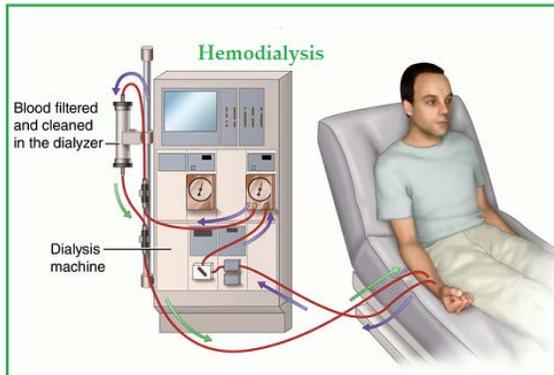


TREATING END STAGE KIDNEY DISEASE

Dialysis is a medical treatment that takes over the job of cleaning your blood and balancing fluid and electrolytes when your kidneys are no longer able to do so. It does this by using a filter and a cleaning solution called **dialysate**. There are two types.

Hemodialysis uses a machine and a special filter called a **dialyzer** to clean your blood. A dialyzer is a plastic tube filled with millions of tiny hollow fibers that acts as an artificial



kidney. During treatment, your blood travels from your body through a tube into the dialyzer, which removes the bad and replaces the good using the cleaning solution. The clean blood flows through another tube back into your body.

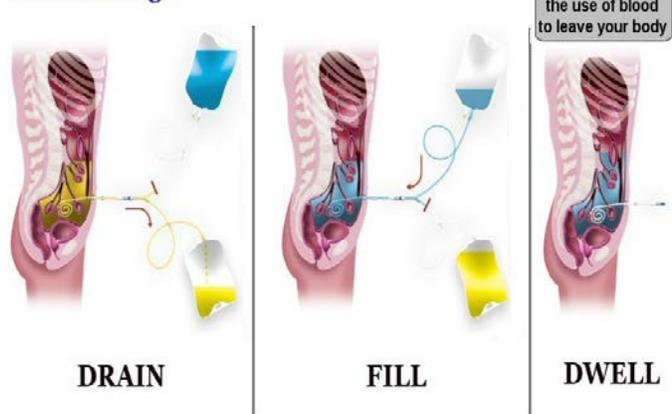
This process requires direct access to your bloodstream through the use of two needles. It typically takes about 4 hours and has to be done three times a week. Treatments are done

Monday-Wednesday-Friday or Tuesday-Thursday-Saturday at a **dialysis clinic**. Performing hemodialysis at home is an option for some patients. With **home hemodialysis** you have more control over managing your illness and the ability to set your own schedule.

Peritoneal Dialysis uses a catheter that is surgically placed in your abdomen to put the cleaning solution into your belly, and the lining of your abdomen acts as a natural filter.

The fluid remains in the abdomen for a period of time known as the **dwel time**. The now dirty solution is drained out of the belly and discarded and new clean solution is put back in, this is called an **exchange**. This is performed at home and this treatment option also offers flexibility and control.

PD Exchange



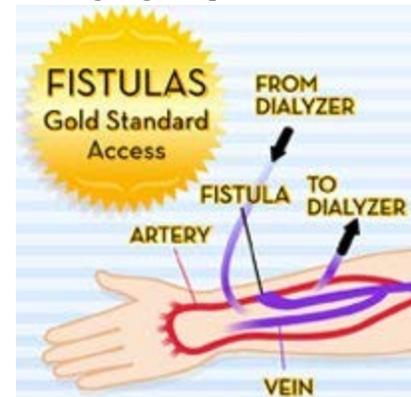
** We at Premier will collaborate with you, your family, and your kidney doctor to provide more education, answer questions, go over pros and cons and decide which kind of dialysis is right for you.

VASCULAR ACCESS

Healthy kidneys function constantly, hemodialysis is only performed three times a week for three or four hours...

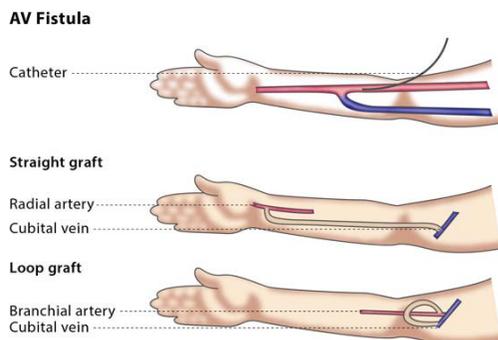
A **vascular access** is a hemodialysis patient's **lifeline!** It provides a direct line to your bloodstream that allows large amounts of blood to flow continuously and quickly to the dialyzer and back to the body to clean as much blood as possible during a treatment. It is a surgically created entry point for repeated needle insertions; without it, hemodialysis is not possible because normal veins are not strong enough. There are two types of permanent vascular access, a **fistula** and a **graft**.

- An **AV fistula** is created using your own blood vessels and connecting an artery directly to a vein. The heart forces blood into arteries causing higher pressure and faster blood flow within them. The increased blood flow from the artery into the vein after fistula creation causes the vein to **mature**, or become larger and thicker. This allows for the increased blood flow necessary during treatments, as well as makes the vein capable of withstanding repeated needle sticks. Untreated veins would collapse, like sucking a thick milkshake through a small straw. The maturation process typically takes about 6 weeks to occur before it can be accessed for dialysis.



