

EVAR (Endovascular Aneurysm Repair)

EVAR is a procedure to repair an abdominal aortic aneurysm. This fact sheet explains what an abdominal aortic aneurysm is, how the procedure works, and what to expect afterward.

What is an abdominal aortic aneurysm (AAA)?

An **artery** is a blood vessel that carries oxygen-rich blood from your heart to the rest of your body. An **aneurysm** is a weakened section of an artery — it bulges out like a balloon under the pressure of the blood flowing through it.

The **aorta** is your largest artery. It leaves your heart and travels through your chest and then down through your abdomen (belly) before splitting into smaller arteries that go to your legs. When an aneurysm happens in the section of the aorta that travels through your abdomen, it's called an **abdominal aortic aneurysm**, or **AAA**.

What can happen with an AAA?

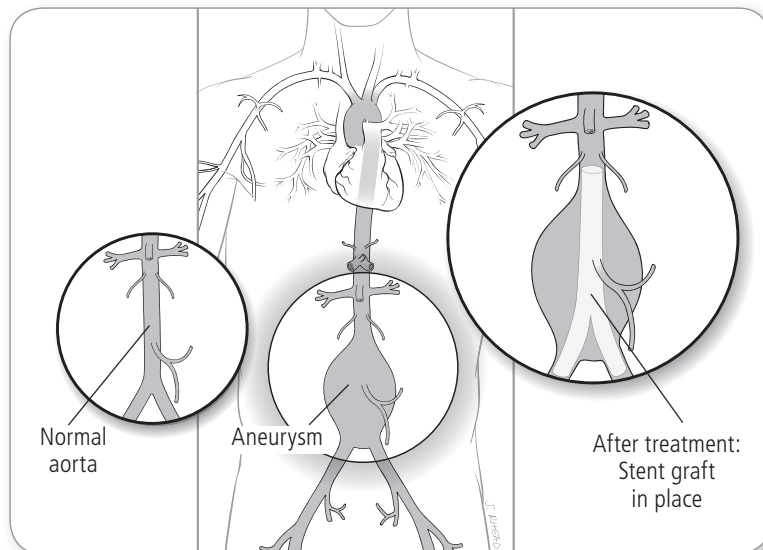
Often, an AAA doesn't cause any symptoms. In some cases, though, it can cause a pulsing sensation in the abdomen or pain in the abdomen, chest, or back.

Even if it doesn't cause symptoms, **an aortic aneurysm can be very dangerous**, especially if it's large or it's growing. If it **ruptures (bursts)**, it can cause **bleeding**. After an aorta ruptures, so much blood is lost that death can happen within minutes.

How is an AAA treated?

If your AAA is small (**less than 2 inches across**), your doctor may recommend watching and waiting.

- You'll need tests every 6 months or so to make sure the aneurysm isn't growing.
- You might take medications to lower your blood pressure and control your cholesterol. You should also make changes to reduce your risk (see page 4).



An abdominal aortic aneurysm (AAA) is a weak section of the aortic artery that bulges like a balloon. A stent graft is a tube that protects the artery.

If your AAA is large (**over 2 inches across**) or growing rapidly, it should be repaired. There are two ways to repair an AAA:

- **Abdominal surgery.** A large incision (cut) is made in your abdomen. The weakened aorta section is removed and replaced with a tube made of a special synthetic (man-made) material.
- **Endovascular aneurysm repair (EVAR, also called "stent grafting").** In an EVAR procedure, two **catheters** (tiny tubes) are inserted into an artery in your leg and threaded up through it to the aorta. The catheters are used to place a tube called a **stent graft** into the aorta at the area of the aneurysm. The stent graft "lines" the aorta like an inner sleeve, and stays in place after the procedure. Blood flows through the graft and doesn't press against the aneurysm. (An EVAR procedure is done in the cardiac cath lab, angio lab, or in an operating room.)

Why should I have an EVAR procedure?

Compared to surgery, an EVAR (stent graft) is faster, causes less stress on your body, and has a shorter recovery time.

About 60% to 70% of aneurysm patients can have an EVAR. It depends on two factors:

- The shape of your aorta. To have an EVAR, you need to have a section of normal aorta that is long enough to hold the stent in place.
- Your commitment and ability to have lifetime follow-up tests to monitor the stent (see “Follow-up tests” on the next page).

How do I prepare for an EVAR?

