PROCEDURE

Dialysis - peritoneal

Peritoneal dialysis removes waste and extra fluid using the lining of your abdomen.

PURPOSE
Remove waste and extra fluid when kidneys cannot

PROCEDURE TYPE
Therapeutic, bedside catheter-based treatment

WHERE IT IS DONE
At home or bedside; catheter placed in operating theatre

ANAESTHESIA
None for exchanges; anaesthesia required for catheter placement

HOW LONG IT TAKES
30-40-minute exchanges or overnight automated treatment

PREPARATION
Sterile-technique training, clean space, and prescribed fluid plan

RECOVERY
No downtime; avoid driving after sedated catheter placement

MAIN RISKS
Peritonitis, catheter infection, hernia, inadequate dialysis

RESULTS
Fluid removal immediate; blood-test response checked at follow-up

Overview

Peritoneal dialysis treats kidney failure by removing waste products and extra fluid from your body.

It uses the peritoneum, the lining inside your abdomen, as a natural filter. Dialysis fluid enters your abdomen through a soft catheter. Waste and water move from your blood into the fluid, which is then drained and replaced.

Most people perform treatment at home after training. The main approaches are:

Before treatment begins, the catheter is placed through your abdominal wall, usually using local anaesthesia and sedation or general anaesthesia.

Peritoneal dialysis supports kidney function but does not cure kidney failure.

- Continuous ambulatory peritoneal dialysis (CAPD): several manual fluid exchanges during the day
- Automated peritoneal dialysis (APD): a machine called a cycler performs exchanges, usually overnight

Why the procedure is performed

You may need peritoneal dialysis when severe or long-term kidney failure causes waste, fluid, or minerals to build up.

Treatment can reduce swelling, breathlessness from excess fluid, and chemical imbalances in your blood. It may be used while you wait for a kidney transplant or as ongoing kidney replacement treatment.

Some people choose it because it can be performed at home, provides more scheduling control, and avoids regular travel to a dialysis centre. In selected hospital cases, it may also be used for sudden kidney failure.

Who should and should not have it

Peritoneal dialysis may suit you if you can learn the exchange process and have a clean place to perform treatment and store supplies. A family member or carer may help if needed.

It may be avoided or delayed if you have an active abdominal infection, recent abdominal surgery that has not healed, extensive internal scar tissue, or an abdominal wall problem that increases the risk of leakage. A large or uncorrected hernia may worsen because dialysis fluid increases abdominal pressure. Some bowel conditions or abdominal cancers can also make treatment unsuitable.

Limited vision, hand movement, memory, or mobility does not automatically rule it out. Your team may recommend adapted equipment or additional support.

If waste or dangerous fluid levels must be removed very quickly, haemodialysis may be more appropriate.

How to prepare

Follow your treating facility's instructions because preparation varies between programmes and catheter-placement methods.

Before catheter placement, your team will tell you when to stop eating and whether medicines such as blood thinners or diabetes treatments need temporary changes. Do not stop prescribed medicine unless instructed.

You will be trained to connect equipment, wash your hands, use any required mask, record drained fluid, and recognise infection. Training continues until you and your team are confident that you can perform exchanges safely.

Prepare a clean exchange area away from pets, open windows, fans, and dust. Store supplies somewhere clean and dry.

Follow any targets for fluid, salt, blood pressure, and weight. Avoid constipation because it can interfere with catheter drainage, and tell your team if you are constipated.

What happens during the procedure

For each exchange, you wash your hands and prepare the equipment using the sterile technique taught by your team. You connect a dialysis bag to your catheter without touching the sterile connection points.

Used fluid drains into an empty bag, and fresh fluid flows into your abdomen. The catheter is then closed while the fluid remains inside for a prescribed dwell time. Waste and extra water move into the fluid during this period.

With CAPD, draining and filling usually take 30 to 40 minutes. You can generally move around during the dwell.

With APD, you connect to a cycler at bedtime. It fills and drains your abdomen several times overnight. Some people also keep fluid in their abdomen during the day.

Drained fluid should generally look clear. Record drainage amounts, blood pressure, weight, and treatment problems as instructed.

Recovery and what to expect afterward

Routine exchanges require no recovery time. You may notice temporary fullness, pulling, or mild cramping, but sharp, persistent, or worsening pain needs assessment.

