

If you have any questions, ask your physician.

Kidney Failure: Choosing a Treatment

If you have been told your kidneys are failing, you may wonder what this means to you. There are several treatment options available. Choosing what is right for you may depend on many factors, including your lifestyle and other health problems. Talk with your physician about these options. They will help you understand the risks and benefits of each treatment.

This brochure will help you understand kidney failure and each of these treatment options:

- Hemodialysis
- Peritoneal dialysis
- Kidney transplant

Kidney failure

Healthy kidneys:

- Remove waste and extra fluid from the blood
- Regulate certain chemicals (hormones) in the blood
- Control blood pressure

Wastes, fluids, chemicals and blood pressure can rise to unsafe levels in people with kidney disease. This can lead to serious health problems.

Stages of kidney disease

There are 5 stages of kidney disease. (Table 1). Each stage is defined by a test called the glomerular filtration rate (GFR). The lab uses the results from the creatinine blood test to calculate the GFR. As kidney disease worsens, the kidneys are less able to filter creatinine out of the blood and get rid of it in the urine. The less the kidneys can filter, the lower the GFR. Kidney failure happens when the GFR drops less than 15 (stage 5).

Table 1

Stages of Chronic Kidney Disease

Stage 1: The GFR is still normal (90 or higher). But there are signs of early kidney damage such as protein in the urine.

Stage 2: The GFR is between 60 and 89. Kidney damage starts to get worse.

Stage 3: The GFR is between 30 and 59. Kidney disease is moderate.

Stage 4: The GFR is between 15 and 29. Kidney disease is severe.

Stage 5: The GFR is less than 15. Kidney disease has progressed to kidney failure.

Your care and treatment plan depends on the staging of kidney disease. It is best to think about treatment options before kidney disease has progressed to kidney failure. This gives you time to prepare. Treatment must start when the GFR is less than 15 (stage 5).

Symptoms

As kidney disease worsens, you may have these symptoms:

- Feeling tired or fatigued
- Anemia (a low red blood cell count – a common cause of fatigue)
- Shortness of breath or a hard time breathing
- Loss of appetite, nausea
- Difficulty sleeping
- Dry, itchy skin
- Muscle cramping, especially at night
- Frequent urination, especially at night
- Swollen ankles and feet
- Puffiness or swelling around the eyes, especially after waking up
- Numbness, tingling or other signs of nerve damage
- A tendency to bruise or bleed more than usual after an injury

Choosing a treatment

Living with kidney failure can be hard. However, your care team can help and support you. We encourage you to:

- Ask questions about your condition.
- Ask for help if you feel overwhelmed or do not understand something.
- Ask about support groups. Sharing your concerns with others may be helpful.
- Learn all you can about your medications, treatment options and diet.

Treatments for kidney failure are either hemodialysis, peritoneal dialysis or kidney transplant. Each is discussed below.

As you read, write down any questions or concerns to discuss with your care team. No matter which treatment you choose, it is important to:

- Follow the treatment plan and schedule.
- Take all medications as prescribed.
- Continue your special diet.

