

Open-Heart Surgery

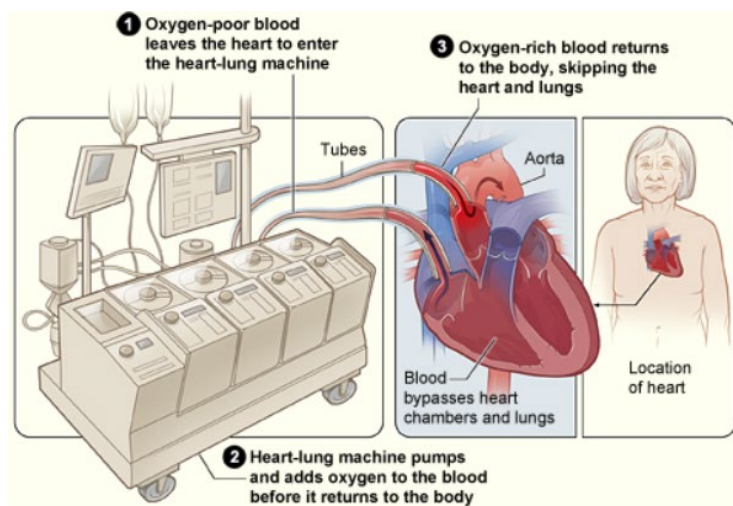
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Introduction. What is open-heart surgery? Sometimes, people argue about this subject. After you read below, you will understand the purpose of open-heart surgery, how it works, whether it is [dangerous](#), and why we call it open-heart surgery.

The Purpose of Open-Heart Surgery is to allow the heart to rest while a doctor operates on it. The heart and lungs work together to provide *oxygenated* blood. Blood becomes *oxygenated* when you breathe in. The body uses that oxygen as fuel, turning it into carbon dioxide. You breathe this carbon dioxide out. Sometimes, surgical procedures require doctors to stop the heart. When this happens, machines oxygenate and pump blood for the person. Any operation that stops or keeps the heart from pumping oxygenated blood requires open-heart surgery.

How Open-Heart Surgery Works. Open-heart surgery uses a *heart-lung machine*. This machine oxygenates and pumps blood, and it removes carbon dioxide.

Figure 1 shows a heart-lung machine. This machine allows for *cardiopulmonary bypass*. *Cardio* means related to the heart—*pulmonary* means related to the lungs. So, a cardiopulmonary bypass bypasses the heart and lungs using a machine. As **Figure 1** shows, tubes connected to the body drain blood into the machine and pump oxygenated blood back into the body. The figure shows a drain tube connected to the heart, but your surgeon may attach the drain tube to a different location. Your surgeon decides where the tubes will connect, depending on what part of the heart needs surgery. The tube that provides oxygenated blood will most often connect to an artery called the *aorta*. The *aorta* is a large artery that connects directly to the heart. The doctor will install *surgical clamps* after connecting the tubes. These *surgical clamps* squeeze shut the veins and arteries connected to the heart and lungs, isolating them from the rest of the body. Then, the surgeon can stop the heart and perform the needed repairs.



Heart-lung bypass machine. The image shows how a heart-lung bypass machine works during surgery. You'll be given medicine to stop your heartbeat once you're connected to the heart-lung bypass machine. A tube will be placed in your heart to drain blood to the machine. The machine will remove carbon dioxide from your blood, add oxygen to your blood, and then pump the blood back into your body. Your surgeon will insert tubes into your chest to drain fluid.

Figure 1 obtained from:
[The National Heart, Lung, and Blood Institute](#)

Is Open-Heart Surgery Dangerous? All surgeries have risks. However, improvements in technology have led to a much greater number of successful open-heart procedures. A heart-lung machine cannot work forever, but today's surgeons are much less concerned about running out of time. Patients often ask about the blood supply for the heart and lungs during open-heart surgery. Because the heart and lungs do not need to do their normal work, they require less oxygen, and the reduced blood flow to the heart and lungs is not a problem.

Why Is It Called Open-Heart Surgery? The phrase *open-heart surgery* is over twenty years old. Heart surgeons probably used the term for surgeries where they opened the heart's chambers for repair. Today, the phrase describes surgeries that require a doctor to stop the heart and lungs from performing their normal functions, regardless of whether the doctor must open the heart. It describes any surgery that uses a machine to take over the jobs of the heart and lungs.

Conclusion. The term open-heart surgery is vague when used to describe the many kinds of heart surgery that require a heart-lung machine. Open-heart surgery is no longer a literal term. Now, it describes any heart surgery that requires a [cardiopulmonary bypass](#). Therefore, if your surgical procedure used a heart-lung machine to complete a cardiopulmonary bypass, rest assured you have undergone or will undergo open-heart surgery.