- **Tell your doctor about all medications you take.** This includes vitamins, over-the-counter remedies, and herbal supplements.
- **Tell your doctor about any allergies** you have.
- **Ask about how to handle your medications.** Your doctor might ask you to stop some medications for a certain amount of time before the procedure.
- **Tell your doctor if you have a cold, flu, or fever** the day of the procedure.
- **Ask someone to drive you** to and from the hospital.
- **Don't eat or drink after midnight the night before,** if directed by your doctor. If your doctor allows it, have a liquid breakfast the morning of the procedure.

What happens before the procedure?

Here's what happens before the procedure begins:

- A nurse will prepare the patch of skin, usually in your groin, where the catheters will be inserted.
- You will have an IV (intravenous) line for medication. Blood may be taken for lab tests.

What happens during the procedure?

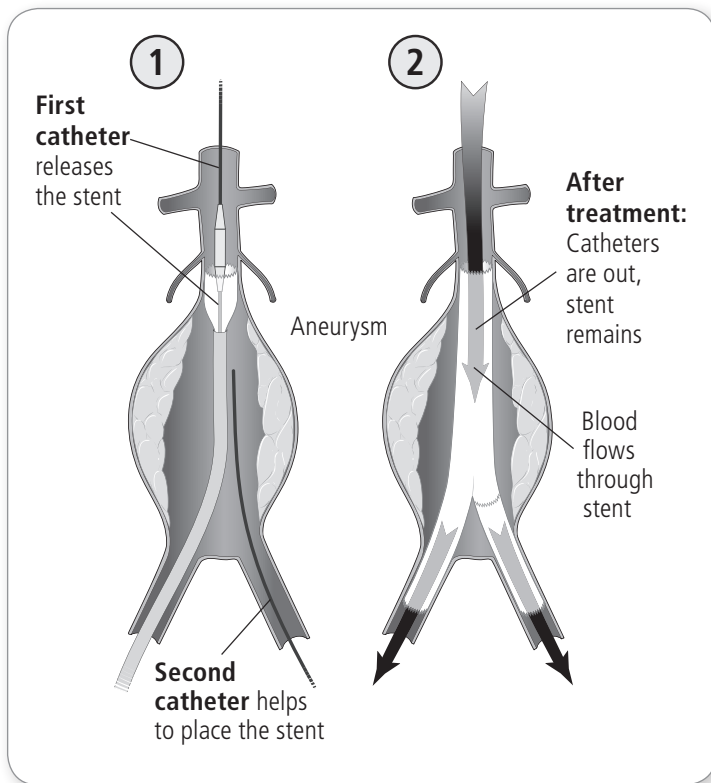
An EVAR procedure usually takes 2 to 3 hours. Here's what happens:

- **Preventing pain.** In most cases, you will have **general anesthesia** — medication so that you sleep through the procedure, feel nothing, and don't remember it afterward. If you don't have general anesthesia, you will have medication that numbs the area for the procedure.
- **Incisions.** The doctor will make two small incisions (cuts) into blood vessels in your groin. The doctor will insert a **sheath** (a short plastic sleeve) into each incision. The sheath holds the artery open just enough to let guide wires or catheters (tiny tubes) through.
- **Finding the aneurysm.** The doctor will put a guide wire through one of the sheaths into the artery. X-ray images on a video screen will show the guide wire as it moves up to the aneurysm.

Talking with your doctor about an EVAR procedure

The table below lists the most common potential benefits, risks, and alternatives for EVAR to repair an abdominal aortic aneurysm. There may be other benefits or risks in your unique medical situation. Talking with your doctor is the most important part of learning about these risks and benefits. If you have questions, be sure to ask.

Potential benefits	Risks and potential complications	Alternatives
<p>EVAR:</p> <ul style="list-style-type: none">• Relieves the pressure on an abdominal aortic aneurysm, to greatly reduce the risk of it bursting• Involves smaller incisions (cuts) than traditional (open) AAA repair surgery, with a faster recovery	<p>Potential complications for EVAR include:</p> <ul style="list-style-type: none">• Infection• Problems such as blood leaking around the stent, movement of the stent, or stent fracture — these will require another procedure• Blocked blood flow through the stent• A burst artery• Injury to the kidney• Death (very rare)	<p>Alternatives to EVAR include:</p> <ul style="list-style-type: none">• Watching and waiting. This requires regular tests to make sure your aneurysm isn't too large or growing quickly• Traditional (open) surgery to replace the weakened section of aorta



How should care for myself at home?

