

# EVAR (Endovascular Aneurysm Repair)

## What is an EVAR?

**EVAR** is a procedure to repair an abdominal aortic aneurysm. An **aneurysm** is a weakened section of an artery. An **artery** is a blood vessel that carries oxygen-rich blood from your heart to the rest of your body. 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?

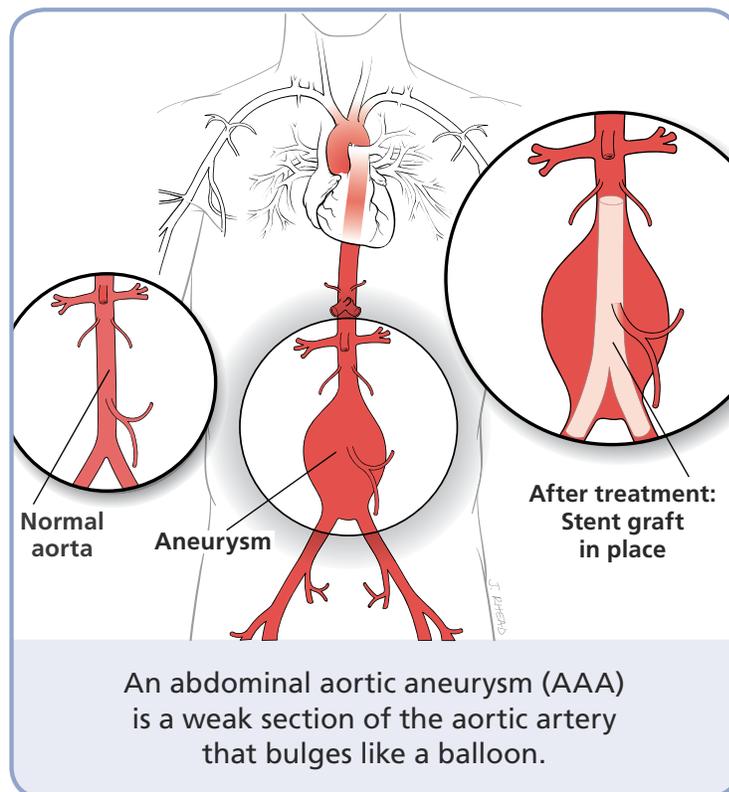
An AAA doesn't always cause any symptoms. In some cases, though, it can cause a pulsing sensation in the abdomen or pain in the abdomen, chest, or back.

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**, and 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 medicines to lower your blood pressure and control your cholesterol. You should also make changes to reduce your risk (see page 4).
- If your **AAA is large (over 2 inches across) or growing rapidly**, it should be repaired. There are 2 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, 2 **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 catheterization lab, angioplasty 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. **Most aneurysm patients can have an EVAR.** It depends on 2 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 medicines you take.** This includes vitamins, over-the-counter remedies, and herbal supplements.
- **Tell your doctor about any allergies** you have.
- **Follow your doctor’s orders about your medicines.** You may need to stop some medicines for a certain amount of time before the procedure.
- **Arrange for a ride** to and from the hospital. Ask your doctor if you need to have someone stay with you after you get home from your procedure.
- **Tell your doctor if you have a cold, flu, or fever** the day of the procedure.

- **Don’t eat or drink after midnight the night before your procedure,** if directed by your doctor. If your doctor allows it, have a liquid breakfast the morning of the procedure.

## What happens before the procedure?

- 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 medicine. Blood may be taken for lab tests.

## What happens during the procedure?

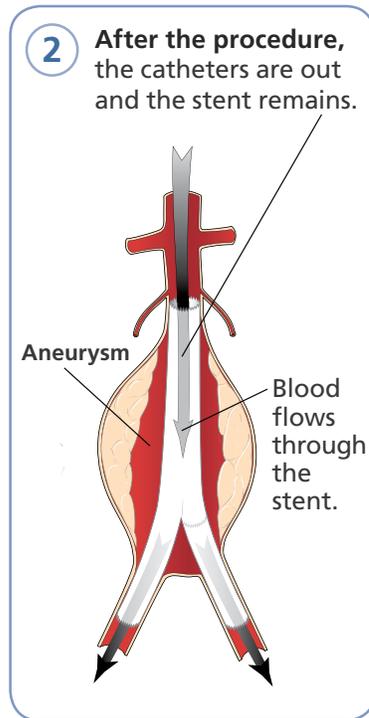
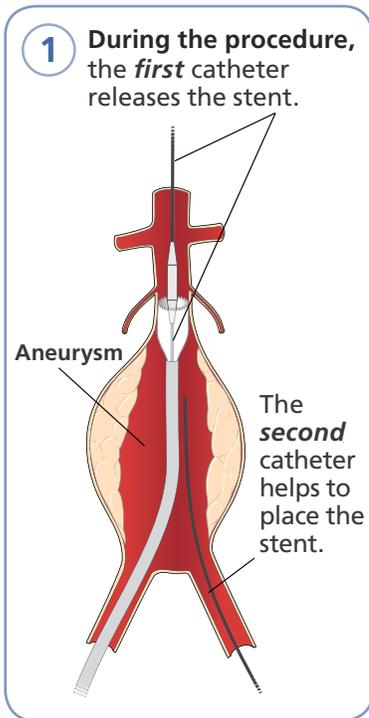
An EVAR procedure usually takes 2 to 3 hours. Here’s what happens:

- **You will likely have general anesthesia.** This is medicine to make you sleep through the procedure. You won’t feel anything, and won’t remember it afterward. If you don’t have general anesthesia, you will have medicine that numbs the area for the procedure.
- **The doctor will make 2 small incisions (cuts) into blood vessels in your groin.** A sheath (a short plastic sleeve) is placed in each incision. The sheath holds the artery open just enough to let guide wires or catheters (tiny tubes) through.

### *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. If you have questions, be sure to ask.

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



## How should care for myself 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.
- **Exercise:** Avoid bending or squatting or intense activity such as climbing stairs, running, or lifting anything over 20 pounds for the first 48 hours. Take short walks (5 to 10 minutes) 4 or 5 times a day, but avoid any kind of heavy exercise for 2 weeks. 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 1 or 2 weeks. Don't drive while you're taking pain medicine.
- **Returning to work:** When you go back to work depends on how physical your job is. Many people can go back to work within 2 weeks.

## Follow-up tests

After an EVAR, you will need to go to 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:

- 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.

- **The doctor will put a guide wire through 1 of the sheaths and into the artery.** X-ray images on a video screen will show the guide wire as it moves up to the aneurysm.
- **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.
- **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.
- **The incisions will be closed** with a stitch or closure device.

## What happens after the procedure?

You will probably spend a day or 2 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 1 leg or foot
- 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 you have too much cholesterol in your blood, it can damage the lining of your arteries.

## How can I lower my risk?

- **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.
- **Control your blood pressure** to protect your arteries from further damage. Medicine, 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 medicines 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.

## Where can I find more information?

Ask your doctor or nurse for a copy of these Intermountain education items:

- *Quitting Tobacco: Your Journey to Freedom*
- *Understanding Cholesterol*, a fact sheet for patients and families
- *Nutrition for a Healthy Heart* booklet

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