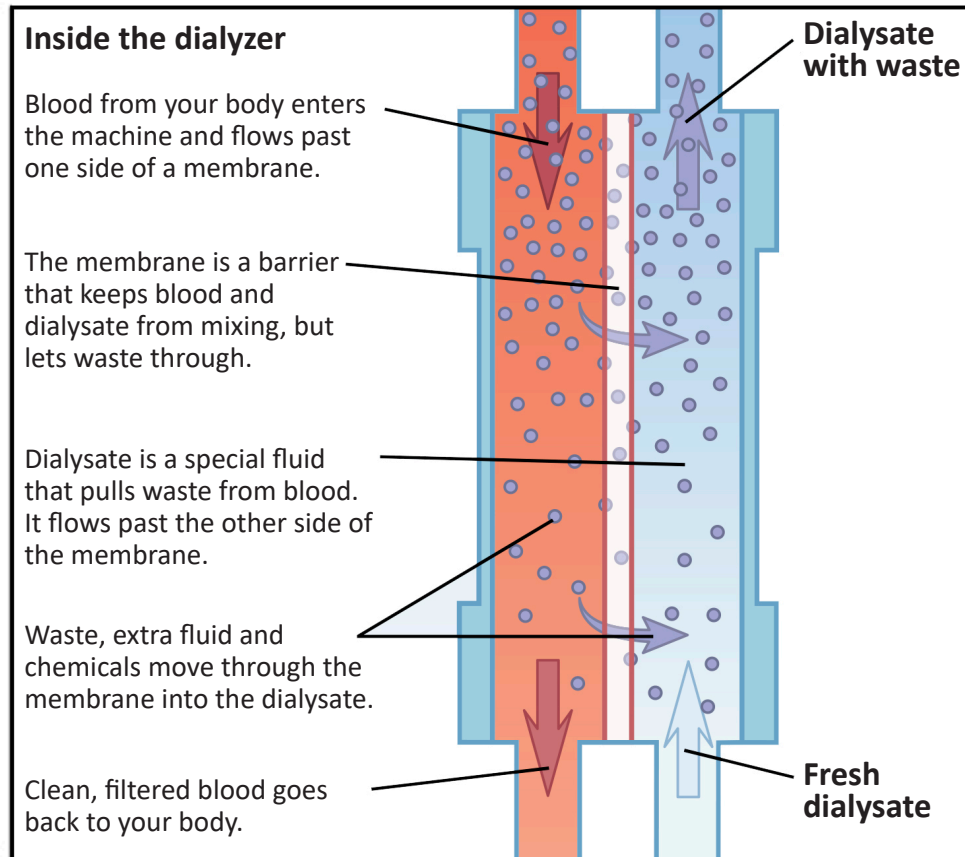
Proper care will help those with kidney failure live longer, feel better and have more active lives.

Hemodialysis

Dialysis is a treatment that takes over some of the work of the kidneys. It removes extra wastes, chemicals and fluid that have built up in the blood. The dialysis machine slowly pumps blood from a vein through a filter (dialyzer) in the dialysis machine.

The filter, or dialyzer, is also known as the “artificial kidney.” The filter strains out the wastes. The waste passes through a membrane into a cleansing solution (dialysate). Then, the dialysate is discarded (Figure 1).

Figure 1. Inside the Dialyzer



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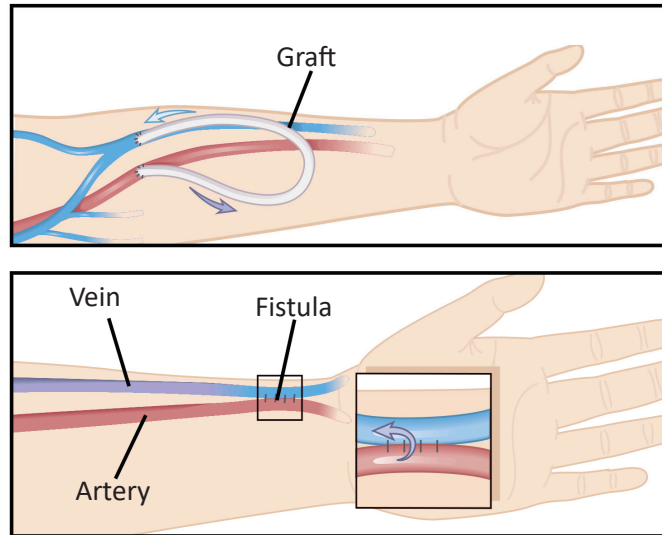
Then the machine pumps the clean, filtered blood back into your blood stream. Hemodialysis is usually 3 times a week. The treatment takes at least 4 hours. The length of time may vary, depending on how much fluid and waste needs to be removed.

Hemodialysis access

If you choose hemodialysis as a treatment, you will need either a graft or a fistula. Grafts and fistulas allow access to your blood vessels during hemodialysis.

- A graft is a small plastic tube that connects an artery and vein together under the skin (Figure 2).
- A fistula joins an artery and vein together to make a bigger blood vessel (Figure 2).

Figure 2. Graft and fistula



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Grafts and fistulas require minor surgery. A vascular surgeon usually puts the graft or fistula in the arm. If possible, it is best to have this surgery about 6 months before you start dialysis. This lets the graft or fistula heal well enough so your dialysis team can use it by the time you need to start dialysis.

