



## Fresenius Medical Care

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P/N 66-0022-5 Rev. E 07/2007

# USING THE “KIDNEY” YOU NEVER THOUGHT YOU HAD



## You mean I've got another kidney?

People really have only two kidneys. There are procedures that can act as an “extra” kidney when the kidneys stop working. Peritoneal Dialysis (PD) is one such procedure. It uses the thin lining or membrane inside your abdomen and a special fluid. The lining or membrane is called the **peritoneum** and the special fluid is called **dialysate**. The dialysate is put inside your abdomen. It draws excess water, waste and chemicals across the peritoneum and is then drained out.

This booklet will answer some common questions and help explain what PD is all about. You and your family will learn how this simple treatment can be done at home. There are different ways to do peritoneal dialysis. Your doctor and the nurses at your dialysis clinic can help you decide what will be best for you.





## Why do kidneys stop working?

There are many causes of kidney failure. Some of the most common causes are:

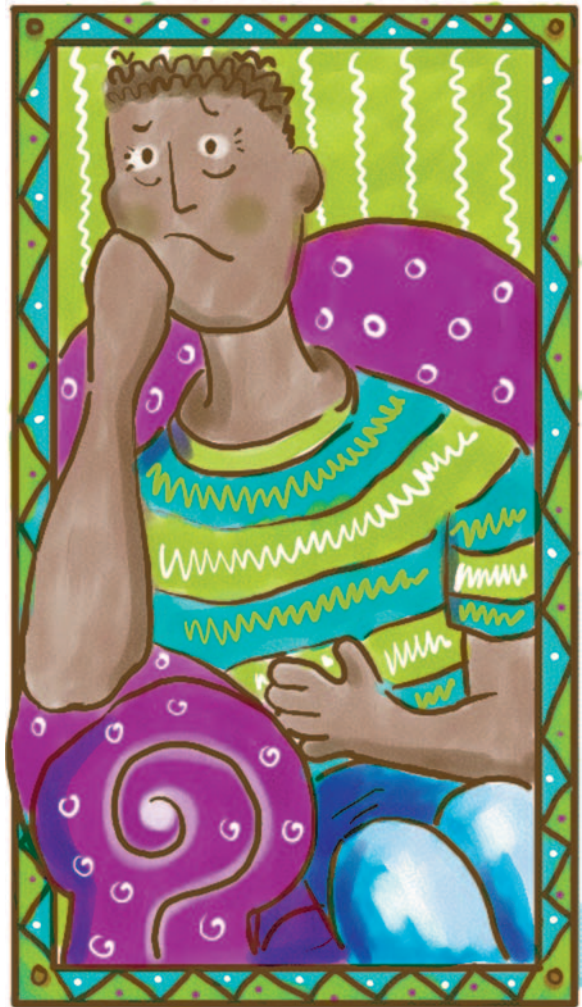
- Diabetes
- High blood pressure
- Chronic kidney infections
- Severe injury
- Birth defects
- Certain drugs

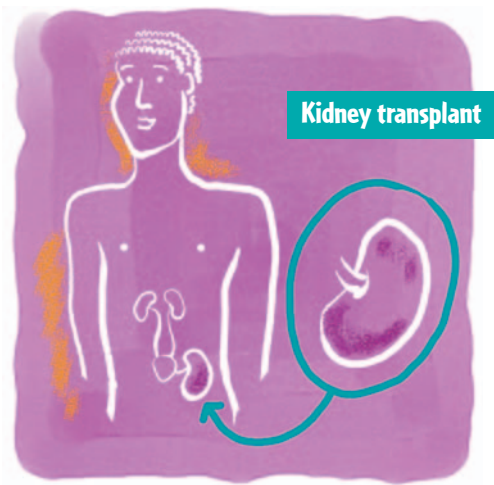
Sometimes these conditions last only a short time, but in many cases the kidneys stop working for good. When this happens it is called chronic renal failure.

## What do normal kidneys do?

The kidneys filter out waste products and extra water that your body makes every day. Normal working kidneys have many jobs. They make chemicals called hormones that help you to make red blood cells, build strong bones, and keep your blood pressure under control. When kidneys fail, things that are harmful to your body build up and make you feel sick. Signs of this happening can be different from person to person:

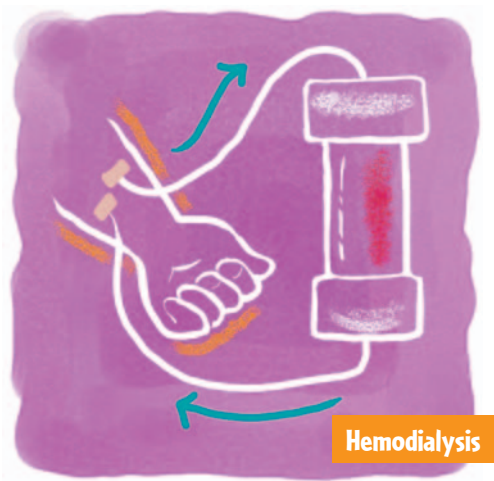
- You may feel sick to your stomach or lose your appetite.
- You may feel irritable or have trouble thinking clearly.
- You may have trouble sleeping or sleep too much.
- You may feel very tired.
- Your ankles, face, or abdomen may swell.
- Your skin may itch.
- Your blood pressure may go up (hypertension).
- You may have shortness of breath.
- You may just feel “bad all over”.





