treatment choices will help you decide which one is best for you. Your decision should be based on more than your medical history and your doctor's opinion. It should also be based on what you and your family want, as you first start treatment or later on. Your life and health may change with time, and so can your treatment.



*“Learning about
your treatment choices
will help you decide
which one is best
for you.”*

Review

You learned that hemodialysis uses a machine, a cleansing fluid called a dialysate, and a special artificial kidney called a dialyzer to **REMOVE WASTE PRODUCTS** and extra fluid from your blood.

For hemodialysis, a special access must be **SURGICALLY PLACED** in your arm to allow your blood to flow out to the dialysis machine and back into your body.

You'll need to **TAKE SOME MEDICINES** to control your blood pressure and to keep your bones strong.

To keep your health and strength at stable levels, it's important to **STICK TO YOUR DIET PLAN**.

On average, hemodialysis takes **FOUR HOURS**, and is usually done three to four times a week at a dialysis center or hospital.

Hemodialysis can also be done **AT HOME**.

If you dialyze at home, you'll need a **CARE PARTNER**. Training will be given to you and your care partner.

With home dialysis, you may need to **MAKE CHANGES** to your home's plumbing and electricity because of the machine. You'll also need room for the supplies.

Most expenses are **COVERED BY FEDERAL**, private, and state insurance programs.

True or False

1. In-center hemodialysis is done every day. **T F**
2. The recommended choice for hemodialysis access is a fistula. **T F**
3. The dietitian is an important member of your healthcare team. **T F**
4. All hemodialysis patients must go to a dialysis center for treatments. **T F**
5. If you choose hemodialysis, you won't have to follow a special diet. **T F**
6. The healthcare team member who will help you with personal, non-medical problems is called the technician. **T F**
7. A hemodialysis access is surgically placed in your stomach. **T F**
8. The amount of fluid you drink between treatments has little effect on your health. **T F**
9. You can read, sleep, or watch TV while you're having your hemodialysis treatment. **T F**
10. Hemodialysis will help control extra fluids in your blood. **T F**

1. False 2. True 3. True 4. False 5. False 6. False 7. False 8. False 9. True 10. True

Words to Know

abdominal cavity	The space in your body that contains your stomach, small and large intestines, kidneys, and other major organs.
access	A specially prepared blood vessel, usually in your arm, used to carry your blood to the hemodialysis machine for cleansing and then back into your body.
advanced practitioners	Members of your healthcare team who work closely with your nephrologist to give you regular checkups, medicines, and other medical care. Advanced practitioners include nurse practitioners, physician assistants, and clinical nurse specialists.
anemia	A decrease in the number of your red blood cells, which can make you feel very tired and have other bad effects on your health.
care partner	A family member or other loved one who will help you with your treatment at home.
catheter	A soft, plastic tube that is surgically placed in your body for dialysis. With peritoneal dialysis, the catheter is placed in your abdominal cavity. In hemodialysis, the catheter is placed in a large vein, usually in your neck or chest.
dialysate	The cleansing fluid used in hemodialysis and peritoneal dialysis.

dialysis	A process that filters waste products and extra fluid from your blood when your kidneys are no longer doing their job.
dialysis center	A place in the hospital or community where dialysis treatments are given to kidney patients.
dialysis machine	A special machine that uses an artificial kidney for filtering waste products and extra fluid from your blood.
dialysis technician	A member of your healthcare team who is specially trained to take care of the dialysis machine and other equipment at the dialysis center.
dialyzer	The artificial kidney that's part of the dialysis machine, which cleans your blood of waste products and extra fluid. The dialyzer is a filter for your blood.
diet plan	The plan that you and your dietitian will develop to make sure you're eating and drinking the right things in the right amounts while you're getting treatment.
dietitian	A member of your healthcare team who will help you plan what to eat and drink to help you feel your best.
fistula	A permanent entrance for hemodialysis created by surgically connecting a vein and an artery in your arm.
graft	A soft, plastic tube that is inserted under your skin during a minor operation. It joins an artery and a vein, and creates a blood vessel suitable for using in hemodialysis.

