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TREATMENT OPTIONS

How to choose what's right for you



Treatment options

There are many effective treatment options for kidney disease. Talk to your doctor about these options:

- Peritoneal Dialysis
- Hemodialysis
- Kidney Transplantation



All of them work—you and your doctor just need to decide which one is best for you.

There is no one treatment option that is best for everyone. There are pros and cons to all three treatments. All of them work—you and your doctor just need to decide which one is best for you.

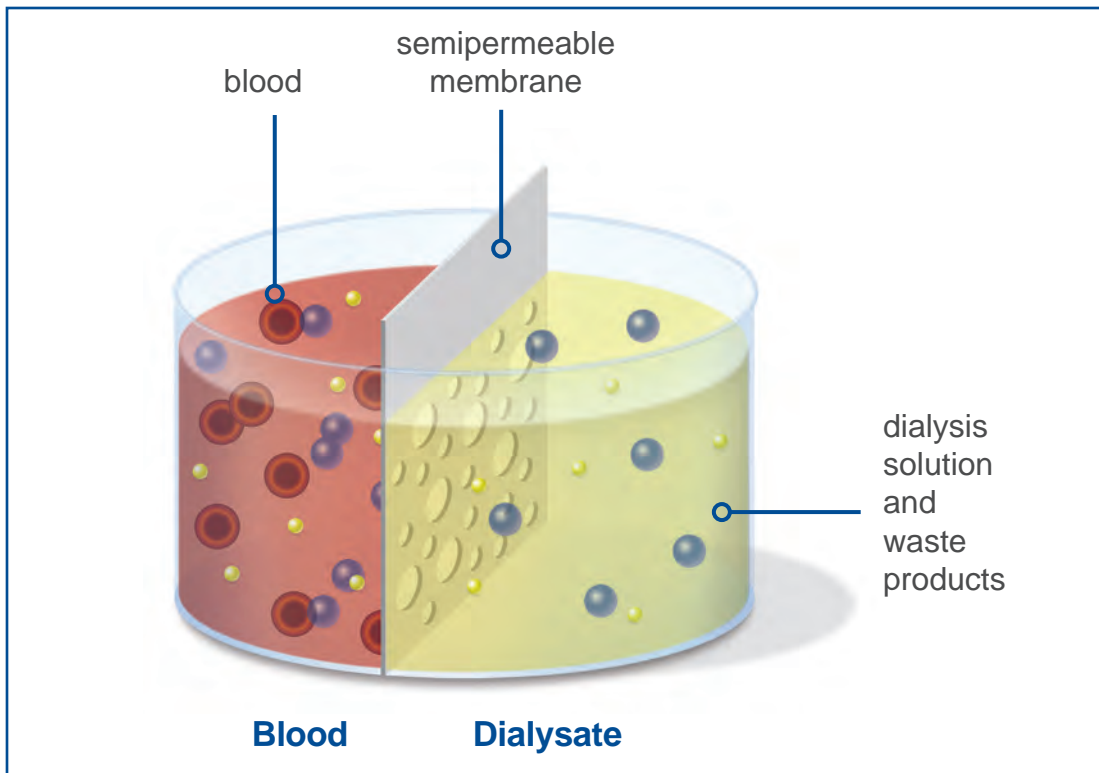
Hundreds of thousands of people today are living well on dialysis or with a transplant. Each of them faced a decision like yours. And everyone who has been there will tell you the same thing: **No matter which option you choose, you will feel better with treatment.** You will have more energy for activities like work, hobbies and time with family and friends.

Over the course of your life you may use more than one therapy. If you are already using one form of therapy and your health or lifestyle needs change, you may consider switching to one of the other treatments.

Before you choose which therapy is right for you, it helps to talk to people who are in the same situation. Talk to someone currently on dialysis or who has a transplanted kidney. Ask questions and discuss your options with a health care professional. You may be surprised how well most people have fit dialysis into their lives.

Most people have to start out with dialysis, even if they want a transplanted kidney. That's because there aren't enough donated kidneys to go around. You can also choose not to have any treatment. However, without treatment, you will die. While it is understandable that people who feel really sick may sometimes feel like they want to die, it is important to know that treatment will help you feel better.

