

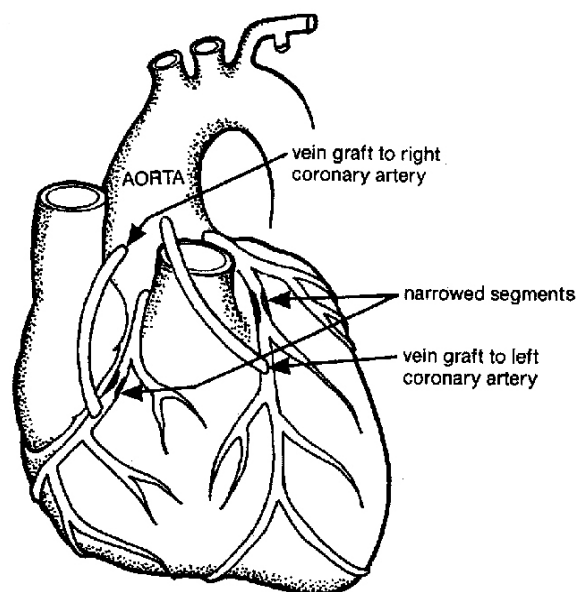
Modern medication can reduce progress of plaques and even reverse them.

Surgical and catheter treatments for coronary heart disease: revascularisation

These days, many people undergo interventions to revascularise their heart. What are the interventions? What is revascularisation? How is the heart revascularised?

Let us go back a few steps. As we pass into middle age, changes occur in the arteries which carry the blood to all parts of the body. The blood is pumped from the left ventricle of the heart (the main pumping chamber) into the aorta (the main receiving channel) and is then reticulated to all organs by a high pressure irrigation system. The pulsating arteries are the conduits for this blood. The heart muscle requires its own arterial blood supply from the aorta. This blood comes through the coronary arteries. These arteries are the first branches from the aorta. They lie on the surface of the heart, forming a crown around the heart. Latin for crown is 'corona' so they are called coronary arteries. Branches from these arteries carry the blood into the heart muscle.

The condition of coronary artery disease consists of deposition of cholesterol in the coronary arteries. These deposits form plaques which can interfere with the blood flow along the coronary arteries. They can develop significant narrowings or blockages in those arteries. This may cause symptoms of chest pain on exertion (angina) or lead to heart attacks. Medication can reduce symptoms and help recovery after heart attacks.



Coronary artery bypass graft surgery (CABGS) is a long-established method to supply blood from the aorta to beyond the narrowings or blockages - a bypass operation. The procedure is highly effective but it is major surgery and hence, unpleasant and somewhat painful for a time. The procedure usually requires five or six days in hospital. The grafts consist of one's own veins (harvested from the leg) or arteries (harvested from the forearm) or internal mammary arteries. The internal mammary arteries normally run down behind the ribs on each side of the front of the chest. They give off branches which contribute blood flow to the muscles on the chest wall and between the ribs. The surgeon therefore has available three major sites as the source of the graft. The heart muscle is thereby revascularised. While CABGS has been developed and improved over about 40 years, other methods such as angioplasty and stent insertion have been investigated and demonstrated to be effective.

The definition of coronary artery narrowing is through coronary artery angiography. Radio-opaque dye is injected into the coronary arteries.

With percutaneous coronary intervention (PCI), a long narrow balloon is inserted into the area of the coronary artery narrowing. Inflation of the balloon opens the artery and good blood flow is obtained down the artery. This is balloon angioplasty. In some people, when the balloon is removed, the narrowing recurs. To prevent narrowing, a stent is usually inserted. The stent is an open metal mesh which is expanded to hold the artery open. Thus, the heart muscle is revascularised. The decision as to whether an individual is best suited to CABGS or PCI depends upon several factors related to each individual.

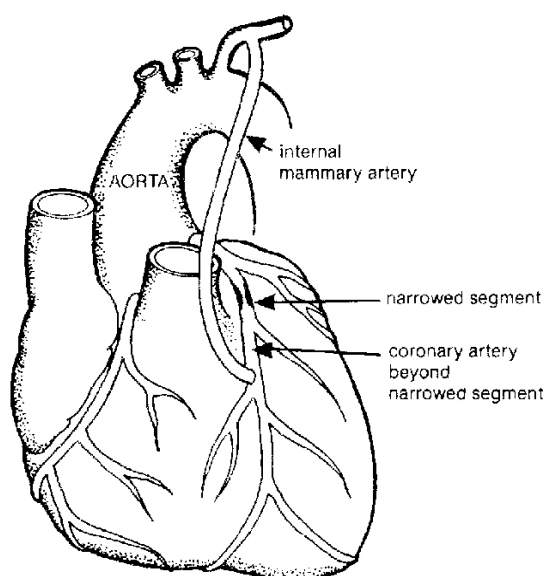
There are about 20,000 CABG operations and 25,000 PCI procedures performed each year in Australia. Doctors are now becoming accustomed to their patients living long, enjoyable lives, whereas in the past, the future appeared to be uncertain.

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After the revascularisation, the patient continues to take medication to reverse or prevent progress of the condition. This is even more effective if a healthy lifestyle is followed by controlling weight, reducing fat intake, taking part in regular physical activity, not smoking and leading a normal social life. Patients are usually able to resume full activity very quickly, including work which may be regarded as physically or psychologically stressful. The resumption of work to which one is accustomed prolongs rather than shortens one's life expectancy. A long, usually symptom-free future should be anticipated.