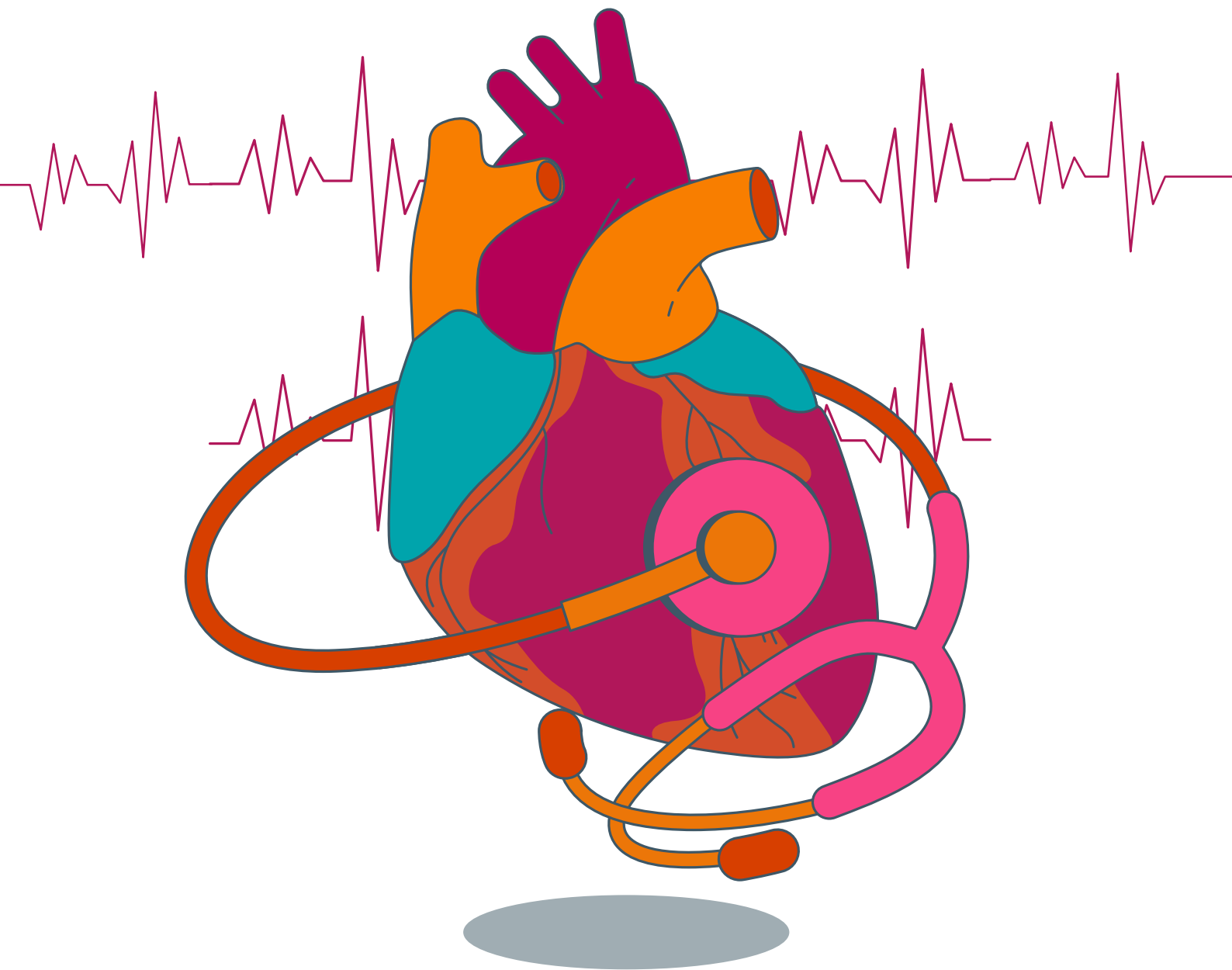




Cardiac surgery

Patient information booklet

Please bring a hard copy of this booklet into hospital with you or bookmark it in your phone or tablet - it will be referred to during your admission.



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Welcome

Welcome to Sir Charles Gairdner Hospital. This booklet has been designed to help patients undergoing heart surgery, and their families, better understand what will happen during their hospital stay. It will also help prepare you for your return home. You will be cared for by an excellent team who specialise in the care of patients undergoing heart surgery. They will assist you in your recovery and provide individualised information.

The Social Work Department can provide advice with financial matters, as well as family and home difficulties. Please inform your nurse should you have any questions.



Admission to hospital

As per your admission letter, you will either be admitted on the day of surgery or the night before. If you are being admitted on the day of surgery, a nurse from the Short Stay Unit (SSU) will phone you on the afternoon of the working day prior to your admission to advise you what time to report to the admissions desk in G Block reception. If you are being admitted the night before, please phone Ward G62 via the Switchboard on 6457 3333, at 11am on the day of your admission to confirm bed availability. You will then be informed what time you need to report to the admissions desk in G Block reception. From there you will be directed to Ward G62.

What do I need to bring?

- ✓ Toiletries in a small bag
- ✓ Any medications you are taking
- ✓ Glasses with protective cover, hearing aids, dentures
- ✓ A hard copy of this booklet or bookmark it in your phone/tablet

Please only bring the listed items as the Intensive Care Unit (ICU) has limited room and is unable accommodate any other belongings. Please leave all jewellery (including wedding band) with your family and avoid bringing valuables into hospital.

When can family members visit?

We welcome visitors; however, there is a strict rest period with no visiting between 1pm and 3pm every day. You will be asked to provide the staff with a contact number for **one** person, a family member or friend that you wish your surgeon to contact after your operation. While you are in hospital, information provided over the phone is limited to your next of kin only. After your surgery you will be transferred to the ICU, then to the High Dependency Unit (HDU) on G62. In ICU and HDU, only two visitors are allowed at a time. It is a good policy for visitors to check with the nursing staff before coming into the hospital to ensure that you are up to receiving visitors.

