

Left Ventricular Assist Device - LVAD

Introduction

A left ventricular assist device, or LVAD, is a device that can help your heart pump blood. Your health care provider may recommend an LVAD if you have a heart condition that affects your heart's ability to pump blood. Having an LVAD can increase your quality of life. Surgery to place the device is safe, but it does carry risks. By being informed, you may be able to help your health care provider detect complications early.

This reference summary will help you understand what an LVAD is, along with its benefits and risks.



Anatomy

The heart pumps blood to all of the organs in the body. The heart is a muscle that works constantly throughout a person's life. The heart has a right and a left side. Each side has 2 chambers: the atrium and the ventricle. The ventricles are the main pumping chambers of the heart. Blood moves from the heart to the rest of the body through the aorta. The aorta is the largest blood vessel in the body.

Certain conditions can make it harder for your heart to pump blood. Fluids start to build up in the lungs and other parts of the body when the heart can't pump well. As the heart pumps less blood, the body receives less oxygen. This causes a person to feel weak and tired. A person with a weak heart may feel tired after simple activities, such as eating or walking.



A ventricular assist device, or VAD, is a device that can help your heart pump blood. A left ventricular assist device, or LVAD, is the most common type of VAD. It helps the left ventricle of your heart pump blood to the aorta.

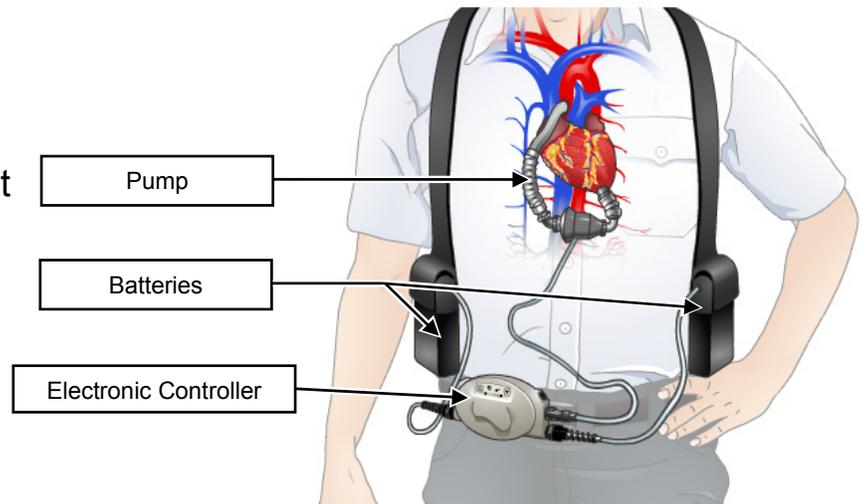
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Left Ventricular Assist Device

The left ventricular assist device is made up of 3 parts:

- A pump.
- An electronic controller.
- Batteries.

The LVAD pump is placed on the inside or outside of your abdomen. It weighs 1 to 2 pounds (.45 to .9 kg). The electronic controller is a computer that controls the pump. The batteries will be outside of your body. They connect to the pump with a cable. The cable goes into your abdomen.

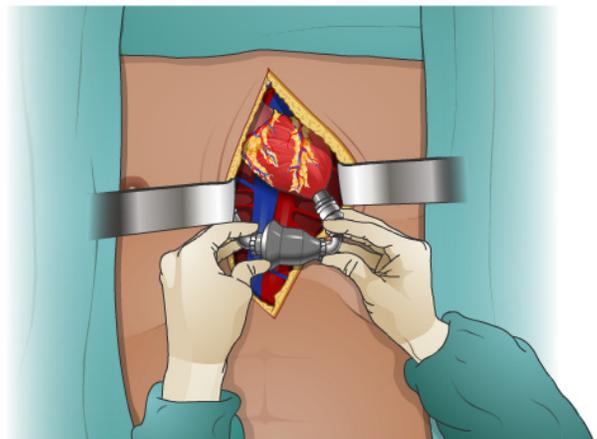


The LVAD takes blood from the ventricle in your heart through a tube that leads to the pump. The blood will be pumped by the device out to one of the arteries and throughout your body. Your health care provider may recommend an LVAD if you have severe heart failure that does not get better with other treatments.

Your health care provider may recommend an LVAD if you are on a heart-lung support machine or if you are waiting for a heart transplant. The device may also be used to help your heart recover after heart surgery.

During the Procedure

You will be under general anesthesia when the left ventricular assist device is placed. You will not be awake during the procedure. Placing an LVAD takes 4 to 6 hours. Your surgeon will make an incision to open the middle of your chest. Your surgeon will then spread your breastbone open so that they can access your heart.



The surgeon will then create a space for the LVAD pump. The pump will be placed in the upper part of your abdominal wall under the skin and tissue.

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The pump will be connected to your heart with a tube. Another tube will connect the pump to your aorta or another main artery. A tube will connect the LVAD pump to the controller and batteries. The tube will pass through the skin.

Risks and Complications

Surgery to place a left ventricular assist device is safe. But there are possible risks and complications. These are not likely. But they are possible. You need to know about them just in case they happen. By being informed, you may be able to help your health care provider detect complications early.

All surgeries carry the risk of infection or a reaction to anesthesia. Most healthy people do not have any problems with anesthesia. Some people have mild and temporary symptoms. But anesthesia is safe.

Risks of anesthesia include:

- Cut lips and chipped teeth.
- Headache.
- Nausea or vomiting.
- Problems urinating.
- Sore throat.

Other serious risks of general anesthesia include:

- Heart attacks.
- Lung infections.
- Strokes.