Dialysis and how it works



A semipermeable membrane is a thin surface with tiny holes that lets small particles (like waste products and excess fluid) pass through, but keeps large particles (like blood cells) back.

Dialysis is the medical term for removing the wastes and extra fluid from your blood that your kidneys can no longer remove themselves.

Dialysis gets rid of extra fluid and wastes through a semipermeable membrane. A semipermeable membrane is a thin surface with tiny holes that lets small particles (like waste products and excess fluid) pass through, but keeps large particles (like blood cells) back. Blood vessels are on one side of the membrane and a special fluid called **dialysate** is on the other. Dialysate is made up of many of the chemicals we already have in our bodies. The waste products in your blood flow through the membrane and into the dialysate.

There are two kinds of dialysis:

Peritoneal dialysis (PD)—where your blood is cleaned inside the body.

Hemodialysis (HD)—where your blood is filtered outside the body.

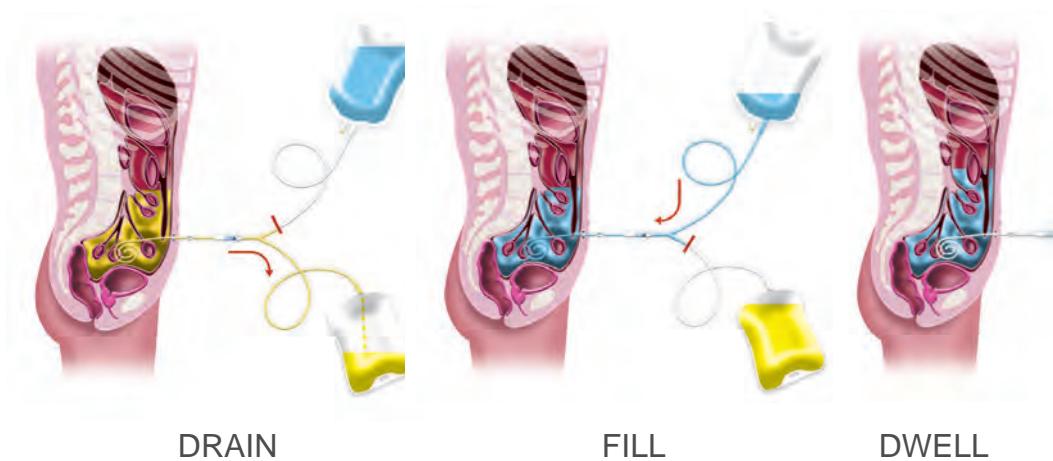
For most people, either form of dialysis will work well. There may be medical reasons why one therapy is better for you than another. It's not uncommon to start with one form of treatment and later on make a change to another.

Peritoneal Dialysis (PD)

Peritoneal dialysis cleans your blood and removes extra fluids using one of your body's own membranes, the **peritoneal membrane**, as the filter. The peritoneal membrane is the lining that surrounds the peritoneal cavity or abdominal cavity, which contains your stomach, spleen, liver, and intestines.

PD solution is placed in the peritoneal cavity. The peritoneal membrane filters waste and fluids from your blood into the solution. The solution containing the wastes is drained from your peritoneal cavity after several hours and replaced with fresh solution. This is called an **exchange**.

PD EXCHANGE



Removing PD solution containing wastes and excess fluids from the peritoneal cavity (drain) and replacing it with fresh PD solution (fill) is called an exchange. An exchange takes 20–30 minutes. After you fill the peritoneal cavity with fresh PD solution, you leave this solution in the peritoneal cavity for four hours or more (dwell).

A nurse experienced in PD will train you to perform peritoneal dialysis in the dialysis unit as an outpatient. Most people can learn to do PD within a few days. If you have concerns or problems, the nurse and doctor are never more than a phone call away. You will probably need to visit your clinic each month.