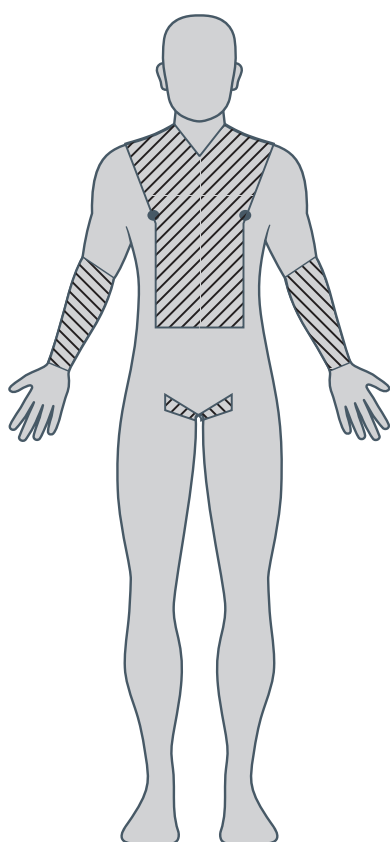
Before surgery

Diet requirements:

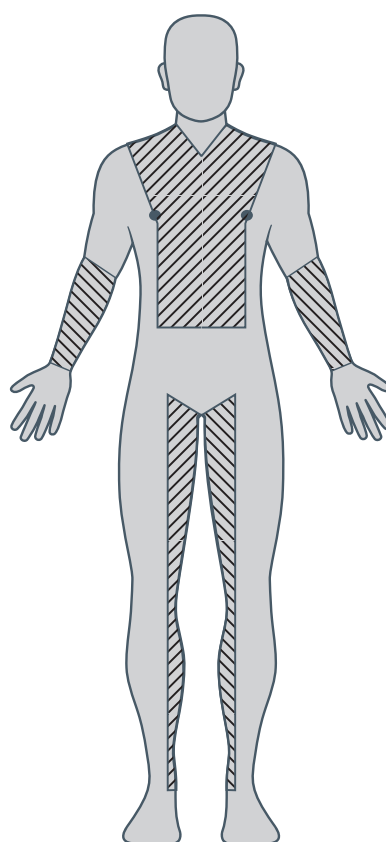
It is very important that the week prior to your surgery you eat a healthy diet of fruit and vegetables. This will help reduce the risk of you becoming constipated after the operation.

Pre-surgery requirements:

Hair removal for valve



Hair removal for CABG



Shave: Hair on your chest, leg and arms will be clipped to assist the surgeon during the operation and reduce the risk of infection. This will happen the night prior or will be completed by the SSU nurses on admission.



Shower: You will be asked to shower with an antiseptic soap once a day for five days leading up to your surgery date. This is to help reduce the risk of infection. If admitted via the Short Stay Unit, you will be given the soap and instructions at your pre-admission clinic appointment. If you are given late notice of your surgery date, the five antiseptic washes may not always be possible.



Nose cream: You will be asked to apply a small amount of anti-bacterial ointment to the inside of each nostril twice a day for five days leading up to your surgery date. This is to help reduce the risk of infection post-operatively. If you are given late notice of your surgery date and you don't get to complete the five-day treatment, we will continue the remaining days of treatment while you are in hospital. If admitted via the Short Stay Unit (SSU), you will be given the nasal ointment with instructions at your pre-admission clinic appointment.



Bloods/x-ray: These are taken for screening and comparison after the operation. The majority of time these will be completed in the pre-admission clinic. You will also have your blood group cross-matched in case you need a transfusion later on.



Fasting: You will be asked to fast from food from midnight before the surgery. However, this time may vary depending on the time of your operation. If you are coming through the SSU, a nurse will call you with instructions for fasting. While fasting, you may sip up to 200ml (one glass) per hour of clear fluids until you are taken for surgery. These fluids can include water, black tea/coffee (without milk), clear apple juice, diluted cordial, lemonade or ice.



Medication: You will be given all your regular medication by the nurses unless otherwise indicated by your doctor. If you're coming through SSU, your surgeon or a member of the surgical team will inform you of what medication you can take before surgery.



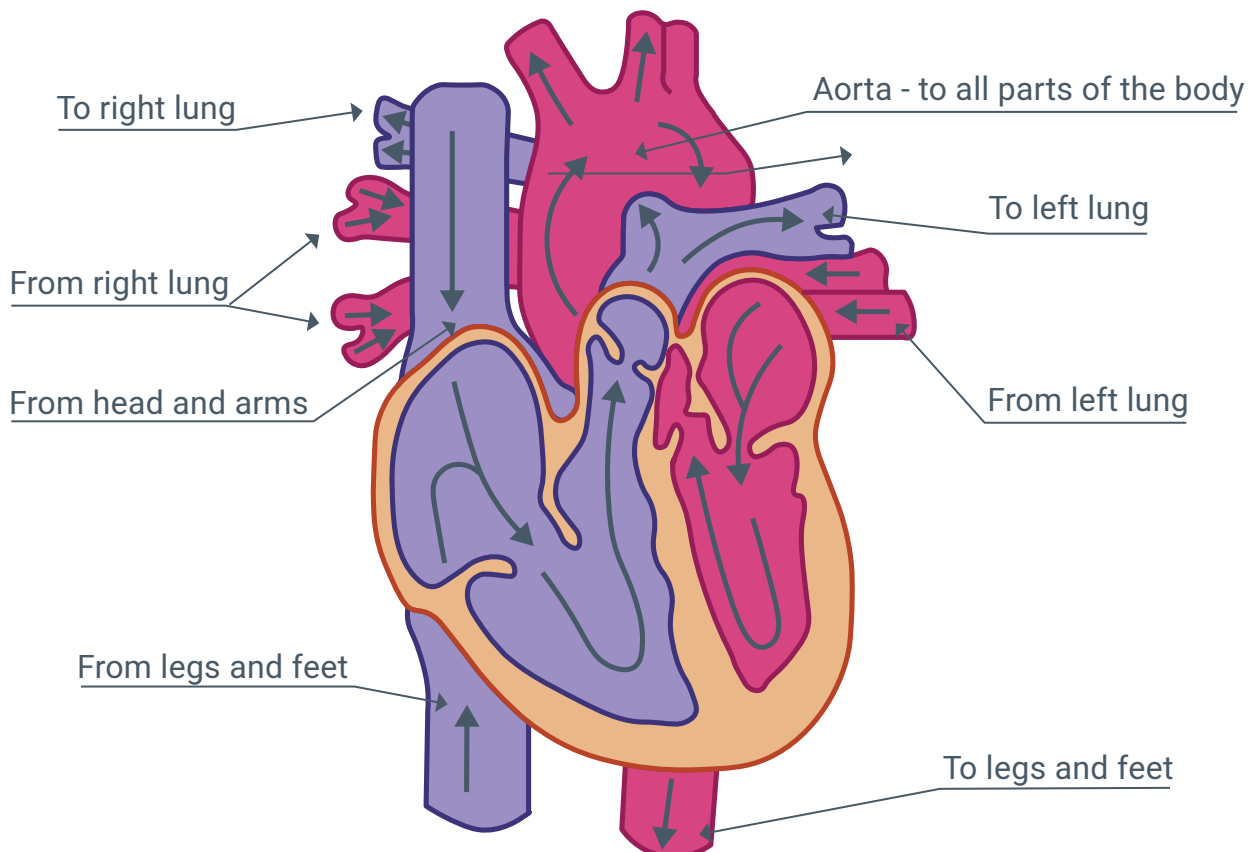
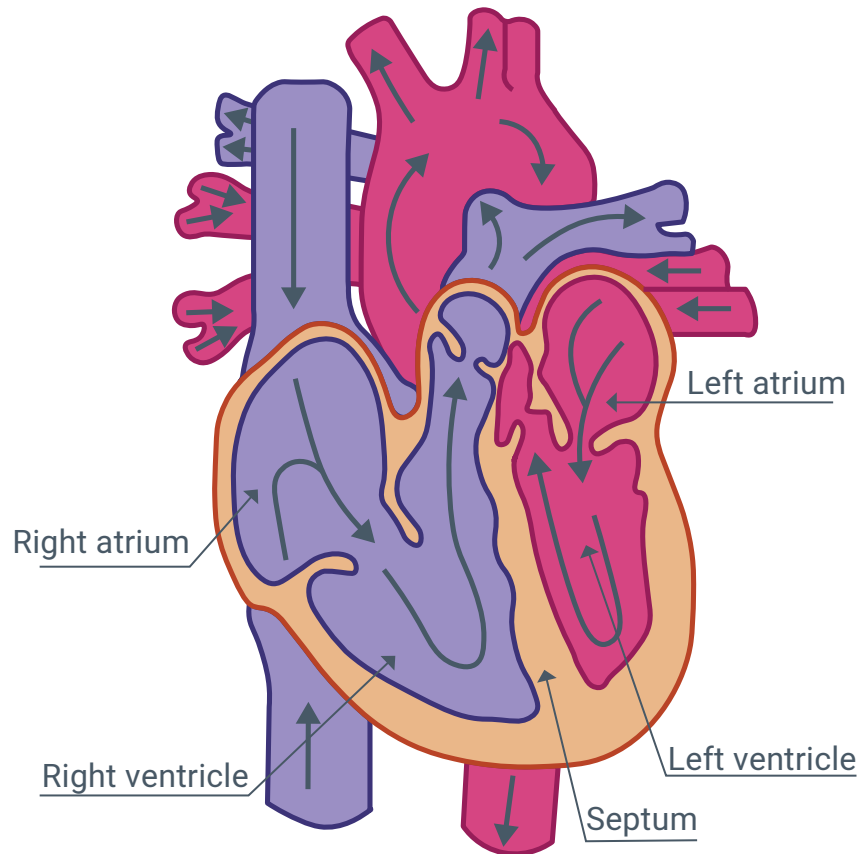
Tests: You may be required to do a sputum or urine sample in preparation for your surgery. Other tests may include a lung function test or an ultrasound of your neck arteries.