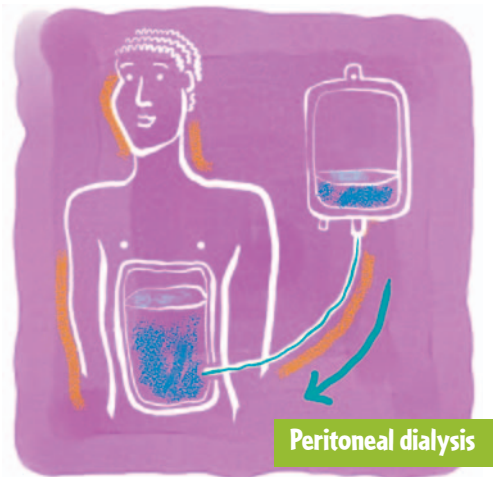
## What can be done if my kidneys fail?

There are several ways of making up for failing kidneys. You will have to take medicine, eat a special diet, and replace the filtering job of your kidneys. The filtering job can be replaced by a kidney transplant or dialysis. Your doctor can help you decide which is the best treatment for you.



### KIDNEY TRANSPLANT

Kidney transplant places a healthy kidney from another person into your body. If you are a candidate and a kidney becomes available, a transplant is a good thing. Dialysis treatment is your alternative if you are waiting for a transplant or if a transplant is not the best choice for you. There are two types of dialysis. Both work well and are safe.



### HEMODIALYSIS

Hemodialysis uses an “artificial kidney” machine to pump your blood through a filter that takes out water and waste. Treatments are usually done 3 times a week at a dialysis clinic or at home. One treatment usually takes about 3 to 4 hours.

### PERITONEAL DIALYSIS

Peritoneal dialysis uses your own peritoneal membrane as the filter for your blood. A special fluid called dialysate is put into your abdomen

where it draws out water and waste through the peritoneal membrane. The dialysate is later drained out and replaced with fresh fluid. Treatments, also called “exchanges”, are done daily or nightly at home.

No one kind of dialysis is best for everyone. Deciding which treatment is best for you depends on many things – like your age, the reason for your kidney failure, other medical conditions you have, and your lifestyle.

## What more can you tell me about peritoneal dialysis?

There are two main ways to do peritoneal dialysis:

- Continuous Ambulatory Peritoneal Dialysis (CAPD) – manually, you do it yourself
- Continuous Cycling Peritoneal Dialysis (CCPD) – using a cycler.

The key word here is “continuous”. Dialysis is occurring continuously ... as you walk, sit, stand, work, play – whatever you do. No dialysis machine is needed for CAPD. You do the dialysis exchanges yourself several times a day. The other way uses a small, portable machine called a peritoneal dialysis cycler. Most of the exchanges are done at night by the cycler.

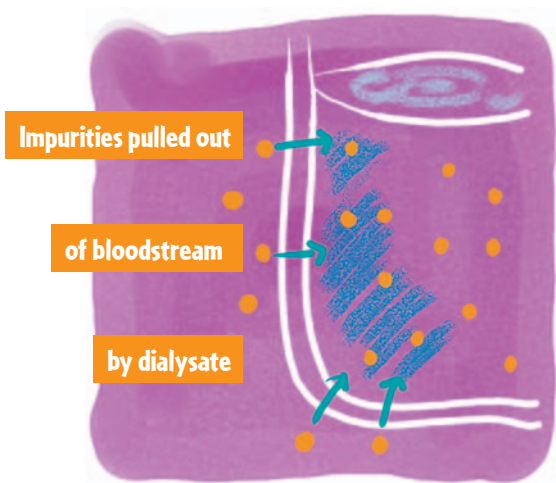
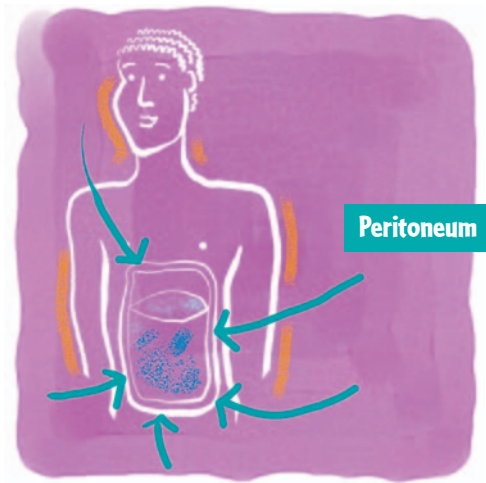


## Exactly how does peritoneal dialysis work?

Both kinds of PD use the peritoneum. It is a thin membrane inside your abdomen that surrounds and helps protect many of your internal organs. This membrane forms a closed area called the peritoneal cavity. Dialysis takes place when the peritoneal cavity is filled with dialysate fluid.

