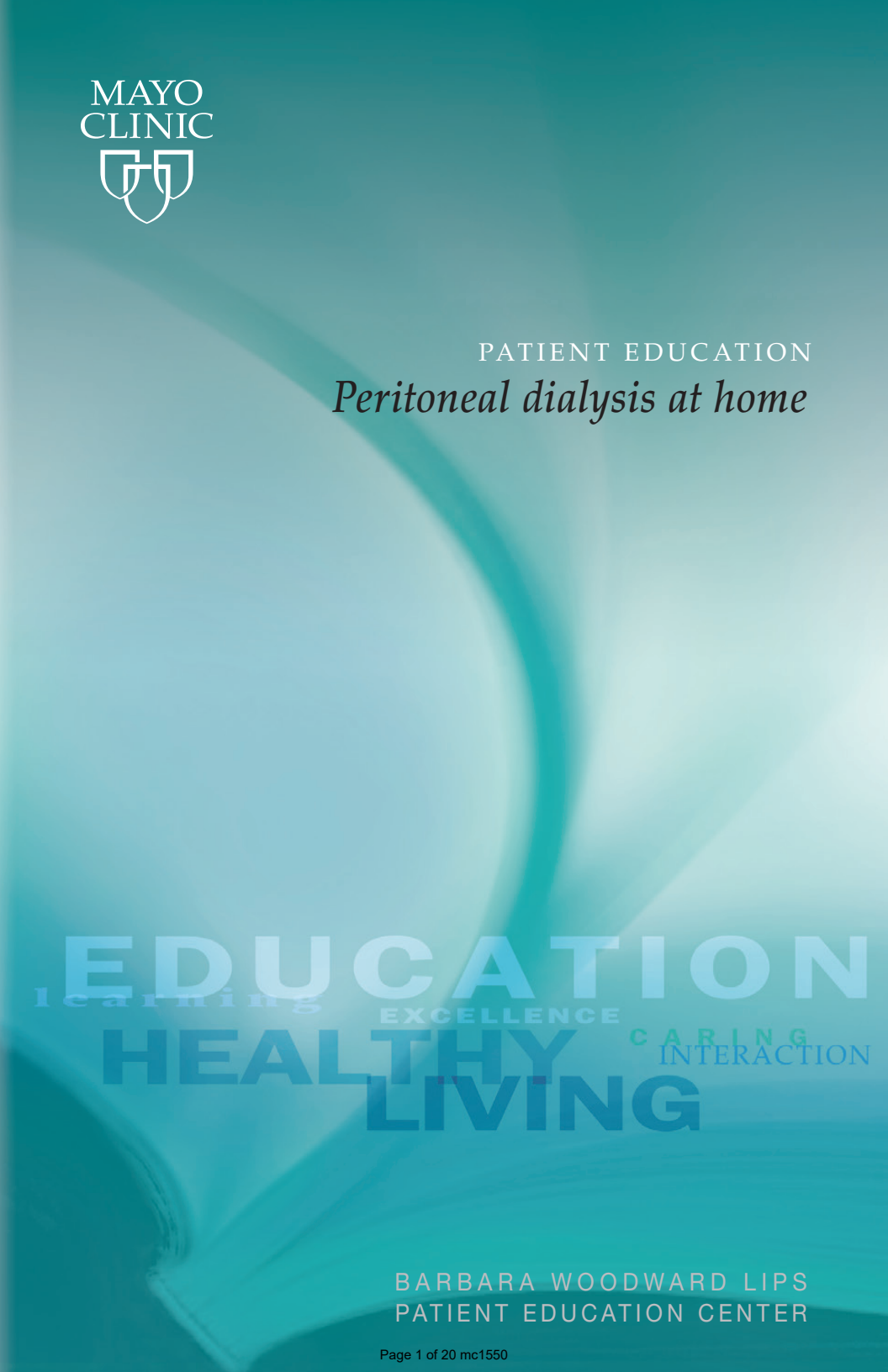
MAYO CLINIC

PATIENT EDUCATION

Peritoneal dialysis at home



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Peritoneal dialysis at home

Peritoneal dialysis is a treatment for chronic kidney disease. It is sometimes called PD. It removes extra fluid, chemicals and waste from your body. It filters them from your blood through the peritoneal membrane. Chronic kidney disease is often called CKD.

Dialysis brings major change to your life. Consider your lifestyle and health needs before you choose it. Those who choose home dialysis often feel it gives them a better quality of life. They feel more independent.

How does peritoneal dialysis work?