About your heart

The heart is the size of a large fist and lies between the lungs, slightly to the left of centre, and is protected by the breastbone. It is a large muscular organ that pumps blood rich in oxygen and nutrients to the body.

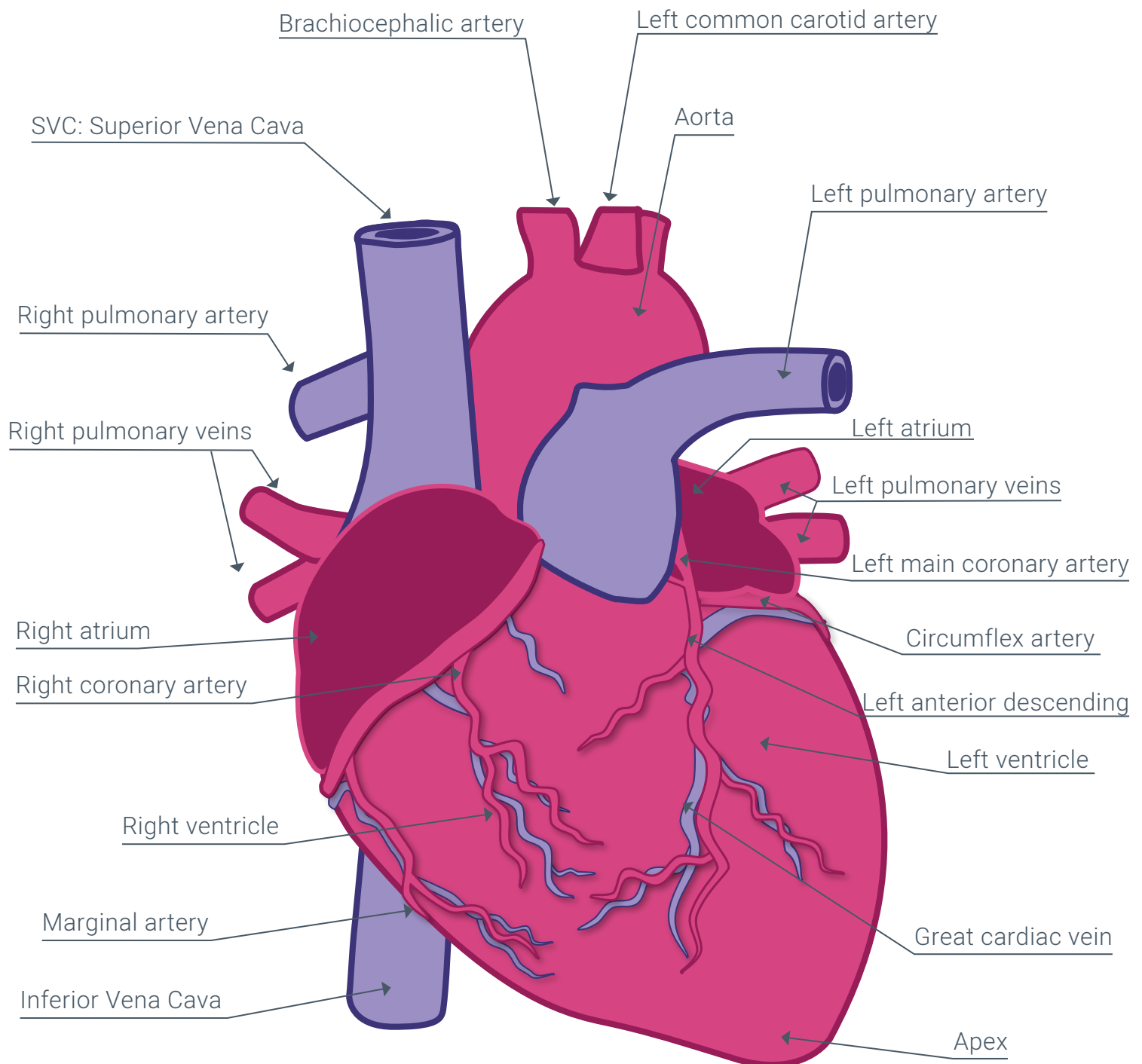
The heart is made up of four chambers. The two sides of the heart are separated by a thin wall called the septum. The two upper chambers are known as the left and right atrium and the two lower chambers are known as the left and right ventricles. The atria receive blood into the heart and the ventricles pump blood out of the heart.