Before a graft or fistula, you will have an ultrasound test to check your blood vessels. This helps the surgeon choose the best blood vessels for the fistula. In general, a fistula is the preferred option because it lasts longer and has fewer complications than a graft. However, if your blood vessels are not well suited for a fistula, then you may need a graft.

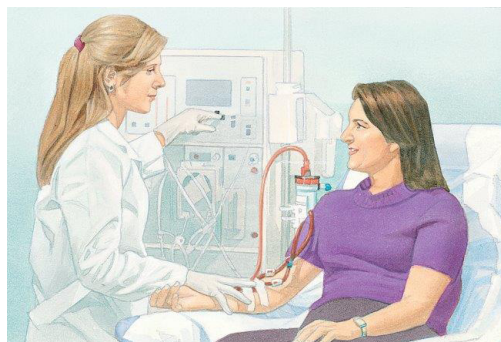
In some cases, the physician may put a special tube or catheter into a large vein in your neck or chest for hemodialysis. The dialysis team can use this for dialysis access until you have a graft or fistula. The catheter is usually meant to be used for only a short time. However, it may be a permanent access site if you cannot have a graft or fistula.

Hemodialysis procedure

During dialysis, the dialysis team will put 2 needles in the graft or fistula. They connect the needles to tubes attached to the dialysis machine. One needle removes the blood. The blood goes through the dialysis machine for filtering. The second needle returns the cleansed blood to you. The dialysis team removes the needles at the end of dialysis (Figure 3).

Figure 3. Hemodialysis

During hemodialysis, needles into your access site carry blood to and from the dialyzer.



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Where to do hemodialysis

You can have hemodialysis at:

- An outpatient dialysis center in a hospital
- An independent dialysis center (not part of a hospital)
- Home

Your care team can help you choose the best place for your treatments. This may depend on your health, insurance coverage and personal preference.

Before choosing where to have hemodialysis, it is important to understand what is involved.

Dialysis center

The main advantages of going to a dialysis center is that trained staff perform all parts of the treatment.

However, some of the disadvantages may include:

- **Scheduling.** The center decides your hemodialysis schedule.
- **Travel.** You will need to travel to and from the center. If you cannot drive yourself, you will need to arrange to get there another way.
- **Privacy.** Other people will be getting dialysis at the same time. Visits, eating or drinking may be limited.

Home hemodialysis

Advantages to home hemodialysis include:

- A flexible schedule for dialysis
- Feeling more independent and in control

However, there are several things you need to consider:

- **A partner.** Both you and a partner **must** be trained on how to do dialysis. The partner can be anyone, but they must be there for you during dialysis. Medicare does **not** cover the cost of hiring a partner.
- **Training.** Both you and your partner must attend training. This may involve taking time off work.
- **Motivation.** Both you and your partner need to stick to the training and treatment plan.
- **Clean space.** There must be enough room in a clean area to keep the equipment.
- **Water drainage and electric power.** These must be strong enough to drain the dialysis machine and for the water cleaning process (purification unit).
- **Insurance/Medicare.** Please contact your insurance provider about your coverage for home dialysis. If you have Medicare, it may cover up to 80% of your home dialysis costs. This is the same as for outpatient hemodialysis. It may also cover costs related to minor plumbing or electrical work you may need for home hemodialysis.

If you do select hemodialysis as your treatment, ask for the Northwestern Memorial Hospital brochure *Hemodialysis*. This will explain hemodialysis in more detail, including medications, lifestyle, and how to care for your fistula or graft.