Using gravity, the dialysis solution flows through a thin, flexible tube into the peritoneal cavity. The tube is called a peritoneal catheter. The solution is called dialysate.

Surgery places the catheter into the peritoneal cavity. This is a space located under a layer of muscles in your abdomen. This space is where peritoneal dialysis happens. The peritoneal cavity is inside the abdominal cavity. The stomach, liver, spleen and intestines are found in the abdominal cavity. The abdomen is sometimes called the belly. See Figure 1.

The sterile solution passes through the catheter into the peritoneal cavity. The amount is usually two quarts. It stays in your body until it is time for a fresh solution. The time it stays is called dwell time. The length of time it stays depends on the type of dialysis.

Extra fluid, chemicals and waste move from your blood vessels, across your peritoneal membrane, and into the solution. These wastes then drain, and the peritoneal cavity is refilled. This procedure is called an exchange. The waste that drains from your body is called effluent. See Figure 2.

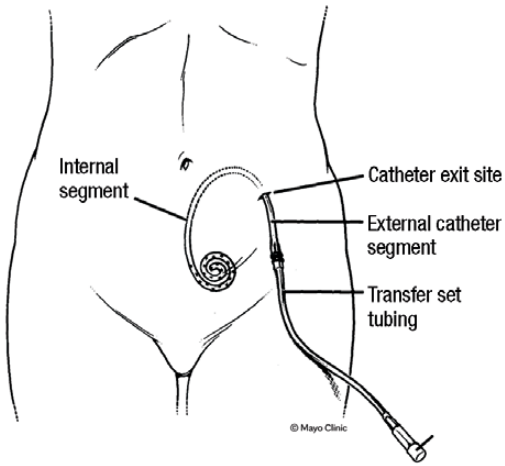

Figure 1. Peritoneal catheter in place. Curled end is in the lower portion of the peritoneal cavity. The other end is outside the body and attached to tubing.

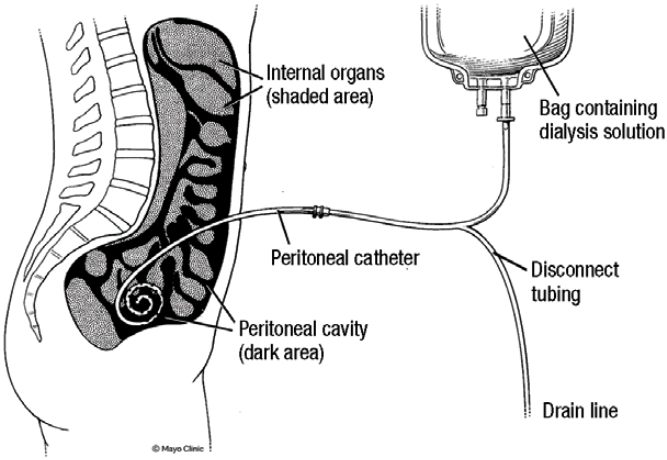

Figure 2. Peritoneal dialysis solution flows into the peritoneal cavity through a thin tube (peritoneal catheter). The catheter is connected to tubing for the exchange procedure.

Dialysis solution is usually exchanged four times a day, seven days a week. These exchanges are spaced throughout the day. They happen in the morning, noon, late afternoon and before bedtime. Each exchange takes 2 to 4 hours. Dialysis only happens while the dialysis solution dwells in the peritoneal cavity.

Your solution uses a specific volume and number of exchanges for the right amount of waste removal. You learn to keep a fluid balance based on your weight and blood pressure. You do this by using solutions of different sugar concentrations.

Beginning peritoneal dialysis

Once you and your kidney specialist decide that peritoneal dialysis is your best choice, the peritoneal catheter insertion and training is scheduled. A kidney specialist is called a nephrologist.

A surgeon inserts the catheter. The catheter exit site needs time to heal before your dialysis begins. You learn how to care for the catheter exit site before you leave the hospital.

Training for peritoneal dialysis

Training is scheduled for 4 to 6 weeks after the catheter is placed. It takes about 10 days. You dialyze on a cycler machine. You work with a home dialysis nurse for several hours each day until you finish training.

You are ready to do dialysis at home when you:

- Learn the procedures.
- Show you can do the procedures safely.
- Learn about diet, medicines and other important information for home care.

Before you do dialysis at home, you meet with members of your healthcare team. You discuss any questions or concerns you may have.

Recordkeeping for peritoneal dialysis

You keep a record for dialysis. You take and record your weight, blood pressure and temperature as you are told. You also record the type of solution and volume used. These records and the results of monthly blood tests help your healthcare team decide whether your dialysis is working as it should.