Blood from the body fills the right side of the heart, which is then pumped to the lungs to receive oxygen. This blood, rich in oxygen and nutrients, is then pushed to the left side of the heart. The heart then pushes this blood out of the heart into the aorta, supplying the body with the oxygenated blood.



For bypass surgery only

The coronary arteries supply the heart muscle with blood and therefore oxygen. These arteries fill with blood during the resting period of the cardiac cycle. The coronary arteries are split into two, the right coronary artery and the left coronary artery. Each major artery then splits off into smaller sub-branches.

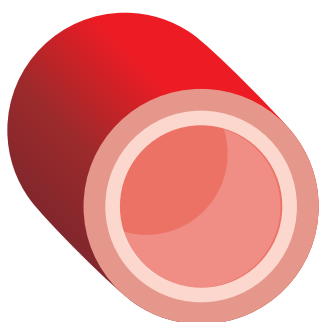


What is coronary artery disease?

Coronary artery disease (CAD) is one of the most prevalent types of cardiovascular disease. The main feature of CAD is the narrowing and hardening of the arteries as they become lined with plaque, known as atherosclerosis.

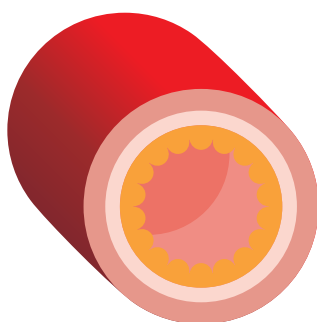
The plaque accumulates until the artery is very narrow and it becomes difficult for blood to get past. This means that the muscle beyond the narrowing is not getting the amount of blood and oxygen it needs.

The lack of oxygen to the heart muscle leads to chest pain, commonly known as angina. A heart attack results when the blood flow is completely blocked by plaque or a blood clot lodges in the narrowed artery.



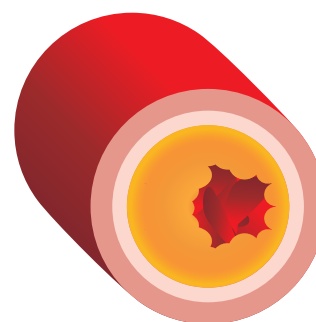
Normal

The normal coronary artery the inside surface is smooth



Moderate

Plaque has developed inside this coronary artery.



Blocked

This coronary artery is totally blocked with plaque and a blood clot

What is coronary artery bypass surgery?

Coronary artery bypass graft (CABG) surgery is performed to bypass blockages and severe narrowing of the coronary arteries. Surgery is usually necessary when there are blockages in many arteries or in the major arteries that are too extensive or too dangerous to be treated with a minimally invasive balloon and stenting procedure. To bypass the blockage or narrowing, a vessel is taken from your chest and/or leg, and sometimes your arm to form a 'graft'. One end of the graft is attached to the aorta; the largest artery in your body, and the other end is attached to the coronary artery, past the area of the blockage. This means that the blood rich with oxygen is supplied to the heart muscle beyond the blockage.

The donor grafts

The majority of donor veins are taken from the leg; the vessel used is known as the saphenous vein. The wound will usually extend from ankle to knee but can go to mid-thigh or to the groin. The surgeon may need to use just one leg, or both. This will depend on the quality of the vein and the number of bypasses you need.

The internal mammary arteries run down the inside of the chest wall, either side of the sternum. One end of the artery is left attached to the branch of the aorta and the other is sewn to the coronary artery beyond the blockage.

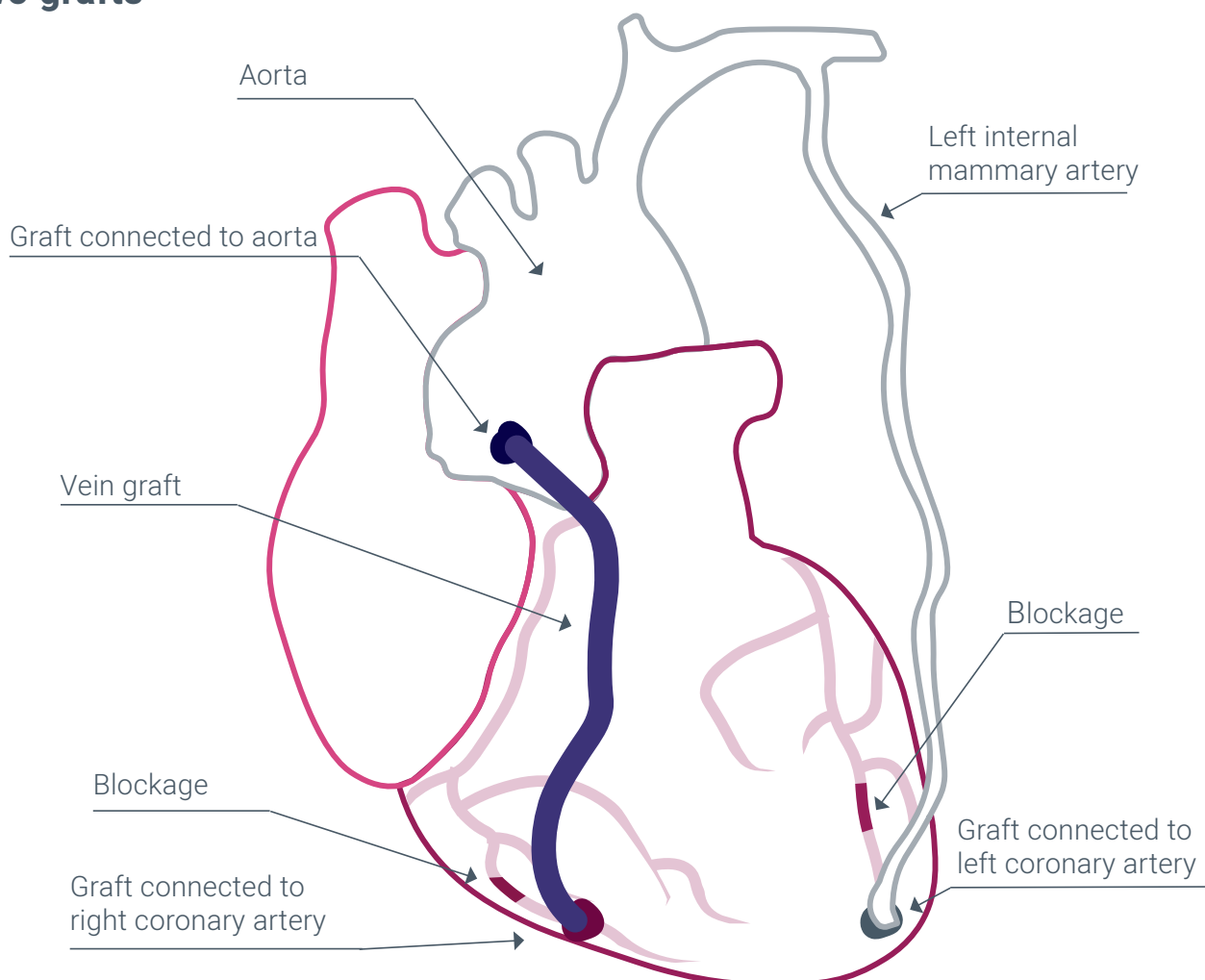
Another graft can be taken from your forearm; this vessel is known as the radial artery and the wound will run from the wrist to elbow on the underside of the arm.