PD Supplies

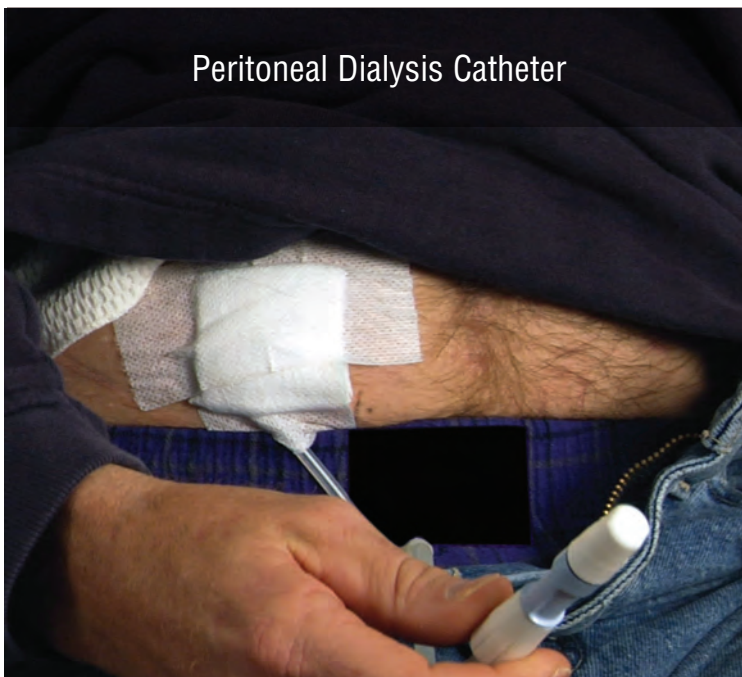
Your doctor will write a prescription for the dialysis supplies you need. Your nurse will help you learn to order them. The supplies are delivered to your house. The driver of the van carries the supplies into your house and helps you organize them. You will need a place in your home to store 25 – 30 boxes.



The supplies are delivered to your house.

“On PD you can continue to live your life. You can do most of the things you were able to do before going on dialysis.”

- James F., Connecticut



Peritoneal Dialysis Catheter

The catheter is usually placed about one inch below and to the side of the navel. It is about $\frac{1}{4}$ inch in diameter. Only 4 – 6 inches of it are outside of your body. You and your doctor can plan where to place the catheter so that it is comfortable and hidden by clothing.

Peritoneal Dialysis Catheter

A small, soft tube called a **catheter** is put through the wall of your abdomen into the peritoneal cavity. The catheter is called an access because it provides a way to get PD solution into your peritoneal cavity. Solution flows in and out of the peritoneal cavity through the catheter. Placing the catheter requires minor outpatient surgery.

The opening for the catheter should heal for a few weeks before starting dialysis. The catheter is usually not painful and stays in place throughout your time on PD.

There are two types of Peritoneal Dialysis:

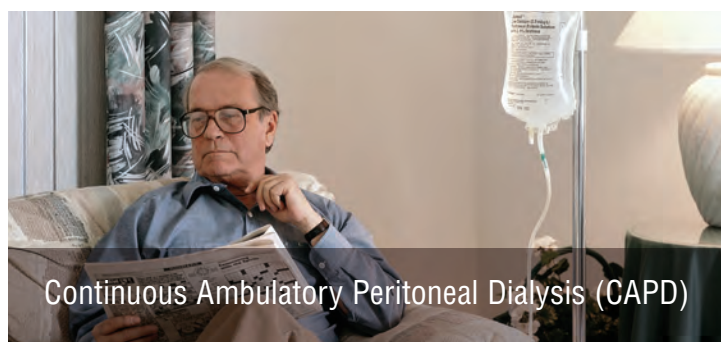
- Continuous Ambulatory Peritoneal Dialysis (CAPD)
- Automated Peritoneal Dialysis (APD)

Continuous Ambulatory Peritoneal Dialysis (CAPD)

CAPD cleans your blood 24 hours a day, 7 days a week. And you're ambulatory (which means you can walk around), even during exchanges. That's because the CAPD system just requires a solution bag and tubing connected to your catheter, which is hung on a pole with wheels during exchanges.

Most people need four exchanges a day: when they wake up in the morning, at lunch, before dinner and before they go to sleep.

An exchange takes about 30 minutes. The solution is left in the peritoneal cavity between exchanges and overnight. While performing an exchange, you can do any quiet activity: watch TV, talk on the phone, work at a desk or read. An exchange can be performed in any clean area—at home, work or while traveling.