Peritoneal dialysis

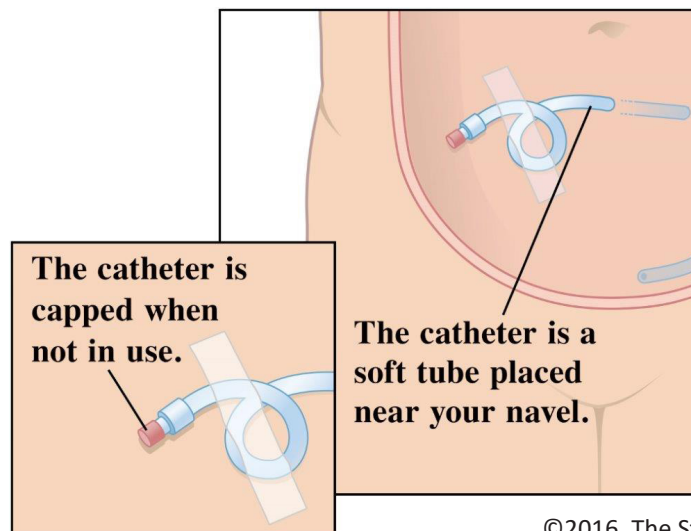
Another way to treat kidney failure is peritoneal dialysis (PD). This type of dialysis involves placing a soft tube (catheter) into an empty space (cavity) in your abdomen. This requires minor same-day surgery. Part of the catheter is in the abdomen and part stays outside. The outer part of the catheter will be connected to special tubing for dialysis (Figure 4).

PD can start after the surgical area heals. You can have PD while you are at home or work, or even when travelling. However, away from home, you will need to make sure you can move the supplies and do PD in a clean location.

There are 2 types of PD:

- **Continuous ambulatory peritoneal dialysis (CAPD).** You will do this 3 to 4 times a day. Your dialysis team will teach you how to do the PD process explained below.
- **Automated peritoneal dialysis (APD).** A machine does the dialysis while you sleep. Depending on your remaining kidney function, you may also need to use it during the day.

Figure 4. PD catheter



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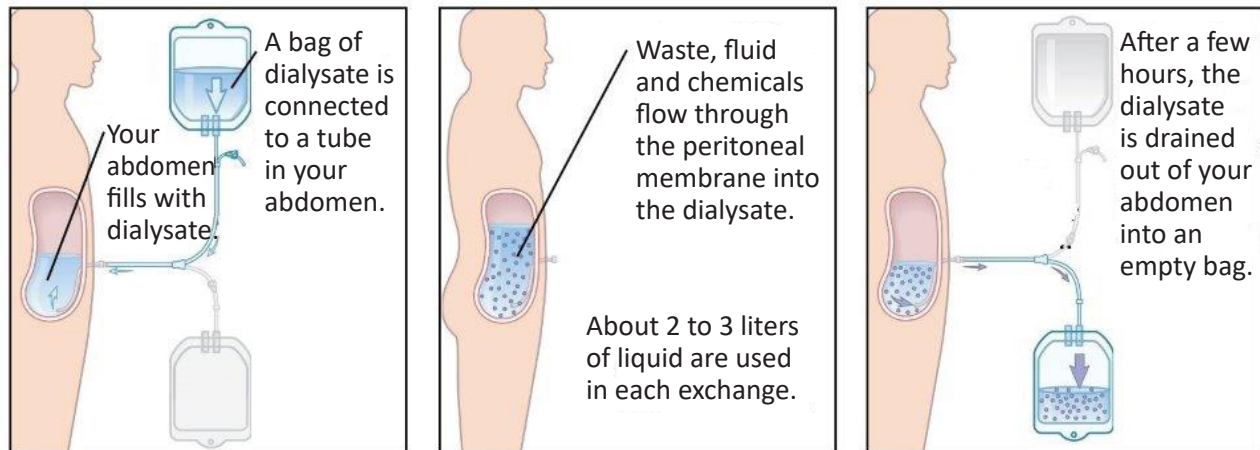
PD process

1. During PD, 2 to 3 quarts of a special cleansing fluid (dialysate), flow through the catheter into your abdominal cavity (belly). This fluid stays there for a few hours. This is known as the dwell time. The length of dwell time depends on your body size and how much waste needs to be removed.
2. During the dwell time, wastes and fluids pass through the lining of your abdomen into the dialysate. This lining acts keeps other important blood products from being washed out of your body.
3. If you use the CAPD method, you will cap the catheter after the dialysate fills your abdominal cavity. This prevents leaks.
4. At the end of the dwell time, you will drain the dialysate into an empty bag.
5. Then you will cap the catheter. You will empty the bags and throw them away.

You will repeat this process several times a day. Each sequence of filling the abdominal cavity with fresh dialysate, letting the fluid dwell, then draining it is called an exchange (Figure 5).