Follow these guidelines to take care of yourself and speed your recovery at home:

- **The first 48 hours:** Watch for swelling or bleeding at the site where the catheters were inserted. The site will be bruised, but this should go away in a week or so. Avoid bending or squatting. Avoid intense activity such as climbing stairs, running, or lifting anything over 20 pounds. Take short walks (5 to 10 minutes) four or five times a day. Try to avoid constipation.
- **Care for the puncture site:** Avoid hot baths, hot tubs, or swimming pools for the first 5 days or until the wound is closed. Showers are okay after 24 hours, but don't let the spray hit the site. If the site is sealed with a special closure device, ask your doctor about the device and what you should watch for. In some cases, you might need to remove a dressing or a closure pad.
- **Driving:** Avoid driving until your doctor approves, usually for one or two weeks. Don't drive while you're taking pain medication.
- **Returning to work:** When you go back to work depends on how physical your job is. Many people can go back to work within two weeks. Ask your doctor.
- **Exercise:** Take short walks, but avoid any kind of heavy exercise for two weeks.
- **Preventing future problems:** See page 4 for how to lower your risk of more aneurysm problems.

Follow-up tests

After an EVAR, you need regular follow-up appointments to make sure the stent graft is still in the right place. You will probably have an x-ray or CT scan at these times:

- One month after the procedure
- Six months after the procedure
- A year after the procedure
- Every year after that, for the rest of your life

If you can't have these regular tests, it is better to have surgery to repair your AAA.

- **Inserting the stent graft.** The doctor will insert a catheter through each sheath and into the artery. One catheter will be fitted with a compressed stent graft. The doctor will thread the catheter up the artery to the aorta, using the guide wire to guide its path. The other catheter will help fit the graft into the aneurysm.
- **Removing the catheters.** The doctor will take out the catheters, leaving the stent graft in place. The graft will expand to seal against the artery wall on either side of the aneurysm. Blood will flow through the graft, avoiding the aneurysm.
- **Closing the incisions.** Each incision will be closed with a stitch or closure device.

What happens after the procedure?

You will probably spend a day or two in the hospital. The healthcare team will monitor you and run tests to make sure the stent graft is stable. When you are ready to go home, have someone drive you.

When should I get medical help?

Make an appointment with your doctor if you have any of these symptoms:

- Unexplained fever over 101.5° F
- Coldness or numbness in the arm or leg where the catheter was inserted
- Bleeding or severe pain at the catheter site
- Bruising, redness, swelling, or pain that gets worse

Call your doctor right away if you have any of these symptoms:

- Chest pain
- A swelling in your abdomen that “pulses”
- A sudden, severe weakness, coldness or numbness in one leg or foot, or discoloration in a foot or toe

Call 911 right away if you have any signs that an aortic aneurysm has burst:

- Sudden, intense pain in your abdomen or back
- A rapid drop in blood pressure
- Signs of shock — such as cold and clammy skin, rapid breathing, anxiety, pale skin color, or unconsciousness

Risk factors for aortic aneurysm

Even though your AAA has been treated, you need to take action to help prevent another aneurysm from developing. The first step is understanding the factors that increase your risk for an aortic aneurysm.

Risk factors you CANNOT change include:

- **Age.** People over 60 have a higher risk.
- **Sex and race.** Aortic aneurysms are more common in men and among Caucasian (white) people.
- **Family history.** Your risk for an aortic aneurysm is higher if someone else in your family has had one.

Risk factors you CAN change include:

- **Using tobacco.** Smoking or chewing tobacco is closely connected with aortic aneurysms.
- **High blood pressure.** The higher your blood pressure, the more stress it places on your arteries. This pressure can lead to an aneurysm.
- **High cholesterol.** Cholesterol is a soft, waxy substance in your blood that carries fat. If it's too high, it can damage the lining of your arteries. To learn more, see Intermountain's fact sheet *Understanding Cholesterol*.

How can I lower my risk?

You can help lower your risk of another aneurysm by taking these important actions:

- **If you use tobacco, stop now.** Smoking or chewing tobacco is one of the strongest factors in developing an aneurysm. Quitting is the single biggest difference you can make in your health. Intermountain's booklet *Quitting Tobacco: Your Journey to Freedom* has information and encouragement. Also, call 1-888-567-TRUTH for the Utah Tobacco Quit Line, or go to www.utah.quitnet.com for advice and help.
- **Control your blood pressure** to protect your arteries from further damage. Medication, exercise, and weight loss can help.
- **Control your cholesterol.** Keep your total cholesterol under 200 and your LDL (“bad”) cholesterol under 100. This can be done with medications and a low-fat, low-cholesterol diet.
- **Follow a heart-healthy eating plan, which can keep your arteries healthy too.** Eat a diet low in saturated fats, cholesterol, and salt — and high in fresh fruits, fiber, and vegetables. For guidelines, see Intermountain's *Weigh to Health* brochure or the American Heart Association website at www.americanheart.org.