What happens when you take the grafts?

The surrounding vessels from where the graft was taken will do the work of supplying blood to the tissues or returning blood to the heart. You may notice some swelling for a period after the surgery. You can help to relieve the swelling by elevating your legs when sitting.

Taking the vein does not affect your ability to walk but can be sore. If the radial artery is used, you may notice some swelling in your arm which will gradually subside.

Two grafts



Heart disease risk factors

Risk factors are anything that contributes to any one of us having heart disease.

Smoking

Smoking cessation is the single most important thing you can do to reduce your risk of developing further heart disease. The benefits of stopping smoking are almost immediate. A year after the cessation of smoking, you will have halved your risk of further heart disease and heart attack compared with the risks of a continuing smoker. If you require any further assistance or advice, please contact Quitline on 131 848.

Please note: Patients, visitors and staff are not permitted to smoke or vape on the SCGH grounds.

Diabetes

Diabetes increases the risk of developing heart disease. As your body copes with the stress of major surgery, your blood sugar levels can fluctuate. It is essential to monitor your blood sugar levels more frequently on your return home to allow for appropriate medication adjustment by your GP or diabetes specialist if needed. Nursing staff will discuss follow-up with your community diabetes education provider prior to discharge. For more information, visit Diabetes Australia at www.diabetesaustralia.com.au, or contact the Diabetes Information line on 1300 136 588.

High blood pressure

Blood pressure is the measure of pressure on the inside of blood vessels as the heart pumps and relaxes. The National Heart Foundation guidelines recommend your blood pressure be equal to or less than 130/85 (130/80 if you are diabetic), It is important to ask your GP to check it for you. Exercise and maintaining a healthy weight, along with taking prescribed medication, will help keep your blood pressure within normal limits. If left untreated, high blood pressure can lead to further development of heart disease.

Blood cholesterol

The main cause of high blood cholesterol is eating foods high in saturated fat, such as full-fat dairy, butter, coconut and palm oils, deep fried takeaway foods, biscuits and pastries. The total cholesterol in the blood is made up of “good” (HDL) cholesterol, which can protect the heart against heart disease, and “bad” (LDL) cholesterol, which can block arteries increasing the risk of heart disease. One way to help lower your blood cholesterol is to adopt a healthy eating pattern. Secondly, your doctor may recommend medication to assist in controlling your cholesterol levels. Doctors recommend that you aim to keep cholesterol levels within these ranges:

**Total
cholesterol
<4.0mmol/L**

**Low density
lipids (LDL)
<2.0mmol/L**

**High
density
lipids (HDL)
>1.0mmol/L**

**Triglycerides
<1.5mmol/L**



Dietary tips to a healthy heart

- Use margarine spreads instead of butter
- Use a variety of oils for cooking - suitable choices include canola, sunflower, soybean, olive and peanut oils.
- Choose low or reduced fat milk and yogurt or 'added calcium' soy beverages. Try to limit cheese and ice-cream to twice a week.
- Have fish (any type of fresh or canned) at least twice a week.
- Select lean meat. Try to limit fatty meats, including sausages and delicatessen meats such as salami.
- Incorporate dried peas, dried beans, canned beans or lentils into two meals a week.
- Make vegetables and grain-based foods, such as breakfast cereals, bread, pasta, noodles and rice, the major part of each meal.
- The National Heart Foundation guidelines recommend alcohol intake should be limited to no more than two standard drinks a day for men and one standard drink per day for women, with one or two days without alcohol per week.

If you would like more information on healthy eating, please ask the patient educator for a 'Diet for a Healthy Heart' information pack.

For valve surgery only

About your heart valves

Heart valves control the direction of blood through the four chambers of the heart. They act as one-way doors, ensuring blood doesn't flow backwards.