Millions of tiny blood vessels in the peritoneal membrane bring the blood close to the dialysate. The dialysate acts like a magnet that attracts impurities in the blood. Wastes and extra water that have built up in the blood pass into the dialysate through tiny openings in the blood vessels and peritoneal membrane.

After several hours the dialysate is drained out of the peritoneal cavity and thrown away. The peritoneal cavity is filled with fresh dialysate and the process of removing waste and water begins again. This fill-and-drain cycle takes place several times each 24 hours. The exact number of times depends on your individual needs.



## How do I begin PD?

The first thing you will need is to have a small tube, or “catheter”, put into your lower abdomen. This is a minor surgical procedure done in a hospital or outpatient clinic. After the surgery a small piece of the catheter will be on the outside of your abdomen. (Don’t worry – your clothes will cover the catheter and no one else will even know it is there.)

The dialysate fluid will go into your abdomen through this catheter. The catheter can be used right away or your doctor may want to wait a few days or weeks before starting peritoneal dialysis treatments.

Once you are ready to start PD you will go to your dialysis clinic for training. The nurses there will show you how to do PD at home. One of the things you will learn is how to do an exchange. An exchange is the process of draining and filling your abdomen with dialysate fluid. Between exchanges the dialysate is doing its work – helping the peritoneum filter your blood. You are continuously dialyzing as you move, travel, work, watch a movie ... even go fishing!



## CAPD exchange cycle



## What happens when I do CAPD?

Continuous **A**mbulatory **P**eritoneal **D**ialysis is a long name for a simple procedure.

You will need to do a CAPD exchange several times each day. Your nurse will teach you how to do your exchanges and will make sure you are comfortable with the procedure before sending you home.

To start an exchange you first connect your catheter to some special tubing and a bag of dialysate fluid. You then drain the old fluid out of your abdomen and fill your abdomen again with new dialysate. When you are done the old fluid and tubing are thrown away.

The whole exchange takes about 30 minutes.

Exchanges are usually done when you wake up in the morning, around lunch time, in the late afternoon, and before bed. Your nurse will help you determine the best times for your exchanges.

You may do all your usual activities while your dialysis is taking place. And your exchange schedule is flexible – it can be changed to fit your plans for the day. You are in control of your treatment times.

## How is CCPD different?

Most of the **C**ontinuous **C**ycling **P**eritoneal **D**ialysis exchanges are done at night while you sleep. A small portable machine called a cyclor automatically does the exchanges for you. The cyclor is simple to operate and easy to use. Before you take one home, the nurses at your dialysis center will show you how to do exchange procedures using your cyclor.

Each evening, before you go to bed, you will connect your catheter to the cyclor using a special tubing set. The cyclor will drain used dialysate out of your abdomen and let new dialysate flow in while you sleep. This in/out process will take place automatically several times during the night. When you wake up in the morning, you simply disconnect the cyclor tubing and start your day. Most people keep some fluid in the abdomen to continue the dialysis during the daytime.



Morning use and set-up



## What's PD Plus?

PD Plus is a little of each – some CAPD and some CCPD. It's like having the best of both treatments. Like CAPD you do some exchanges during your waking hours – but only one or two exchanges instead of four. You use the cyclor at night to do most of the dialysis work. To make things really convenient, you can use the cyclor for your CAPD exchange too!

Your cyclor can be set up for regular cycling or for PD Plus. When you use it for PD Plus, the cyclor “knows” to stop after it gives you a daytime or early evening exchange, then to start again doing regular cycles later.

You only need to set up your cyclor once each day – most people do it in the morning when they get out of bed. Later in the day or early evening you connect your catheter to the cyclor tubing and let the cyclor do an exchange for you. Then you disconnect the tubing and go about all your usual activities. When it's time for bed, your cyclor is still set up and ready for you. There's nothing more to do than connect again and go to sleep.

Afternoon or evening use



All set up and waiting at bedtime



For many people PD Plus is so easy and convenient they choose it from the very beginning of their peritoneal dialysis treatments.

## How can I be sure I'm getting enough dialysis?

Your doctor will want to see you in the office or at the dialysis center about once a month. You will have a checkup and get some blood tests done. As time goes by you may need to make some changes in your medicines and dialysis treatments.