Recordkeeping sheets

You must send your record sheets to your home dialysis nurse. Depending on the machine you use and the dialysis mode you select, some of this may be done automatically for you. You need to do this each month.

Follow-up for peritoneal dialysis

You take part in follow-up visits on a regular basis. You return after one month of home dialysis. You see the home dialysis nurse, nephrologist and dietitian. After that, return visits are scheduled each month. These visits can be virtual. But you do need to come in person at least once every three months.

Blood tests

Each month, you get a blood collection kit in the mail. You take the kit to your local clinic or to your primary healthcare professional. There, you have blood drawn, and the blood samples are sent to a lab.

You are contacted with the test results. Your dialysis healthcare team also contacts you about any changes to make based on the test results. The information on your record sheets also is used to help decide whether your treatment needs to change.

Support for peritoneal dialysis

Devices and special techniques are available if you have vision or strength problems. Talk with your healthcare team about what supplies you need for dialysis.

Many problems can be handled over the phone. Home dialysis nurses can help you during the day. A nephrologist is available to help 24 hours a day.

Continuous ambulatory peritoneal dialysis at home

One choice of dialysis is called continuous ambulatory peritoneal dialysis. It is shortened to CAPD.

Dialysis room, equipment and supplies

To do CAPD, you must have a room where you can close the door and have privacy. Pets should not be allowed in this room. This room must have:

- A nearby sink.
- Good lighting.
- A sturdy table or counter that can withstand repeated washing.
- A comfortable chair.

Store enough supplies for a few days in a small cupboard or on shelves near your dialysis area. This area needs to stay clean and dry. You must be able to control the area's temperature.

Dialysis solution, tubing sets and other supplies are delivered to your home each month. You learn how to order these supplies during training.

Doing continuous ambulatory dialysis

To do a continuous ambulatory dialysis exchange, you need to:

1. Prepare supplies.
2. Put on a mask.
3. Wash your hands.
4. Connect the bag and tubing to the peritoneal catheter. See Figure 3.

Following that, you:

5. Use gravity to drain the solution from your peritoneal cavity. See Figure 4.
6. Fill the peritoneal cavity with fresh solution. See Figure 5.
7. Disconnect the tubing.
8. Cap the catheter until the next exchange.
9. Throw away used supplies and solution. The solution is called effluent.
10. Record exchange information on a record sheet.

Figure 3. A new bag of solution and tubing are connected to the catheter.

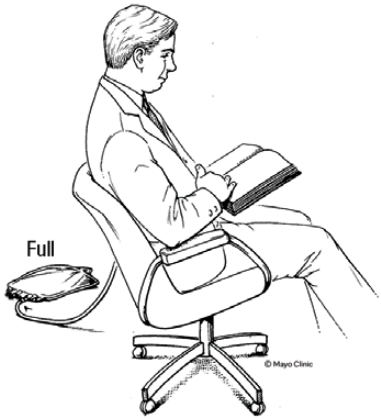

Figure 4. Solution that has been in the peritoneal cavity the past few hours drains into the empty bag.

Figure 5. Fresh solution flows into the peritoneal cavity.

Automated peritoneal dialysis at home

A second choice for dialysis is automated peritoneal dialysis. It shortens to APD. For this dialysis, a cycler machine does several exchanges for 8 to 12 hours each night while you sleep.

Dialysis only happens between exchanges while the solution is in the peritoneal cavity. The time that the solution dwells in the peritoneal cavity is less than it is for continuous ambulatory peritoneal dialysis.

Automated peritoneal dialysis is prescribed to meet your needs. You use a specific amount of solution, number of cycles and prescribed times. Based on your weight and blood pressure, you learn to adjust the sugar concentrations to keep your fluids balanced. Sugar is also called dextrose.

Dialysis room, equipment and supplies

When you do automated peritoneal dialysis at home, you must have the same room and equipment as you do for continuous ambulatory peritoneal dialysis. See "Continuous ambulatory peritoneal dialysis at home." But you do need some additions, such as:

- Space next to your bed for the cycler machine.
- A three-prong electrical outlet for the cycler machine.
- An elevated bed to help gravity drain the solution. Use an added mattress or blocks to help lift your bed.

If you have problems with the cycler machine, you can call the cycler machine company for technical support. Support is available 24 hours a day.

Doing automated peritoneal dialysis

To do automated dialysis each evening, you or your helper:

1. Prepare supplies.
2. Put on a mask.
3. Wash and dry hands.
4. Set up the cycler machine with tubing and solutions.
5. Connect the bag and tubing to the peritoneal catheter.