Continuous Ambulatory Peritoneal Dialysis (CAPD)

Automated Peritoneal Dialysis (APD)

APD is done overnight, with a cycler machine that performs exchanges automatically, while you sleep. Most people leave fluid in the peritoneal cavity during the day or do an extra daytime exchange.

APD is good for people who want more freedom from dialysis during the day or who need help with dialysis. With APD, you don't have to do exchanges every 4–6 hours during the day, so you have more independence. APD is also sometimes called Continuous Cycling Peritoneal Dialysis (CCPD).



Automated Peritoneal Dialysis (APD)

How will PD affect your lifestyle?

Most people enjoy the flexibility and independence that they have with PD. Your dietitian can help you manage your diet. It is very important to follow the meal plan recommended by your dietitian in order to avoid malnutrition. Also, poor diet can cause depression, tiredness, and a lower quality of life.

You can do most sports and exercise after checking with your doctor. To travel, you pack your CAPD supplies in a suitcase. If you use APD, you can pack along your cycler, or you can switch to CAPD while you are traveling. If you go on a long trip or travel to a foreign country, the dialysis company can ship supplies to your destination ahead of time.

People on PD can lead normal lives. It is easy to adjust the treatment schedule according to your work, school, or travel plans because you are in charge of your own treatment.



Possible complications of PD

Peritonitis

The major complication of PD is an infection of the peritoneal membrane called peritonitis. The best way to keep from getting an infection is to wash your hands and to perform your exchanges exactly as instructed. You will be taught to recognize the early signs of infection. Peritonitis is treated with antibiotics, which usually can be taken at home.

Exit-Site Infection

The area around your catheter can also become infected. This area, called the exit site, should be cleaned daily. You will learn how to care for your exit site during PD training. Exit-site infections are treated with antibiotics.

Peritoneal Dialysis	
Advantages	Disadvantages
<ul style="list-style-type: none">• Control your dialysis schedule• A flexible lifestyle and independence• Patients tend to have more energy and feel better• Don't have to travel to dialysis unit for treatment• Be involved in your own care• Can provide continuous therapy, which is more like your natural kidney• Doesn't use needles or blood for dialysis• Dietitian may have more flexibility adjusting your diet• May require fewer medications• Can do therapy while sleeping (APD)• Portable therapy, ease for travel• No partner is required to perform treatment	<ul style="list-style-type: none">• Need to schedule exchanges into your daily routine, seven days a week• Requires a permanent catheter typically in the abdomen• Runs some risk of infection• May gain weight/have a larger waistline• Training is needed to learn to perform treatment• Need space in your home for supplies and equipment as well as space to perform treatment• Must be committed to self care

Hemodialysis (HD)



Hemodialysis removes wastes and excess fluid **outside** your body. During a hemodialysis treatment, blood is removed from your body and pumped by a machine through a **dialyzer**. The dialyzer is the semipermeable membrane that cleans your blood.

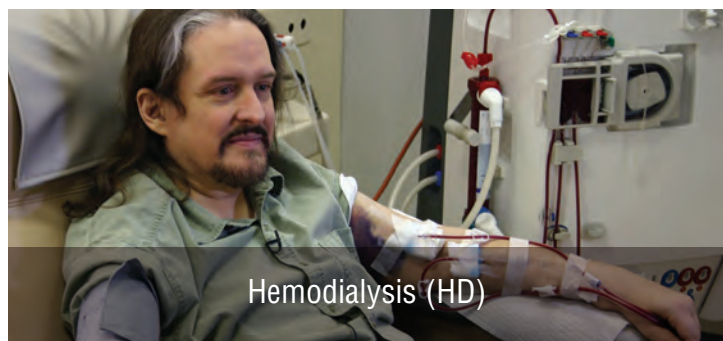
While having your treatment, you sit or lie next to a hemodialysis machine. A nurse or technician puts two needles into a vein in your forearm called an **access** (see page 9). One needle is connected to tubing, which takes your blood out of your body to be cleaned. The blood is returned to your body through tubing attached to the other needle. There is about one cup of blood outside your body at any time. All your blood is filtered through the dialyzer several times. At the end of treatment, all the blood is back in your body.

