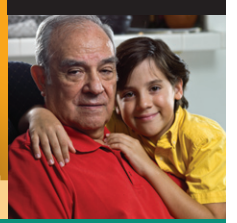


Arteriovenous  
**FISTULA**  
for Hemodialysis

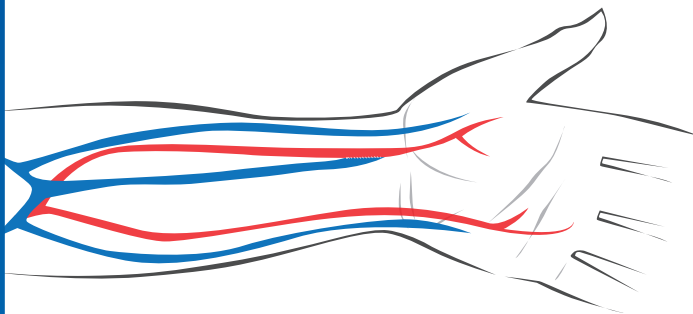


## What You Need to Know to Stay Healthy with a Fistula

One treatment choice for kidney failure is hemodialysis (HD). HD removes wastes and excess fluid from your blood. Your lifeline in HD is a *vascular access*—a way to reach your blood. There are three types of access: fistula, graft, and catheter. This booklet is about fistulas.

### About Fistulas

An arteriovenous (AV) fistula is made by sewing an artery to a vein, most often in your arm. Strong blood flow from the artery makes the vein grow larger. Veins are close to your skin's surface, so a fistula can be used for HD.



If you can have one, a fistula is the best type of access:

- Fistulas have far fewer infections and blood clots than other types of access.
- Veins and arteries can heal after each use, so a fistula can last a long time—sometimes decades!
- Fistulas need fewer repairs in the hospital, so you feel better.

After surgery, it takes about 4–6 weeks for a fistula to *mature* so it can be used for HD. The doctor or nurse will decide when it is ready. Making a fist, or squeezing a rubber ball or handgrip, may send more blood to your fistula so it works better and matures faster. For an upper arm fistula, lift a small 2–5 pound dumbbell or a soup can.



### What Is "Steal Syndrome"?

» A surgeon must balance your need for HD with the function of your arm. Steal syndrome means the fistula "steals" too much blood from your arm. This leaves your hand cold and numb. If it happens, tell your surgeon right away; your fistula may need repair. Wear a glove during HD, ask if a heating pad would be safe for you, or move your arm around to feel better.



## Using Your Fistula for Dialysis



### Step 1: Hand washing

The first step in using a fistula is for the staff person to wash his or her hands. The Occupational Safety and Health Administration (OSHA) requires staff to wash their hands and wear gloves to protect them *and* you. Your center will teach you how to wash your access arm before HD.

### Step 2: Look for infection

At each HD treatment, your nurse or technician will look for signs of infection or damage to your fistula. These include:

- Redness, warmth, or swelling
- Tenderness
- Pus or sores

If you have a fever or feel run-down, tell your care team.

### Step 3: Listen for blood flow

The nurse or technician will listen to the blood flow in your fistula with a stethoscope.

### Step 4: Clean the access with germ-killer

The nurse or tech will clean your arm with a gauze pad and a germ-killing solution before using your fistula for HD.

### Step 5: Place the needles

Two needles are used for HD. An “arterial” needle takes your blood to the dialyzer. A “venous” needle brings your blood back to your body. The nurse or technician will tie a tourniquet (rubber band) around your arm so your blood vessels stand up. Then he or she—or you—will guide one needle at a time through the skin into your fistula, tape it down, and connect it to the HD tubing. During HD, the needles should not hurt. If they do, tell your care team.

### Step 6: Remove the Needles

After a treatment, the nurse or technician—or you—will untape and remove the needles. As soon as the needles are *all the way out*, you will need to put on surgical gloves and put pressure on the needle sites for about 10 minutes to stop the bleeding. **Never let anyone press on your fistula while the needles are being removed: this can damage your fistula.** The staff will teach you how to use the right amount of pressure. Not holding your sites long enough can cause *hematomas* (bleeding under the skin) or bleeding after you leave the center.

## Keep Your Fistula Visible at Dialysis

» At HD, keep your fistula uncovered all the time so the staff can see it. If a needle slips out, or a line comes apart, the staff will know right away so they can help you. You can wear a blanket—but never cover up your fistula.





## Body Image and Fistulas

Some people choose to cover up their fistula all the time. Others use questions as a chance to teach others about kidney disease. How you handle your fistula is up to you.