The cycler machine first drains the peritoneal cavity. Then it fills the cavity with solution and allows it to dwell there. This process goes on throughout the night. If a problem happens, such as a twist in the tubing, the cycler alarm goes off. This should wake you so you can correct the problem.

In the morning, you or your helper:

1. Disconnect the tubing.
2. Cap the catheter until the next nightly dialysis.
3. Throw away used supplies and solution. The solution is called effluent.
4. Record cycling information on a record sheet.

Things to consider

The following are some specific considerations for automated peritoneal dialysis:

- Automated peritoneal dialysis may not give some people enough dialysis. This depends on body size and other factors. If this is so, it requires continuous ambulatory peritoneal dialysis exchanges during the day.
- Automated peritoneal dialysis routines are not as flexible as continuous dialysis because:
  - A dialysis machine and electricity are needed.
  - You must be hooked up to the cycler machine for 8 to 12 hours every night.
- If a power failure happens, you need to use continuous dialysis until power is restored.
- Automated peritoneal dialysis requires using bags of solution that are larger and heavier than bags of solution for continuous ambulatory dialysis. You may need help lifting the bags.
- When you travel, you need to take the machine with you or switch to continuous dialysis exchanges during the day.

Advantages of peritoneal dialysis at home

Being able to do dialysis at home can be helpful in managing your health. Other advantages include:

- Your dialysis is continuous. Fluid, chemicals and waste do not build up between treatments.
- You have fewer diet restrictions when you keep making urine. You are more likely to make more urine when you are on peritoneal dialysis.
- You can take dialysis supplies with you when you travel.

The following are some specific advantages for continuous dialysis:

- You have flexibility about when and where you do exchanges while you still follow your treatment plan.
- You do not need a dialysis machine.
- You have no cycler machine as you do in automated dialysis. This is possibly better for people who are light sleepers. You have no sounds and alarms, which disrupt you.

The following are some specific advantages for automated dialysis:

- You have flexibility as to when you do your treatment.
- If you cannot do dialysis procedures, you may have a parent, spouse or other family member help you.
- You may not aggravate chronic back pain or a hernia as is possible with continuous dialysis.

Possible problems with peritoneal dialysis at home

Infection can happen in the peritoneal cavity or at the catheter exit site. Other possible problems include:

- Catheter problems may happen. Your catheter may need to be replaced or repositioned.
- Hernias may develop or get worse.
- Peritoneal dialysis fluid can fill in the lung cavity if there is a small connection to the abdominal cavity. This usually causes no problems until fluid is instilled.
- If kidney function gets worse and you stop making urine, you may need longer treatments and more frequent exchanges. Also, you may need more dietary restrictions.

Health conditions and peritoneal dialysis at home

As your healthcare team decides whether peritoneal dialysis at home is the best choice for you, your care team considers:

- Low blood albumin levels. If you have low levels, these need to be corrected before you can begin doing dialysis at home.
- Your desire to lose weight. Dialysis fluid holds sugar, also called dextrose. This can make it harder to lose weight.
- Hernias. A hernia is a weak spot in the abdominal wall. A hernia must be repaired and allowed to have time to heal before you start dialysis.
- Chronic back pain. Extra weight of the dialysis solution can make back pain worse.
- Recent abdominal surgery.
- An ileostomy or a colostomy.
- Abdominal aneurysm repair.

Some considerations of dialysis to think about are ones that may affect your self-esteem. They include the body image that comes from having a catheter in your body. They include a larger belly and waistline that come from solution in your peritoneal cavity. And they may include weight gain from sugar in the solution.

And also keep in mind that a person who has diabetes often keeps on taking insulin by injection under the skin.

For more information

If you have questions about your medical condition or about this information, talk with your healthcare team.

This information is for your education only. It does not replace medical advice, diagnosis or treatment. New medical research or practices may change this information. If you have questions about a medical condition, talk with a member of your healthcare team.

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Mrs. Lips, a resident of San Antonio, Texas, was a loyal patient of Mayo Clinic for more than 40 years. She was a self-made business leader who significantly expanded her family's activities in oil, gas and ranching, even as she assembled a museum-quality collection of antiques and fine art. She was best known by Mayo staff for her patient advocacy and support. Upon her death in 1995, Mrs. Lips paid the ultimate compliment by leaving her entire estate to Mayo Clinic.

Mrs. Lips had a profound appreciation for the care she received at Mayo Clinic. By naming the Barbara Woodward Lips Patient Education Center, Mayo Clinic honors her generosity, her love of learning, her belief in patient empowerment, and her dedication to high-quality care.

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