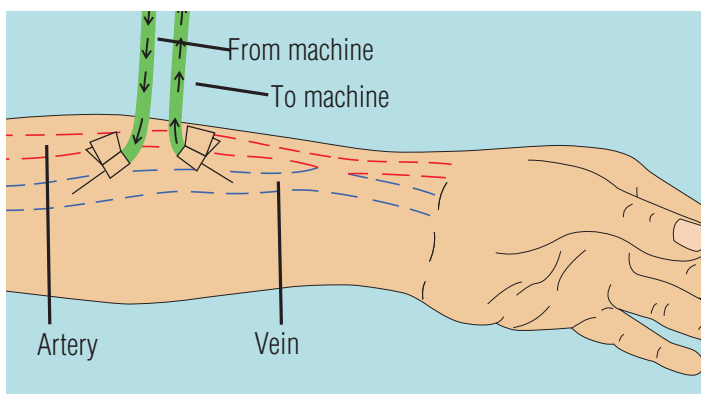
Putting the needles into your arm can cause a little discomfort. Dialysis does not hurt, although some people do feel nauseated or dizzy during parts of the treatment. Mostly, hemodialysis is a quiet time. During treatments, most people keep busy doing things like watching TV, reading or talking.

Most people need hemodialysis three times a week. Each treatment lasts about four hours. You will be weighed before and after each treatment to make sure extra fluid is removed.

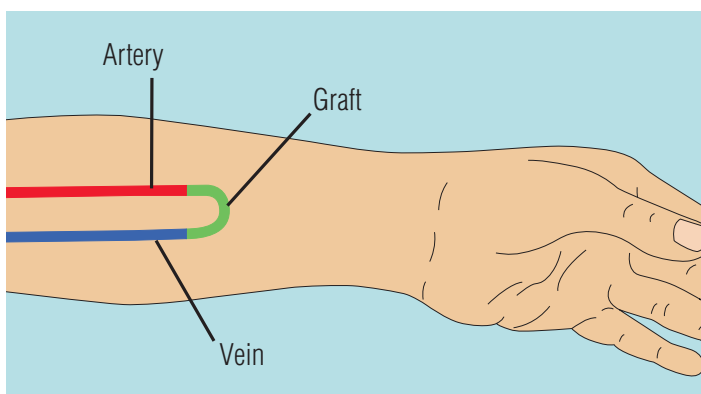
Most of the time, hemodialysis treatments are done **in-center**, which means they take place in a special clinic called a dialysis unit. Appointments must be scheduled in advance.

Home hemodialysis is another way to do hemodialysis. It frees you from the dialysis center schedule, but it requires a strong commitment from a partner who must be present during all dialysis treatments. You will need to have a machine and supplies in your home.





A fistula is the surgical linking of an artery to a vein, providing access to blood vessels.



A graft is a tube surgically placed under the skin linking an artery to a vein.

Hemodialysis access

To place an access, to get your blood, a surgeon will perform an operation to strengthen one of your veins or to put a soft tube inside your arm or thigh.

If possible, the surgeon will attach a vein and an artery together to form a fistula. This is the best possible type of access. If your veins are small or weak, the surgeon inserts a graft instead. This is a soft tube connected to an artery on one end and a vein on the other. Blood runs through the graft. Both a fistula and a graft are underneath the skin. The surgery needed to place an access is done in the hospital and may require an overnight stay. A permanent access can take up to a few months to heal properly.

If you need dialysis before a permanent access is in place, the doctor will create a temporary access. This is done by placing a special tube, called a HD catheter, in a large blood vessel in your neck or groin area.

“It’s a relaxing time. I kind of look at it as my ‘downtime.’ It’s something I have to do, just like brushing my teeth, so I do it. I don’t view dialysis as a punishment at all. It’s my second chance.”

- Myra S., Illinois

Caring for a hemodialysis access

- Check your access every day to be sure that blood is flowing through it. You can do this by placing your fingers lightly over the access to feel the pulse
- Don't put pressure on the access; it can cause clotting
- Don't sleep on the access arm
- Don't hold a child or anything heavy with the arm that has the access
- Don't wear jewelry or tight clothing over the access
- Don't let anyone draw blood or take your blood pressure in the arm with your access

How will hemodialysis affect your lifestyle?

You might enjoy having four days a week when you do not have to worry about dialyzing. You will probably be able to travel if you make arrangements in advance to dialyze at another clinic (center). You can exercise and do most sports after checking with your doctor.