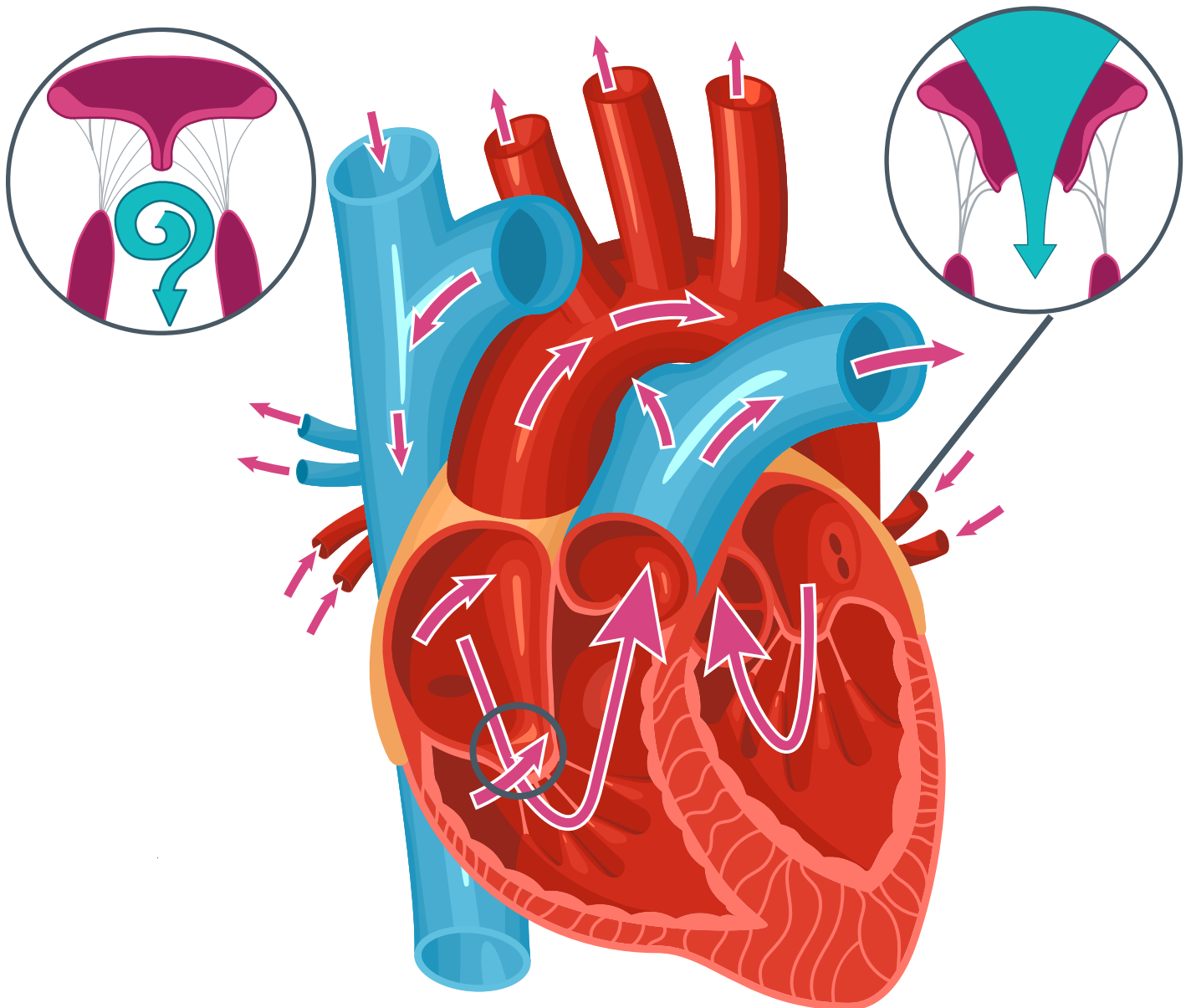
There are four heart valves, two on each side of the heart.

On the left side:

- Mitral
- Aortic

On the right side:

- Pulmonary
- Tricuspid



What is valvular disease?

Valves can be damaged in a number of ways. Defects can be present at birth or acquired from infection, disease (particularly rheumatic fever), aging or general wear and tear. Any of these conditions can result in scarring or thickening of the valve, causing stenosis or regurgitation.

Stenosis: Means that the valve is narrowed or constricted, which limits forward blood flow.

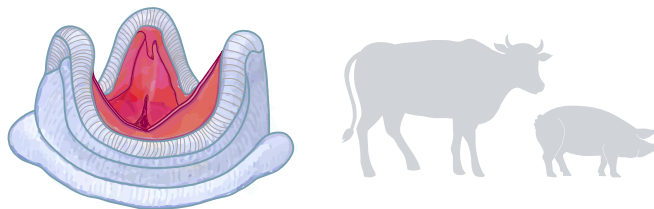
Regurgitation: Means the valve is unable to close properly, allowing a back flow of blood. When valves fail to open or close properly the heart has to work harder to pump blood around the body. This can produce symptoms such as shortness of breath, exercise intolerance, tiredness, chest pain or build-up of body fluid.

Repairing or replacing the valve reduces the workload on the heart, allowing it to function more efficiently. A repair is sometimes an option for mitral and tricuspid valve surgery. Repairing the valve can be done by placing a ring (annuloplasty ring) to reinforce your own valve, or by repairing the muscles that hold the valve in place.

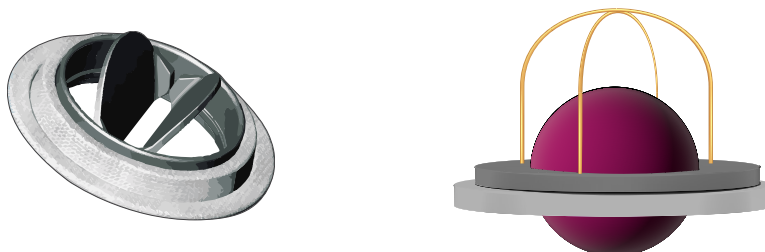
When a repair of the valve is not possible it is removed and replaced with a new valve.

There are two options for valve replacement:

- 1 Tissue valves:** A bioprosthetic valve is sourced from a pig or cow. These are specially treated before being used.



- 2 Mechanical valves:** Man-made valves composed of titanium, carbon and graphite. The type of valve you receive depends on several factors that your cardiologist and surgeon will discuss with you prior to your surgery.



Warfarin

Many people require an anticoagulation medication called Warfarin after their valve operation. Warfarin is used to prevent blood from forming unwanted clots around the valve. If you receive a mechanical valve you will require Warfarin lifelong. If you receive a tissue valve you will be on Warfarin for approximately three months. When your Warfarin can be stopped will be decided by your surgeon and cardiologist.

You should tell your doctor or dentist that you take Warfarin well before any planned procedure (including operations in hospital, minor procedures at the doctor's surgery and some dental work) so that your Warfarin therapy is considered during the planning of your operation/procedure. You may be required to temporarily stop your Warfarin and have injectable anticoagulants instead.

Patients on long-term Warfarin should consider joining Medic Alert. Your doctor can help you do this. After your surgery, the patient educator or pharmacist will discuss Warfarin and your other medication in more detail before you go home.

Please read this section carefully

It is vital to protect your repaired or replaced valve which will need to be monitored lifelong. You must now take care to prevent and promptly treat any kind of infection.

You must inform your GP or cardiologist if you have any:

- Infected wounds
- Severe throat infection
- Infection in your mouth
- Burning on passing urine
- Fevers or generally feeling unwell
- Swelling of the feet, legs and/or hands

In order to protect your new heart valve it may be necessary to take antibiotics before and after certain procedures. **Ask your doctor about the need for antibiotics before all dental work, medical procedures and surgery.** Oral hygiene is important and regular dental checks are essential.