» *“I had my fistula at 14 and lied to everybody about what it was. I said I needed stitches as a result of a ski accident. I was so self-conscious, so afraid it would be discovered, that I wore long sleeves, even in summer.”—Mary*

» *“I wore my first short sleeve shirt today—it got up to almost 72°. It felt great, but I grossed out a lot of people who had never seen my exposed access with all its lumps and bulges on my upper left arm. I’m less embarrassed by it than when I first had it. Oh, well. Hot weather usually wins, and then I just don’t care. I prefer to be cool.”—Nancy*

» *“I think of my fistula as something that keeps me alive! Who cares what it looks like?! If you’re in a good mood, you could explain to people about dialysis. If you’re not, think of some wild story like, ‘that’s where a tiger bit me on my last safari to the deepest, dark jungles.’”—Robin*

A fistula can help you live longer on HD. But if people see it, they may ask you about it. Kidney disease is mostly hidden—people don’t know you have it unless you tell them. But a fistula can show, which you will need to get used to. It is normal to be sad about changes to your body, and okay to want to talk to someone about your feelings. Your dialysis social worker and other patients may be helpful to talk to.

## How to Keep Your Fistula Healthy

A fistula is the best type of access, but nothing is perfect. A fistula may not work from the start. Or, the first few uses may be a challenge. Your fistula is new to your care team, and may be swollen. This can make it hard to place the needles. It may take more than one try. A fistula can be *infiltrated*: a needle goes in one side of the vessel and out the other. Blood leaks into your tissues, causing swelling and bruising. You will need to have a new needle placed, and the bruises can be painful. This can harm your fistula.

Some staff people are very good at putting needles into a new or hard-to-use fistula. Most centers will have these staff help you place your needles. Infection, blood clots, and other problems can happen (but are less likely with a fistula than with other types of access)



## Infection

Infection can occur in *any* kind of access. Bacteria are all over—on skin, in your nose, on surfaces.... If the needle pushes them through your skin and into your blood, they can cause blood poisoning, or *sepsis*. Sepsis can be deadly. Your best defense is to wash your arm (or leg) with antibacterial soap or alcohol before each HD treatment.



## What Patients Say About Dialysis Needles

Many people who choose HD are worried about the needles. Medication can be used to numb the needle sites. What is it like to have dialysis needles put in? People who have been through it can tell you:

*“I don’t use any medications. When I first began I had much the same fear as you. What helped me was to visualize in my mind. I would tell myself the only part I didn’t really like was the actual stick. I figured this would only last about one-half second for each needle. What I was dreading would only last a total of one second. I figured I could handle the pain that long.”*

*“My experience is that the lidocaine needles sting for a few seconds (sometimes I don’t even feel them anymore). On the other hand, the times I have felt the dialysis needles go in, it really did hurt, although not as bad as I would have thought. However, the pain lasted for several minutes for me. I would rather have the lidocaine and I’m glad I have the choice.”*

## Stenosis: Narrowing of blood vessels

Stenosis slowly shuts off blood flow in your fistula, so you don’t get enough HD to feel your best. There is often time to fix it *before* it leads to fistula loss. A few things you can do are:

- Feel for the *thrill (buzz)* in your fistula each day. Call the doctor if it changes.
- If you have bleeding that is hard to stop after most HD treatments or that starts up again after you leave the clinic, the pressure in your fistula may be high due to stenosis. Call the doctor.

Don’t let anyone draw blood, start an IV, or take your blood pressure in your fistula arm.



## Fixing Stenosis

Ultrasound can check the blood flow in your fistula. If there is a problem:

- A tiny balloon can be placed in the vessel and inflated (angioplasty).
- A metal *stent* can be placed into the vessel to hold it open.
- Surgery can be done.



### Thrombosis: Blood clots

Clotting cells in the blood (*called platelets*) stick together. They seal off damaged blood vessels, like a cork seals up a bottle. But platelets will also stick to scar tissue—and each needle forms a small scar. If blood flow through your access is too slow, these small scars can lead to blood clots. A clot can block a fistula so no blood can go through it. The fistula will need to be fixed—or replaced.

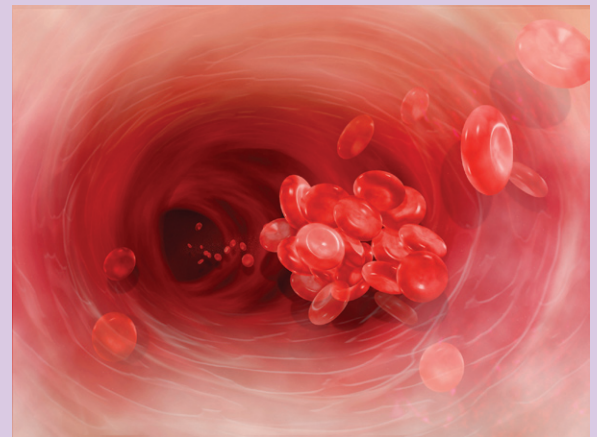
Unlike stenosis, clotting can happen *fast*. The major warning sign is a thrill that slows or stops. If you notice this, tell your doctor or nurse *right away*. Many clots can be treated with drugs, an X-ray guided procedure, or surgery. Other things you can do to prevent clots include:

- Tell your care team right away if you have muscle cramps, or feel faint, dizzy, or sick to your stomach.
- Don't gain too much fluid weight between treatments.
- Know your fluid goal and dry weight. Check that your fluid goal is set correctly on the machine so you don't get too dry.
- *Never squeeze your fistula*: Don't sleep on your fistula or carry heavy things across it. Avoid tight watches, bracelets, or sleeves.
- Know your dose of anti-clotting drug and ask to be sure you get the right amount.