You will probably have to limit your intake of salt, foods rich in potassium, dairy products and fluids.

It is also very important to follow the meal plan recommended by your dietitian in order to avoid malnutrition. Poor diet can cause depression, tiredness and a lower quality of life.

Since your body will hold on to fluids until you have your next dialysis treatment, you will gain fluid weight between sessions.

Possible complications of HD

Blood Clots

The major complication of hemodialysis is blood clots, clumps of blood that block the fistula or graft. A clot must be removed, or it can permanently block the access. If an access is blocked, you may need to use a temporary catheter.

Hypotension

During a hemodialysis session, it is normal for your body to lose fluid and salt, which can cause hypotension, low blood pressure. You may feel light-headed, sweaty, or nauseated. You may also develop leg cramps or headaches during dialysis or at other times.

Your doctor should be able to solve some of these problems by adjusting your dialysis. Following your diet and restricting fluids may also help.

Infection

The access may become infected. To avoid infection, the skin over the access must be cleaned before the needles are put in, and needle wounds that have not healed must be protected.

The signs of infection are:

- Redness at the access site
- Fever
- Chills

If you have any of these signs, you should report them immediately.

“On home hemodialysis you don’t have to leave home in the winter, in the snow and I feel better when dialyzing five days a week instead of three days. Because your kidney doesn’t just work three days out of a week.”

- Mary G., Illinois

Home Hemodialysis

Advantages

- Control your dialysis schedule, with added flexibility over when you dialyze
- No travel to a clinic for treatments
- Be involved in your own care
- Same person always helps you perform treatment
- Cleans blood 5-6 times during the week, which is more like your natural kidney
- Less restricted dialysis diet
- May require fewer medications
- Patients typically have more energy and feel better between and following treatments

Disadvantages

- Must have a trained partner to help you
- Training may take four weeks or more
- Permanent access to your blood required, typically in your arm
- Runs some risk of infection
- Need space in home for supplies and equipment
- Need to schedule treatments into daily routine
- Insertion of two needles for each treatment