An AV fistula is the preferred type of access because it

- ❖ Provides good blood flow for dialysis



- ❖ Lasts longer than other types of access
- ❖ Lowest risk of infection and blood clot formation

- An **AV Graft** is the next preferred access for hemodialysis and is surgically created by connecting an artery to a vein using a synthetic graft material. Can be straight or looped.

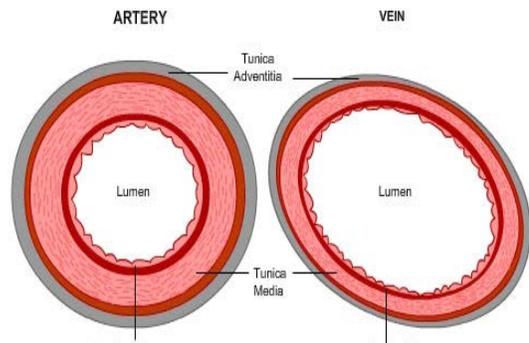
- ❖ Can be used sooner than AV Fistulas
- ❖ A good option for patients with small or sick veins that are unable to have a fistula

EVALUATION FOR VASCULAR ACCESS

The very first step in choosing the access that is best for you is an ultrasound called **Vein Mapping** where a trained technician will look at the blood vessels in both of your arms.

- How long are they
- How open are they (see picture)
 - Big and wide or skinny and narrow
- How fast or slow does blood flow through them

Your surgeon will use the information from this test to help decide which type of access will be best for you and where.

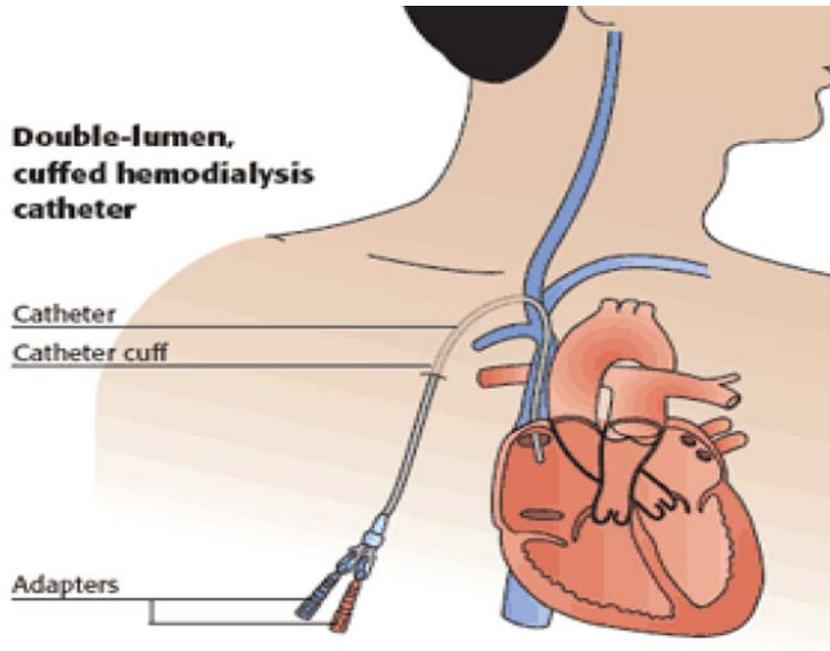


★ Your kidney doctor should refer you to a vascular surgeon **BEFORE** dialysis is started. Even if there is a chance you never need dialysis, you should still be referred to and evaluated by a vascular surgeon.

- Veins that can be used to make a fistula need to be protected – no IVs, blood draws, or blood pressures in that arm
- Avoid PICC lines and Central lines unless absolutely necessary
- Fistulas and grafts take time to mature before they can be used
- Not all fistulas mature the way we want – having access placed early allows time to identify and intervene when needed to help an access mature
- Sometimes a second surgery is necessary to make the vascular access useable
- Sometimes an access just does not work out and we have to go to plan B

★ Early referral by your kidney doctor to a vascular surgeon helps give you the best possible chance to have a usable fistula before ever having to start dialysis by allowing us to preserve and protect useable veins and gives your access time to heal and mature. This along with early education, problem identification, and swift intervention will help you to have the best success with your vascular access and make transition into beginning dialysis as smooth as possible.

If kidney disease has progressed quickly and a patient does not have time for placement of an AV fistula or graft before starting hemodialysis, a venous catheter may be inserted.



Venous catheters are not ideal for long-term use. However, if a patient needs to start hemodialysis right away, a venous catheter will work for several weeks or months until long-term access can be established.

VENOUS CATHETERS ARE TEMPORARY AND SHOULD NOT BE LEFT IN LONGER THAN NECESSARY TO CREATE AND ESTABLISH A USEABLE PERMANENT VASCULAR ACCESS.



- ❖ Venous catheters provide a large and direct line to your heart.
- ❖ Risk of infection is very high
- ❖ Who is using the catheter? Are they using proper hand hygiene and sterile technique
- ❖ If catheter becomes infected, bacteria are introduced directly into your blood stream and to your heart
 - Sepsis – blood stream infection – is a very real possibility and will lead to hospitalization, require immediate catheter removal, IV antibiotics, another procedure to gain a new access for dialysis, and could potentially end your life...
- ❖ If that is not reason enough to avoid dialysis catheters, just know, you also can not take a shower while a dialysis catheter is in place....