healthcare team	All the people responsible for planning your care and helping you cope with kidney disease and kidney failure. Your healthcare team may include your nephrologist, advanced practitioner, nurse, dialysis technician, dietitian, and social worker. You, too, are an important member of your healthcare team.
hemodialysis	One of the basic forms of dialysis treatment. In hemodialysis, your blood is cleaned of waste products and extra fluid through a dialysis machine.
hormones	Chemicals produced by different glands and organs—including the kidneys—to trigger certain responses in your body.
kidney disease	The loss of some or all of your kidney function. Kidney disease can result from conditions such as high blood pressure, diabetes, heredity, or injury to the kidneys.
kidney failure	Your kidneys no longer work well enough to keep you alive, and treatment is needed to replace the work of your kidneys. It is the stage of kidney disease at which treatment with either dialysis or a kidney transplant is needed to stay alive.
kidney transplant	A treatment for kidney failure. In transplantation, a kidney from a living donor or from someone who has recently died is surgically placed into a patient's body to do the work that diseased kidneys can no longer do.
nephrologist	A member of your healthcare team who is a doctor specially trained in treating kidney disease and kidney failure.

nocturnal (nighttime) hemodialysis	This involves long, slower treatments, which are done during the sleep hours at home or in a center.
nurse	A member of your healthcare team who is specially trained to care for kidney patients, and to perform and monitor your dialysis treatments. Nurses coordinate care between other team members.
nurse practitioner	A member of your healthcare team who works closely with your doctor to give you regular checkups, medicines, and other medical care.
peritoneal dialysis	One of the basic forms of dialysis treatment. In peritoneal dialysis, a solution called dialysate flows into your abdominal cavity through a catheter, where it removes waste products and extra fluids from your body, and then is drained out.
peritoneum	The lining of the abdominal cavity.
phosphorus	A mineral found in bones. Along with calcium, phosphorus helps build strong, healthy bones, and keeps other parts of your body healthy.
physician assistant	A member of your healthcare team who works closely with your doctor to give you regular checkups, medicines, and other medical care.
red blood cells	Cells in your blood that carry oxygen to all parts of your body. A loss of red blood cells can cause anemia.

social worker	A member of your healthcare team who is specially trained to help you cope with the non-medical problems you may have, such as the stress of a serious illness.
sterile	Free of germs.
transplant center	A place where patients who are interested in getting a kidney transplant go for an evaluation and surgery.
transplant coordinator	A member of your healthcare team who is responsible for arranging many parts of the transplant process. The transplant coordinator is usually a registered nurse with special training in kidney transplantation.
transplant physician	A member of your healthcare team who will be responsible for much of your transplant care. He or she may also be a nephrologist.
transplant surgeon	A member of your healthcare team who will perform the transplant operation, should you choose transplantation as your treatment option.



“The healthcare team will help you understand and deal with your kidney failure.”

The People on My Healthcare Team

Nephrologist _____

Advanced practitioner _____

Nurse _____

Dialysis technician _____

Dietitian _____

Social worker _____

Important telephone numbers _____

Questions for My Healthcare Team

Support provided by:



Acknowledgments

The National Kidney Foundation is grateful to the patients, clinicians, dialysis units, and transplant centers that helped make this program possible.

About the National Kidney Foundation



The National Kidney Foundation (NKF) is a team member working behind the scenes. The NKF offers programs like “Living Well with Kidney Failure” so that you and your family can learn about kidney disease and kidney failure.

NKF also supports patient and community services, research, professional education, organ donation, and public information programs.

This is one of six videos and booklets in this program. If you have questions, ask any member of your healthcare team, or call the National Kidney Foundation at **1.855.NKF.CARES** (**1.855.653.2273**) www.kidney.org



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