For Bentall procedure only

What is the Bentall procedure?

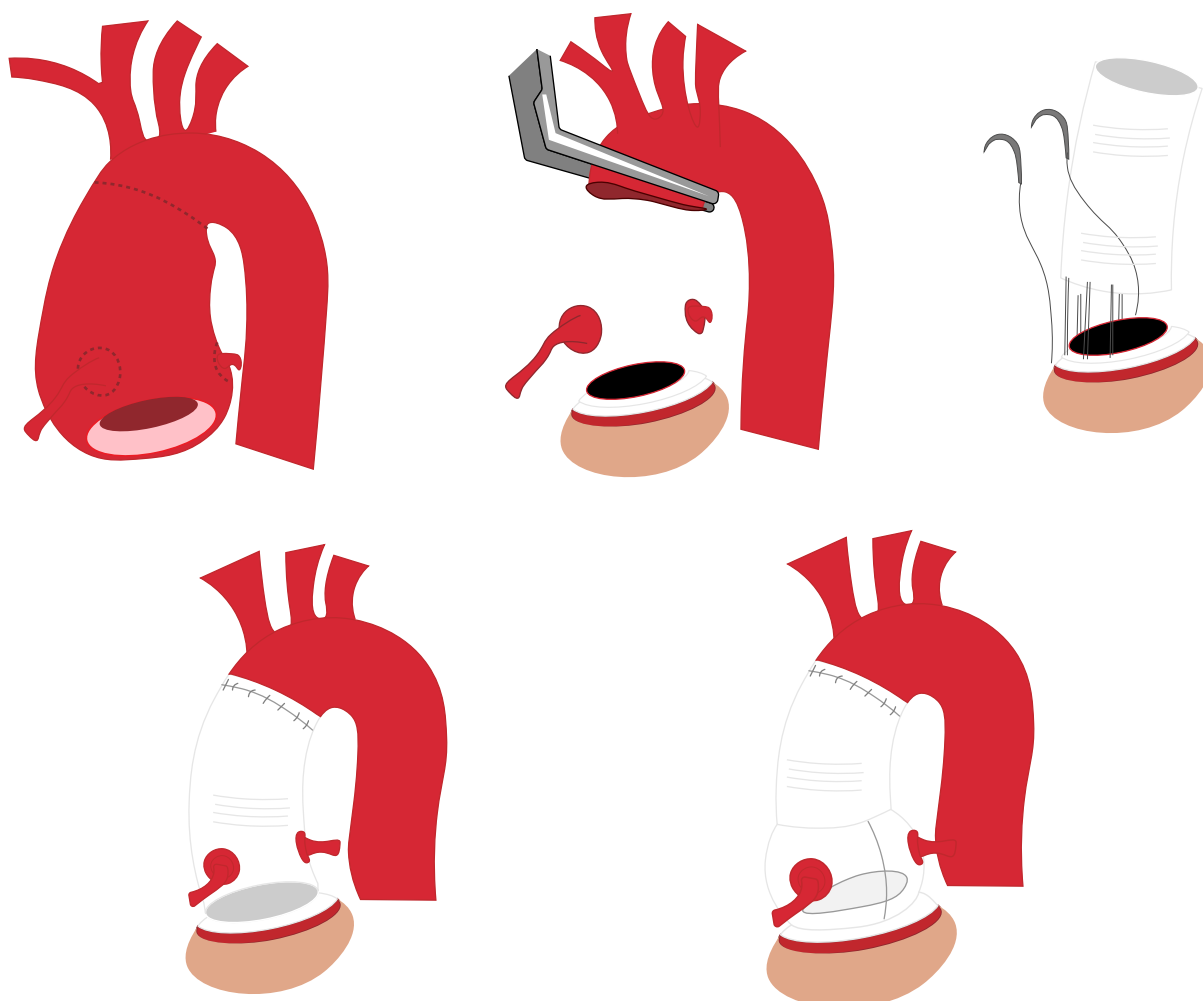
It is a type of open-heart surgery where the ascending aorta is replaced as well as the aortic valve. The ascending aorta is the main blood vessel that extends out of the top of the heart and begins the delivery of oxygenated blood to the body. The aortic valve is the valve between the aorta and the left ventricle, which is the left lower chamber of the heart.

Why is a Bentall performed?

When the walls of the ascending aorta are weakened and start to bulge, causing an aneurysm. Causes of a weakened aorta include atherosclerosis; a build-up of cholesterol in the artery, high blood pressure, diabetes, infections, smoking, age, or inherited disorders. Having a weakened aorta can be life threatening, which is why it needs to be replaced.

How is the surgery performed?

This procedure is performed like most open heart surgery, where an incision is made through the sternum or breastbone. The ascending aorta is replaced with a woven material graft and the aortic valve is replaced with a mechanical or tissue prosthesis.



For atrial septal defect only

What is atrial septal defect (ASD)?