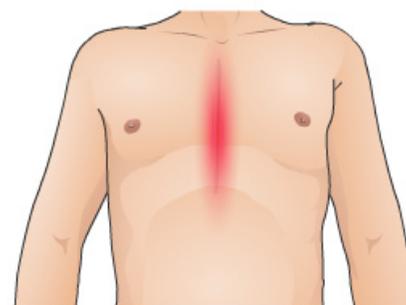
Your anesthesiologist will discuss these risks with you and ask you if you are allergic to certain medications. Blood clots in the legs can happen due to inactivity during and after the surgery. These usually show up a few days after surgery. They cause the leg to swell and hurt. Blood clots can become dislodged from the leg and go to the lungs. There, they will 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. Blood clots may also happen in the LVAD device. This is rare.

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Other risks are seen in any type of surgery. These include:

- Infection. Infection may be at the skin level or deeper in the tissue. Treating deep infections may require long-term antibiotics and surgery.
- Bleeding, either during or after the operation.
- A skin scar.



Other risks and complications are related specifically to open heart and LVAD surgery. Abnormal heart beats, called arrhythmias, may happen after surgery. These can usually be controlled by medications and are usually temporary. Rarely, arrhythmias can be permanent. You may need to take medications for life. A pacemaker may be needed in some cases.

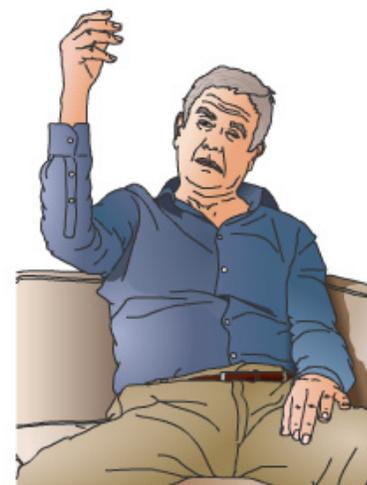
An LVAD may stop working during, shortly after or a while after the operation. You may need surgery right away to replace the device.

Other risks and complications of LVAD surgery include:

- Damage to the coronary blood vessels.
- Neurological problems, such as strokes.
- Paralysis that affects part of the diaphragm, which is the muscle that helps with breathing.

Additional possible risks and complications related to LVAD surgery include:

- Kidney and liver failure.
- Right heart failure.
- Depression or anxiety.
- Death.



After the Procedure

After the surgery, you may spend up to 5 days in the health care facility's intensive care unit, or ICU. You will be connected to a respirator. A respirator is a machine that breathes for you until you can do it on your own. After the surgery, you will gradually awaken as the effects of anesthesia wear off. You will eventually be taken off the respirator.

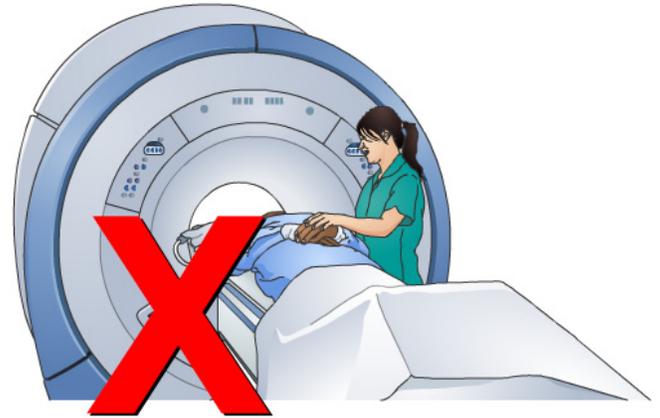
You will probably have some pain or discomfort following surgery. Tell your health care provider if you are having pain so they can give you pain medication.

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You may stay in the health care facility for 2 to 8 weeks after the pump is placed. Your health care team will monitor your recovery. Deep breathing exercises and coughing can help you recover. Coughing can reduce the chances of pneumonia and fever. Your health care team will show you how to use and care for the pump before you leave the health care facility.

Living with an LVAD

Follow your health care provider's directions for caring for the exit site. Change the exit site dressing once daily or any time the dressing becomes dirty or wet. Keep the exit site clean and dry. Do not allow health care providers to give you a magnetic resonance imaging scan, or MRI. MRI scans use magnets that could cause the pump to stop.



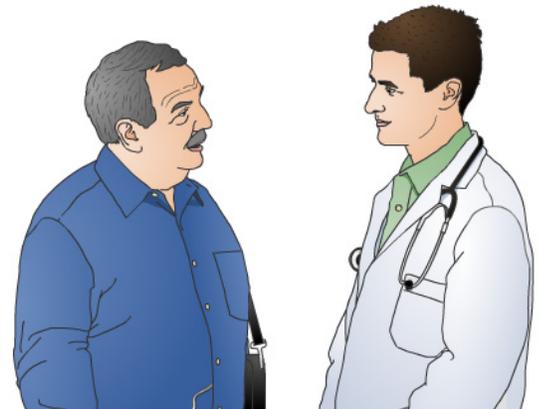
Do not go swimming or take a bath with an LVAD. The water can get inside the pump and cause it to stop. You may be allowed to shower once the LVAD exit site has healed.

Prevent the parts of the LVAD system that are outside of your body from getting wet when you take a shower.

Ask your health care provider if you can touch electronic equipment, such as TVs and computer monitors. These devices have strong static electricity. This can damage the electrical parts of the pump, causing it to stop.

The following are good habits for living healthy with your LVAD:

- Create an exercise plan with your health care provider.
- Eat healthy and drink plenty of fluids.
- Lose any extra weight.



Tell your dentist and other health care providers that you have a LVAD. Ask your health care provider if you have to take antibiotics before and after any dental work or invasive procedure to prevent possible infections. You should ask your health care providers any questions you have about how to take care of your VAD.

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