If you choose the APD method, the machine will do the exchanges for you. Your dialysis team will teach you how to set it up.

Figure 5. CAPD



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Your care team will prescribe:

- How many exchanges you need each day
- How long the dialysate should stay in your belly (dwell time)
- How much dialysate to use for each exchange
- What type of dialysate to use

Your prescription will depend on several factors, including:

- Body size
- Overall health
- Nutrition status
- Remaining kidney function

Learning to do PD

Before doing PD at home, your dialysis team will teach you how to:

- Do the exchanges if you are using CAPD
- Set up the machine if you are using APD
- Order supplies
- Clean and care for your catheter each day
- Protect yourself from infection (You may need to avoid underwater activities.)

If you choose PD to treat your kidney failure, ask for the Northwestern Memorial Hospital brochure *Peritoneal Dialysis*. This goes into more detail about preventing infection, caring for your catheter, diet and lifestyle.

Kidney transplant

Kidney transplant is another treatment option for kidney failure. In this case, the surgeon puts a donated kidney into your abdomen. They connect it to the blood vessels and bladder so it can work properly. The donated kidney may come from a living person or someone who has died.

This is not a cure for a disease that may have caused your renal failure. You may still need to take medications that you took before your transplant.

If you choose to receive a kidney, you may still need to have some type of dialysis until one is available. You can be placed on a waiting list for a kidney. Or, if you know of a donor, you may be able to get a kidney before starting dialysis.

In general, a living donor is preferred because that kidney may last longer. Also, receiving a living donor kidney allows you to schedule surgery at your convenience.

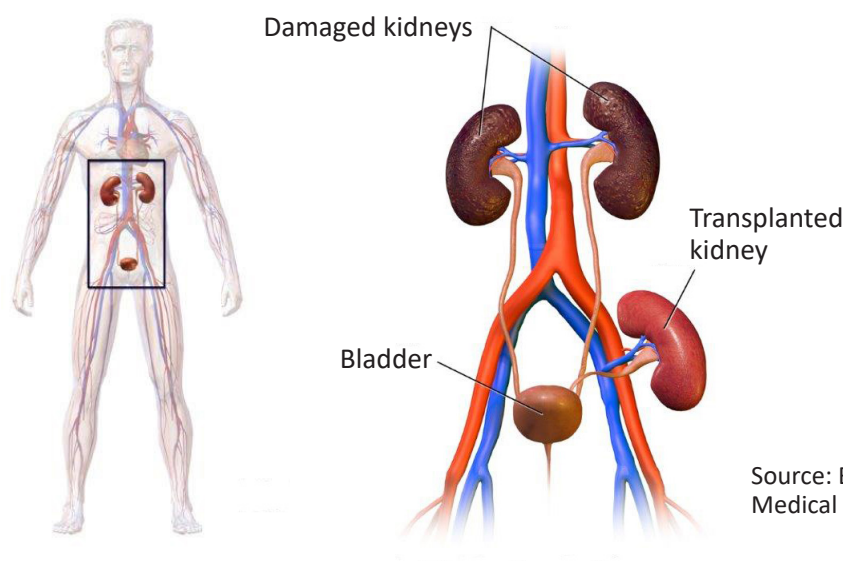
Kidney donation

A living donor may be anyone. However, they must meet certain criteria before being accepted as a donor. First, they will have special tests to make sure they are compatible (a “match”) with your body. If not, their kidney cannot be used for you. (The same matching tests are done for kidneys that come from someone who has recently died.) If you know someone who wants to donate a kidney to you, your transplant team will talk about this process with you and them.

Transplant surgery

Transplant surgery may take about 3 to 6 hours. The surgeon puts the donated kidney in the lower part of your abdomen. Often, they do not take out your old kidneys (Figure 6). This is because your old kidneys may still work or release some chemicals that are useful to you.

Figure 6. Kidney Transplant



Source: Bruce Blaus, Blausen Medical Communications

Your new kidney will start working soon after it is in place. However, there is a risk that your body will reject the kidney or that the transplanted kidney may fail for other reasons. The transplant team will talk with you about the risks.

You can expect to stay in the hospital for 2 to 3 days after surgery. After surgery, the transplant team will carefully monitor you for a few months. You will need regular visits to the transplant clinic. You will need frequent blood tests to check how well your new kidney is working. Over time, these visits will be less often.