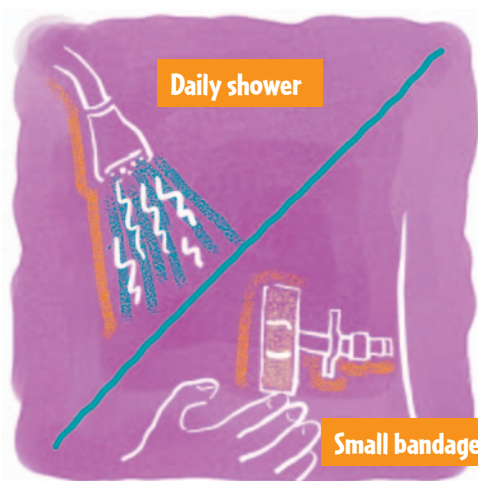
If your doctor recommends more dialysis you will have several options for increasing your treatments.

- If you are doing CAPD, you can do an extra exchange each day or use a little more dialysate fluid each time you do an exchange.
- If you are doing CCPD, you can have the cycler do more exchanges during the night, use a little more fluid for each exchange, or stay connected to the cycler for a little longer each night.
- You can also increase your dialysis by doing PD Plus therapy.





Handwashing and mask



Daily shower

Small bandage



Supply delivery

## What else will I need to know?

Peritoneal dialysis is an excellent way to filter your blood. You will need to dialyze regularly. In addition, you will need to know:

### HOW TO KEEP GERMS OUT

It is very important to keep germs from getting inside your abdomen where they can cause an infection. Each and every exchange needs to be done in a clean place. You will need to wash your hands and wear a mask when you do an exchange.

### HOW TO CARE FOR YOUR CATHETER

You'll also need to keep the skin around your catheter clean. A daily shower and small bandage are enough for most people.

### HOW TO GET SUPPLIES

Your dialysis clinic will arrange for supplies like dialysate, tubing sets, and masks to be delivered to your house every month. You will also have a number to call if you need more supplies or have a problem with supplies or delivery.

## HOW TO EAT TO STAY HEALTHY

The right diet will help you keep the waste and water levels in your body under control. The good news is that there are few off-limits foods for the PD patient. You can eat almost everything your family eats ... No more special meals (which should make the “cook” very happy).

## HOW TO RECOGNIZE PROBLEMS

Your PD clinic will teach you what to look for and what to do for problems such as an infection in your catheter or abdomen, too much water in your body, or trouble with dialysate fluid going in or draining out. Most problems can be easily handled. By detecting trouble early and getting proper treatment right away, you can easily take care of most problems.





Physical activity



Packing supplies for travel

## How much physical activity can I do?

Being careful and watching what you do will always pay off. On PD you will be able to do more, move around more, and probably feel better than you have felt in a long time.

Your level of activity should be a matter between you and your doctor. Generally, you can do the things you feel comfortable doing. But try to avoid activities that might pull on or damage your catheter, or get the area around it dirty.

## What if I do a lot of traveling?

Travel should not be a problem. If you are only going to be gone for a short time, just pack the exchange supplies you will need. Add enough for a few extra exchanges in case of travel delays. For CCPD or PD Plus patients, the cyclor is portable and can be easily packed in its own special suitcase. If you are going to be gone for a long time you can arrange to have supplies sent to your destination. Or your dialysis center can give you the names of centers where supplies are available.

## What about exchanges when I'm not at home?

Exchanges at work or school can be done with little or no difficulty ... just let your employer or school know you are under a doctor's care. Needing to do an exchange should not stop you from working, visiting friends, shopping, or going on a family outing. All you need to do is find a private, clean space and do what you would do at home.

## All this has got to affect my family ...

... for the better! No more gearing your life around trips to a dialysis center ... so there is more time for your family. But they will need to understand a few things. Children or grandchildren should not jump on to your lap. This might hurt your catheter. Your family should also understand that you should not be interrupted during your exchanges. Your concentration is needed to do the exchange correctly and to prevent infection.

The relationship with your family should only improve after you begin PD. Even intimate relations with your partner do not have to change. Your catheter is just an extension of yourself that is helping you to function normally. It should not come between two people who love and support each other.





Family support can make all the difference between success and failure in PD. Many families find that working together to make dialysis a part of their lives brings them closer to one another.

Encouragement, understanding, taking the time to learn about PD, helping when you need help ... all these things are gifts that members of a family can give to one another.

## **A final word ...**

We hope that this booklet has been helpful in explaining about PD. Your doctor and the nurses at your dialysis clinic can tell you more about your treatment options and can help you decide which one is right for you. With a little effort on your part, and a little understanding from your family, PD can be a new and exciting way to feel better and gain a greater sense of freedom and independence about your treatment.