

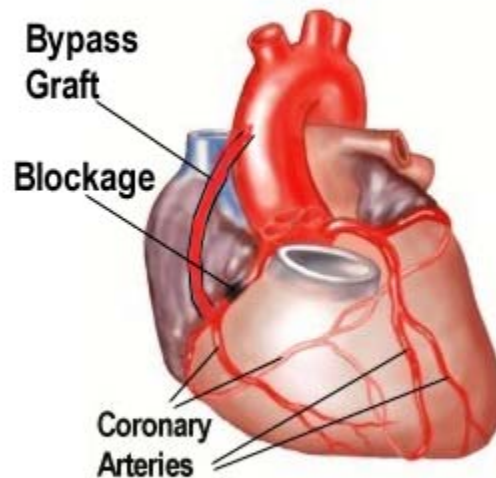
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**MINIMALLY INVASIVE HEART SURGERY**

**What is traditional coronary artery bypass surgery?**

Heart bypass surgery (also known as coronary artery bypass graft, or CABG) is performed when the blood vessels that supply blood to the heart muscle become blocked. It is performed by using a vessel harvested from other areas of your body to replace the blocked segment of your heart's blood vessels. The harvested vessel is usually taken from either the internal mammary artery in your chest or the saphenous veins from your leg. The harvested vessels are connected before and after the blockage.

This bypass allows adequate flow of blood to the tissues of the heart. In order to gain access to your heart, the sternum (breastbone) is broken and opened. The heart itself is not opened. A heart-lung machine is used during the procedure to re-route the blood from the heart.



**What is minimally invasive heart surgery?**

Minimally invasive heart surgery is a new technique that is being evaluated as alternative to traditional coronary artery bypass graft surgery (CABG) for clogged coronary arteries. Minimally invasive surgery involves the use of special tools to perform a coronary artery bypass procedure without breaking the breastbone, and in certain circumstances,

without the use of a heart-lung machine. Benefits to the procedure include less pain and a shorter hospital stay.

There are two major types of minimally invasive heart surgery:

- Port-access coronary artery bypass (also referred to as PACAB or PortCAB)
- Minimally invasive coronary artery bypass (also called MIDCAB)

PACAB is similar to traditional bypass surgery, in that your heart is stopped and a heart-lung machine is used to supply oxygenated blood to your body during the procedure. However, your breastbone is not cracked. Instead, small ports are made in your chest, and special tools are used to access the affected areas. Harvested blood vessels are attached to the heart to "bypass" the clogged coronary arteries. The surgical team passes instruments through the ports to perform the bypasses, with or without another small chest incision. The procedure is done using small video cameras and monitors, instead of under direct vision.

The MIDCAB procedure does not use the heart-lung machine. It is performed while your heart is still beating and is intended for use when only one or two arteries are to be bypassed. MIDCAB detaches an artery from inside your chest wall and reattaches it to the clogged artery (after the blockage). Candidates for this procedure include patients with a blockage of the left anterior descending artery (about 10 percent of patients).

### **Summary**

Both of these procedures are new procedures, with a much shorter history of performance than traditional heart bypass surgery. Many medical centers do not yet perform these minimally invasive procedures.

Minimally invasive heart bypass shows great promise, but in some circumstances, the results are not as good as traditional heart bypass surgery yet. More data on the effectiveness of these procedures is required before any endorsement is possible.