### Aneurysm: Ballooning Weak Spot

When a fistula is stuck too often in the same small area, the vessel walls can weaken. In time, the weakened walls balloon out—this is an aneurysm. There is a risk that this could burst. Repair is needed if the skin over an aneurysm won't heal or if few needle sites are left.

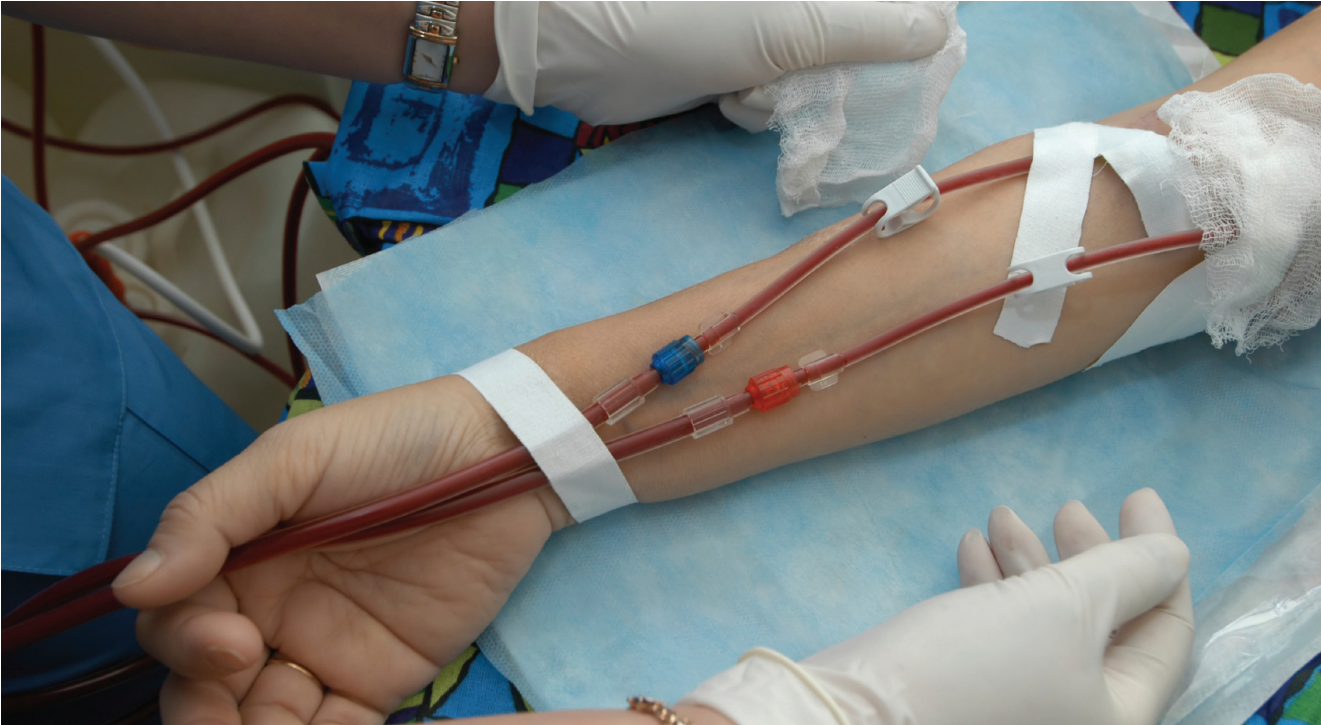
Aneurysm can be avoided by placing new needles at least 1/4 inch away from the last sites used. In this way, no one site is used too much. In a fistula, needle holes heal, but you can keep track of where your next site should be.



### Look Out for Traveling Clots!

» A blood clot in your fistula may not stay put. Blood clots can break loose and travel through your body. If you recently had a blood clot and you have back pain or trouble breathing, seek emergency care.





## Conclusion

The goal of good fistula care is to keep your lifeline healthy so you can get good HD. It is *your* fistula and your health at stake. Your chance of keeping your fistula working is best when you are an active partner with your care team.

### Notes:

---

---

---

---

---

---

---

---



MEDICAL • EDUCATION  
INSTITUTE *inc.*

[WWW.MEDICALEDUCATIONINSTITUTE.ORG](http://WWW.MEDICALEDUCATIONINSTITUTE.ORG)

© 2009, Medical Education Institute, Inc, [www.meiresearch.org](http://www.meiresearch.org)