In-Center Hemodialysis

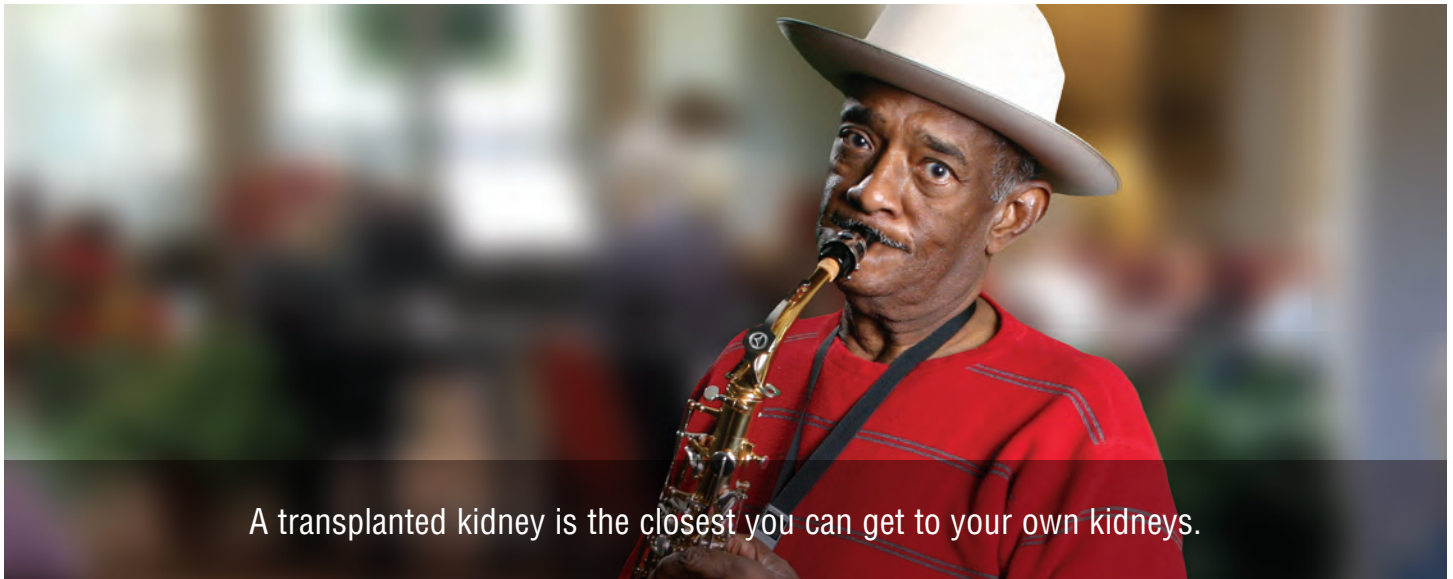
Advantages

- Nurses and technicians perform treatment for you
- Regular contact with other hemodialysis patients and staff
- Usually three treatments per week; four days off
- No equipment/supplies kept at home
- Medical help is available quickly in an emergency

Disadvantages

- Travel to and from dialysis center three times a week on a fixed schedule
- Permanent access to your blood required, typically in your arm
- May feel tired or worn down because blood is cleaned only three times a week
- Insertion of two needles for each treatment by different members of dialysis staff
- Restricted diet/limited fluid intake
- Runs some risk of infection
- Possible discomfort like headache, cramping, nausea or tiredness

Kidney Transplantation



A transplanted kidney is the closest you can get to your own kidneys.

A kidney transplant is an operation performed by a transplant surgeon in which a healthy kidney from another person (donor) is placed into your body to replace your non-working kidneys.

Transplanted kidneys come from two sources:

- Living donors—can be related or non-related
- Deceased donors—people who decide to donate their organs when they die

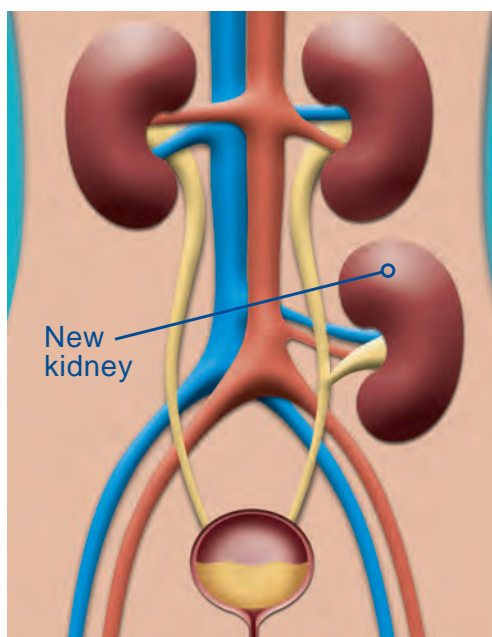
A transplanted kidney is the closest you can get to your own kidneys. Transplantation is just a treatment for kidney disease, not a cure. Not everyone is right for a kidney transplant. Doctors, social workers, and a transplant coordinator will look at your general health and how hard you work at staying healthy. They consider how well you follow your medical team's recommendations about diet, exercise, and, of course, dialysis therapy. You don't have to have done dialysis to receive a transplant.

To be considered for a transplant, a number of tests will be performed. The tests will check your heart, lungs and other body functions.

A patient who is a suitable candidate for transplantation is registered with the United Network for Organ Sharing (UNOS). This organization determines the best person possible to receive a kidney as donor kidneys become available. There are very few kidneys donated compared to the number of people who are waiting for one; it can take years before a suitable donor is found.

How long you will have to wait depends on:

- The number of kidneys available
- How rare your blood type is
- Your general health
- How long you have been on the list



The new kidney will be placed near the hip bone. Your blood vessels and ureter are connected to the transplanted kidney. Your own kidneys are usually not removed.

How it's done

The donor's blood is tested to make sure that it is free from diseases that can be transmitted with a transplanted kidney. The transplant center will also test your blood to see if the donated kidney is acceptable for you (a match). The transplant surgery can then take place. After surgery, you will spend several days in the hospital and several weeks at home recovering.

It may take a few days or even a few weeks for your new kidney to start working. You must continue using dialysis until the new kidney begins to work.

Immunosuppressive medications and rejection

You'll need to take medications to prevent rejection every day for as long as the transplanted kidney works. Rejection means your body is trying to get rid of something foreign, something that doesn't belong—including your new kidney.

