Introduction
Before starting regular hemodialysis sessions, you must first prepare a vascular access. A vascular access is the site on your body where blood is removed and returned during dialysis. An AV fistula is considered the best long-term vascular access for hemodialysis.

An AV fistula causes the vein to grow larger and stronger. This makes it easier to access your blood. The AV fistula also:

• Provides the needed amount of blood flow.
• Lasts a long time.
• Has a lower complication rate than other types of access.

This reference summary explains the benefits and risks of creating an AV fistula for dialysis. It discusses what to expect during the procedure and how to care for your vascular access after the procedure.

Hemodialysis
When your kidneys fail:

• Harmful wastes build up in your body.
• Your blood pressure may rise.
• Your body may retain excess fluid and not make enough red blood cells.

When this happens, you need treatment to replace the work of your failed kidneys. Dialysis does the work of the kidneys. It removes harmful wastes and extra fluids in the blood. This helps control your blood pressure. It also keeps the proper balance of chemicals, like potassium and sodium, in your body.
Hemodialysis is the most common method used to treat advanced and permanent kidney failure. Hemodialysis uses a machine that:

- Cleans wastes from blood by pumping it into a machine, then returning it to the body.
- Pumps blood and watches the flow for safety.
- Watches your blood pressure and the rate of fluid removal from your body.

During hemodialysis, your blood flows into a machine, a few ounces at a time, through a special filter. The filter removes wastes and extra fluids. The clean blood is then returned to your body. If you are starting hemodialysis treatments in the next several months, you need to work with your health care team to learn how the treatments can best work for you.

**AV Fistula for Dialysis**

Preparing a vascular access is an important step to take before you start regular hemodialysis sessions. A vascular access is the site on your body where blood is removed and returned during dialysis. A vascular access should be prepared weeks or months before you start dialysis. The early preparation of the vascular access will make it easier to remove and replace your blood. It will also cause fewer complications.

The goal of hemodialysis is to clean the most blood possible during treatment. The vascular access should let high volumes of blood flow continuously. One kind of vascular access that does this is an arteriovenous fistula, or AV fistula. A fistula is an opening or connection between any two parts of the body that are usually separate. An example of a fistula is a hole in the tissue that normally separates the bladder from the bowels.

An AV fistula, or arteriovenous fistula, is a connection between a vein and an artery. It is useful for dialysis because it causes the vein to grow larger and stronger. This makes it easier to access your blood. The vein used for an AV fistula is usually in the arm. But it also may be in the leg.
The AV fistula is considered the best long-term vascular access for hemodialysis. It provides enough blood flow, lasts a long time and has a lower complication rate than other types of access. It takes time for a fistula to develop after surgery.

In rare cases, the fistula may take as long as 24 months to form. But a properly formed fistula is less likely than other kinds of vascular access to form clots or become infected.

A properly formed fistula tends to last many years. This is longer than any other kind of vascular access.

**Surgery**

Your surgeon will perform the AV fistula procedure in a health care facility. The procedure can take about an hour. You will receive local anesthesia to keep you awake but pain free. General anesthesia may be used if you need to be asleep during the procedure. The surgery is often done as an outpatient procedure. This means you will be able to go home after the procedure.

Your surgeon may use one of two surgical techniques:
- Basic procedure.
- Artificial graft.

Your overall health determines which procedure is best for you.

In the basic procedure, the surgeon joins an artery to a vein. The vein is usually in the arm. But the surgeon may decide to place the fistula in the leg.

For some patients, the surgeon might use an artificial graft to create the fistula. An artificial graft is a tube that is inserted into the body to connect the vein to the artery.

The artificial graft may be recommended for patients with:
- Advanced vascular disease.
- Severe weakness.
- A blocked vein.
Following surgery, patients usually stay in the health care facility for one to two hours. Your health care provider may give you pain medication during your short recovery period in the health care facility. Sometimes pain medications are prescribed for the first few days of recovery at home.

The new connection begins to strengthen after the fistula is created. After a few weeks, the fistula between the vein and the artery is often strong enough to begin dialysis treatment. The graft procedure takes longer to heal before it can accept a needle. Over several months, the fistula becomes stronger. The vein may stand out more in the arm or leg.

**Risks and Complications**
An AV fistula can have complications that require more treatment or surgery.

The most common complications are:
- Infection of the vascular access.
- Low blood flow due to blood clotting in the vascular access.

Other possible complications of the surgery are related to anesthesia. Most healthy people do not have problems with anesthesia. Many people have mild, temporary symptoms. But anesthesia itself is safe.

Risks of general anesthesia include:
- Chipped teeth.
- Cut lips.
- Headache.
- Nausea.
- Sore throat.
- Urine retention.
- Vomiting.
Complications of anesthesia are rare. They happen most frequently in older adults or people with serious medical problems. Complications include:

- Temporary mental confusion.
- Lung infections.
- Stroke.
- Heart attack.
- Death.

Blood clots in the legs can happen due to inactivity during and after the surgery. These usually show up a few days after surgery. They cause the leg to swell and hurt. Blood clots can dislodge from the leg and go to the lungs. There, they can cause shortness of breath, chest pain and possibly death. Let your health care provider know right away if you experience symptoms of a blood clot. Sometimes, the shortness of breath can happen without warning. Getting out of bed shortly after surgery may help decrease the risk of blood clots.

**AV Fistula Care**

Properly caring for your AV fistula can increase the effectiveness of your hemodialysis treatments. Proper care can also prevent complications.

To care for your AV fistula, you should:

- Make sure your nurse or technician checks your access before each hemodialysis treatment.
- Keep your access clean at all times.
- Use your access site only for dialysis.
- Check the pulse in your access every day.

To care for your AV fistula, do not:

- Bump or cut your access.
- Let anyone put a blood pressure cuff on your access arm.

To care for your AV fistula, also do not:

- Wear jewelry or tight clothes over your access site.
- Sleep with your access arm under your head or body.
- Lift heavy objects or put pressure on your access arm.

This document is for informational purposes and is not intended to be a substitute for the advice of a doctor or healthcare professional or a recommendation for any particular treatment plan. Like any printed material, it may become out of date over time. It is important that you rely on the advice of a doctor or a healthcare professional for your specific condition.

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The surgery is often done as an outpatient procedure. Following surgery, patients usually stay in the health care facility for one to two hours. It takes time for a fistula to develop after surgery. In rare cases, the fistula may take as long as 24 months to form.

The most common complications are infection of the vascular access and low blood flow due to blood clotting in the vascular access. Properly caring for your AV fistula can increase the effectiveness of your hemodialysis treatments. Proper care can also prevent complications.