You will need to take special anti-rejection medications for the rest of your life. These help keep your body from rejecting your new kidney. If a transplanted kidney fails, you may be able to receive a second transplant. However, there is a high success rate. Up to 95% of transplanted kidneys continue to work correctly 1 year after transplant surgery. It is very important to follow the plan of care for the best outcome.

If you choose to have a transplant, the transplant team will talk with you in detail about all parts of the process.

After choosing your treatment

No matter what treatment you choose – dialysis or transplant – following the treatment plan will help you feel better. Many of your symptoms may get better as your body gets rid of the extra wastes and fluids that have built up.

It is also possible to change treatment plans. For example, if you start with one type of dialysis, you may need to change to another type or choose to get a kidney transplant. Talk about this with your care team if you want or need to make changes.

Your treatment for kidney failure may also include changes to your medications or lifestyle. You may have already started some of these. Your care team will talk with you about the changes that are right for you.

Activity and work

As you adjust to your treatments, you may find you can do more than before. In general, some exercise is good for you. Follow the activity and exercise guidelines from your care team. Unless you have specific restrictions, try activities such as walking on a regular basis.

Many people go back to work after starting dialysis or having a transplant.

- If you have dialysis at a center, talk with the staff about scheduling your dialysis to fit your work schedule.
- If you have home dialysis, talk with your partner to set up a schedule that works.
- After transplant surgery, returning to work will depend on your recovery. Your transplant team will talk about this with you and recommend when it is safe for you to go back to work.

Insurance coverage

Contact your insurance carrier to find what coverage you have. Both private insurance and Medicare often cover many of the costs for transplant donors.

Medicare. Medicare may cover up to 80% of the costs of dialysis or transplant surgery. If you are under 65, you may still qualify for Medicare if you have a disability.

- Contact your local Social Security office at [socialsecurity.gov/locator](https://www.socialsecurity.gov/locator).
- Or you can call 800.772.1213 to enroll.

Your physician will need to fill out a form to confirm your condition. To learn more about Medicare coverage for dialysis or transplant, go to medicaresupplement.com/articles/medicare-dialysis-kidney-transplants.

Think about exploring other sources of insurance coverage:

- Medigap (Medicare supplemental coverage)
- Private health insurance, employer health plans, Consolidated Omnibus Budget Reconciliation Act (COBRA) continuation health coverage
- Medicaid, high-risk insurance pools
- Veteran's benefits
- State kidney programs
- National Kidney Foundation Help Line (toll-free: 855.653.2273)
- Financial aid coordinator or social worker at your dialysis or transplant center
- County or state social service department

Coping with kidney failure

It may be hard to accept the changes in your life caused by kidney failure. Feelings of frustration, denial, anger, depression or guilt are common. Adjusting to changes in your routine, diet, medications and activity while coping with the demands of work, school or other commitments can be hard. Share your feelings and concerns.

Talk with your family, friends and others willing to support you. Please talk with your care team. They are trained to address your concerns and help you make the necessary lifestyle changes. If needed, they may recommend a counselor to help you cope.

Resources

These resources may help you learn more about kidney failure, treatments, support care and more.

- **End Stage Renal Disease National Coordinating Center:** [esrdncc.org](https://www.esrdncc.org) or call 813.865.3535.
 - Locate the renal failure network for your area. Networks are under contract with Medicare to help those with kidney failure get quality care from their dialysis and/or transplant center.
 - It also offers a variety of patient education resources for those with renal failure, including a site to learn about fistulas: [fistulafirst.org](https://www.fistulafirst.org).
- **National Kidney Foundation:** [kidney.org](https://www.kidney.org). Learn about kidney disease, dialysis and transplant options.

- **American Association of Kidney Patients: aakp.org.** Their focus is education, advocacy and support.
- **Medicare: medicare.gov**
- **Social Security benefits: socialsecurity.gov**
- **Northwestern Memorial Hospital:**
 - **Kidney Transplant Program: nm.org/conditions-and-care-areas/organ-transplantation/kidney-transplantation**
 - **Dialysis treatments: nm.org/conditions-and-care-areas/treatments/dialysis**