Immunosuppressive medications will help your body prevent rejection, but it will also lower your resistance to infection. That means it is easier for you to get sick.

These drugs can produce side effects such as:

- Weight gain
- Skin changes
- Puffiness of the face
- Mood swings
- Upset stomach

Some side effects disappear when the dose of the drug is adjusted. These medications are expensive. Your transplant team will help you find local or government-based programs that may help pay for these medications.

If you do not take your medications as prescribed, your transplanted kidney will stop working. You may think the medications are not doing anything because you may feel no difference between when you take them and when you don't. But taking these medicines is one way to make sure your transplanted kidney stays healthy.

Even if you take your medications, some new transplants are rejected or never begin to work. If this happens, you must return to dialysis. You and your doctor can decide whether you would like to return to the transplant waiting list.



How will a transplant affect your lifestyle?

After your transplant, you will have some dietary restrictions. However, it is still important to eat a healthy, well-balanced diet. With your doctor's approval, you'll be able to participate in most sports and can travel freely.

Although you may be feeling fine with your kidney transplant, it is still very important to continue to visit your doctor regularly and take your medications as prescribed.

Transplantation	
Advantages	Disadvantages
<ul style="list-style-type: none">• Is closest to having your own kidneys• No dialysis treatments required once kidneys start working• Longer life with a transplant than dialysis• Fewer fluid and diet restrictions• You may feel healthier and have more energy• Work full-time without worrying about a dialysis schedule	<ul style="list-style-type: none">• Stress of waiting for a match• Risks associated with major surgery• Risk of rejection—your transplant may not last a lifetime• Daily medications required—which can cause side effects• Susceptibility to infection• Possible changes in your appearance due to medication side effects

Getting on with your life

Determining which treatment option is best for you is an important decision. Discuss your options with your family, your doctor, and your treatment team and consider:

- Your medical and physical condition
- Your lifestyle
- Distance from a dialysis unit
- Your physical space at home
- Whether you have friends and family to help
- Your personal desire for independence
- How you feel emotionally



Who pays for treatment?

For most people, treatment is paid for by Medicare, private insurance, health maintenance organizations (HMOs), state medical assistance programs, state renal programs and supplemental local programs. Ask your social worker about which programs apply to you. Or, contact any of the patient associations listed on the back of this booklet.

It's your body. It's your life.

Get all the information you need to make an informed decision. Here are some questions to ask your doctor or renal team:

1. Who can I talk to about learning more about dialysis treatment options?
2. Will I be able to continue my normal activities once I start dialysis, such as working, driving, traveling and exercising?
3. When do you recommend that I start dialysis?
4. When should I have my access placed? Is it painful? How will I care for it?
5. Where is the closest dialysis center located? Who can arrange my visit to the dialysis center?
6. Will I feel better when I start dialysis treatments?
7. Should I change my diet when I start dialysis?
8. Am I a kidney transplant candidate? How can I get on a list for a transplant?
9. Can I change to a different form of dialysis once I've started?
10. Who can arrange for me to talk to another dialysis patient?

Resources

This brochure briefly explains kidney failure and your treatment options. To learn more, ask your doctor and renal care team members for information about dialysis. You can also contact groups such as:

American Association of Kidney Patients (AAKP)
1-800-749-2257
<http://www.aakp.org>

American Kidney Fund (AKF)
1-800-638-8299
<http://www.kidneyfund.org>

Dialysis Patient Citizens (DPC)
1-866-877-4242
<http://www.dialysispatients.org>

National Kidney Foundation (NKF)
1-800-622-9010
<http://www.kidney.org>

Social Security Administration (SSA)
1-800-772-1213 to find the nearest Social Security office
<http://www.ssa.gov>

Medicare
1-800-MEDICARE or 1-800-633-4227
<http://www.medicare.gov>

Talk to your doctor or nurse to learn more
about your dialysis treatment options.



Get a healthy dose of kidney
information from real
patients and kidney experts.

1. Youtube.com/renalinfo - get answers to your questions about dialysis access, peritoneal dialysis, being intimate while on dialysis, living and working with kidney disease and much more.

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Renal Division
1620 Waukegan Road
McGaw Park, IL 60085

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