Follow your kidney team's nutrition and fluid plan. Dialysis fluid contains sugar, which can increase calorie intake and affect blood glucose.

Light activity is usually possible. Avoid heavy lifting or pressure on the catheter while the insertion site heals.

You may drive after an exchange if you feel well. Do not drive after catheter placement if you received sedation or general anaesthesia; follow your facility's restrictions.

Many people continue working. Manual exchanges can be planned around breaks, while automated treatment is often performed overnight.

Risks and possible complications

The main infection risk is peritonitis, an infection of the abdominal lining. Warning signs include cloudy drained fluid, abdominal pain, fever, nausea, or suddenly feeling unwell. Prompt treatment is essential.

The catheter exit site or tunnel under the skin may also become infected. Report redness, warmth, swelling, tenderness, or discharge.

Other complications include poor drainage, catheter blockage or movement, fluid leakage, and hernias. Sugar in the dialysis fluid may contribute to weight gain or make diabetes harder to control, and protein may be lost in drained fluid.

Over time, the peritoneum may filter less effectively. Rarely, long-term inflammation and scarring cause encapsulating peritoneal sclerosis.

Results and follow up

Drained bags often contain more fluid than was put in, showing that fluid has been removed. Swelling and breathing may improve gradually.

Blood tests measure waste products, salts, and acid levels. Your team may also test drained fluid and urine to assess whether dialysis is adequate.

Follow-up includes checks of your weight, blood pressure, catheter site, treatment records, nutrition, medicines, and remaining kidney function. Your prescription may be adjusted by changing the exchanges, dwell time, or fluid type.

Bring requested records and samples to appointments. Report recurring alarms, reduced drainage, or unusual weight changes promptly.

Alternatives

Haemodialysis at a dialysis centre filters blood through a machine on a set schedule. Staff perform treatment, but regular travel is required.

Home haemodialysis offers scheduling flexibility but requires training, equipment space, reliable utilities, and needle access to a blood vessel.

Kidney transplantation may provide better kidney function without dialysis exchanges. It requires major surgery, a suitable donated kidney, and lifelong immune-suppressing medicines.

Conservative kidney management focuses on symptoms, comfort, and quality of life without dialysis or transplantation. It does not replace lost kidney function.

The best option depends on your health, home circumstances, goals, and access to services.

When to call your healthcare team

Contact your dialysis team urgently if drained fluid is cloudy, even if you otherwise feel well. Also seek urgent advice for new abdominal pain, fever, vomiting, catheter damage, pus at the exit site, or fluid that will not drain. Keep the cloudy drainage bag if asked to bring it for testing.

Call promptly for increasing catheter redness, repeated machine alarms, sudden swelling, rapid weight change, or blood in drained fluid that does not clear.

Seek emergency help for severe breathing difficulty, chest pain, fainting, new confusion, uncontrolled bleeding, or rapidly worsening illness.

Common questions

Will I be asleep?

Not for routine exchanges. Catheter placement may use local anaesthesia with sedation or general anaesthesia.

Can I drive home?

You can usually drive after an exchange if you feel well. Arrange transport after catheter placement if you received sedation or general anaesthesia.

How painful is it?

Mild fullness or cramping can occur. New, persistent, or severe abdominal pain needs urgent advice.

When will I know if it is working?

Fluid removal is visible during exchanges. Blood tests and dialysis-adequacy measurements show whether enough waste is being removed.

Can I shower or swim?

Follow your programme's catheter-care instructions, particularly while the site heals, to reduce infection risk.

Can I travel while using peritoneal dialysis?

Often, yes. Arrange delivery of supplies well in advance, and carry essential equipment and your dialysis team's contact details.

Sources

- National Institute of Diabetes and Digestive and Kidney Diseases. Peritoneal Dialysis . Kidney failure treatment information
- National Institute for Health and Care Excellence. Renal replacement therapy and conservative management . NICE guideline NG107, 2018
- Li PK-T, Chow KM, Cho Y, et al. ISPD peritonitis guideline recommendations: 2022 update on prevention and treatment . Peritoneal Dialysis International. 2022;42(2):110-153
- Crabtree JH, Shrestha BM, Chow KM, et al. Creating and maintaining optimal peritoneal dialysis access in the adult patient: 2019 update . Peritoneal Dialysis International. 2019;39(5):414-436
- National Kidney Foundation. Peritoneal Dialysis . Kidney failure treatment information