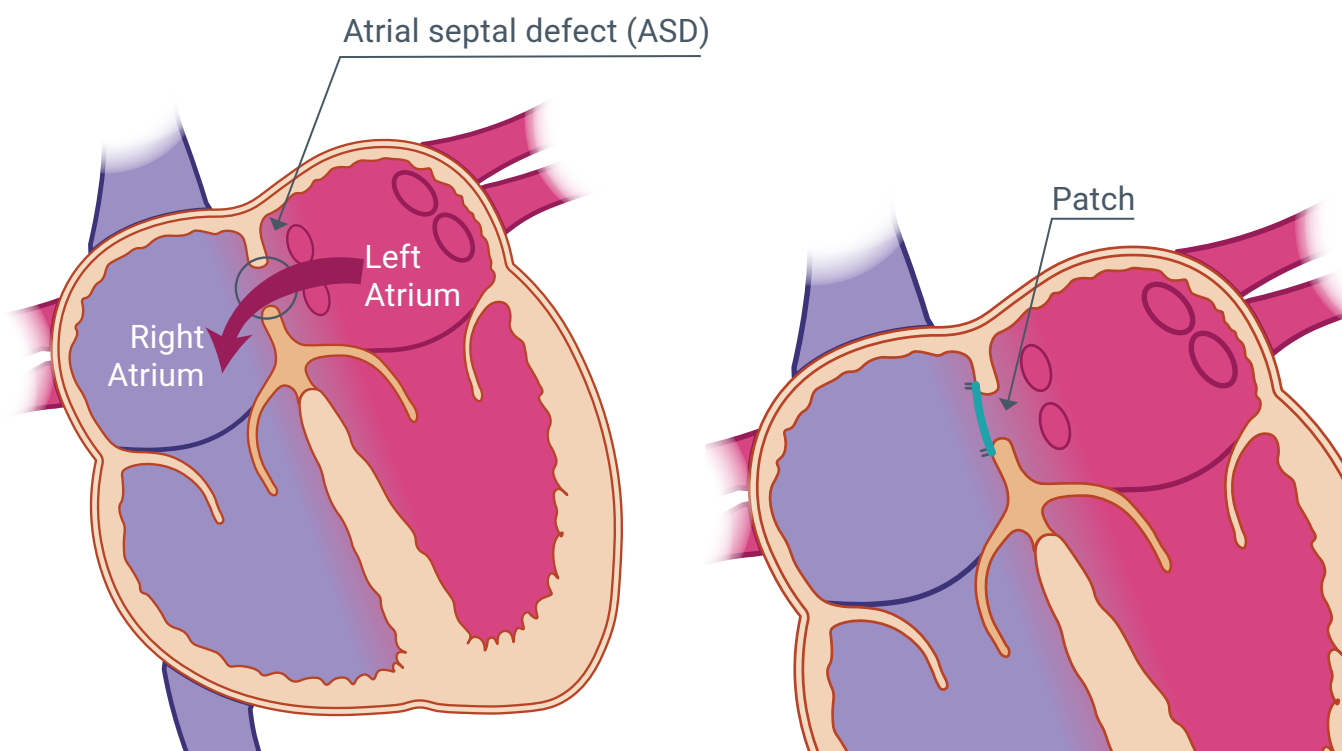
It is a hole or opening (defect) in the wall (septum) that separates the top two chambers of the heart, the left and right atrium. As a result of this, some oxygenated blood from the left atrium enters the right atrium, where it mixes with deoxygenated blood and increases the amount of blood pumped to the lungs. This can overfill the lungs and overwork the heart, causing weakening and enlargement of the heart over time.

When is surgery required?

Many ASDs close on their own during childhood. Those that do not close may not necessarily require treatment depending on the extent of the defect. A small ASD can be monitored by a cardiologist to see if it closes on its own over time. However, ASDs that are larger in size do require surgery to prevent future complications.

How is an ASD repaired?

A sternotomy incision is made to access the heart directly and identify the defect. For smaller holes, the surgeon will close it using sutures. The bigger openings require patches.

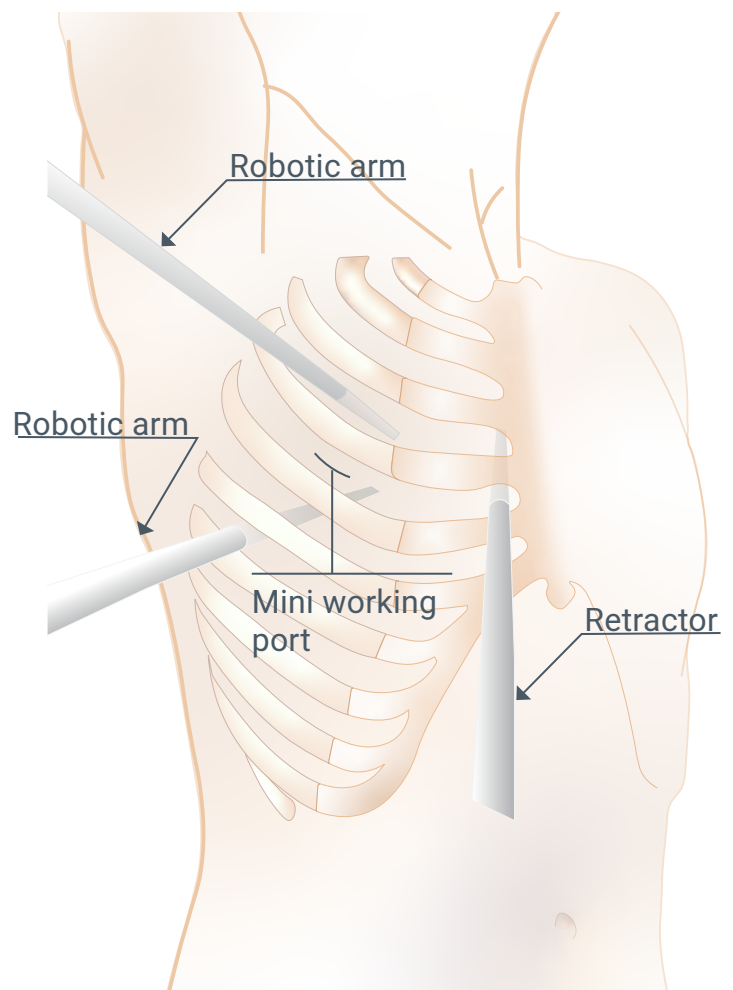
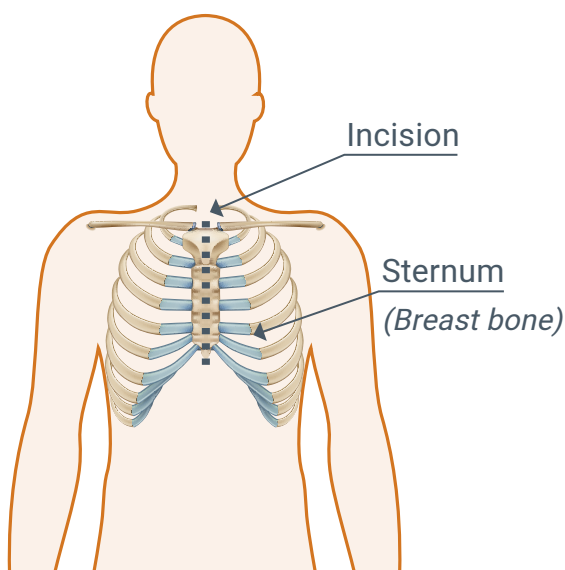


How does the surgeon reach the heart?

Sternotomy: The surgeon starts the operation by making an incision down the middle of the chest and through the sternum called a sternotomy. The wound extends from the base of the neck (between the collarbones) to the end of the sternum. Once the surgery is finished, four to eight stainless steel wires will hold the bone together. These wires will remain in place and are not removed. The wound is stitched from the inside with dissolvable stitches. It takes approximately four to six weeks for your breastbone to start to knit together and up to 12 weeks before it is fully healed. This is the reason many activities are restricted in the three months after your surgery.

Minimally invasive via thoracotomy: Your heart lies behind your breastbone, so to get to the heart your surgeon makes a 5-8cm incision through the right side of your chest. You will have several small incisions around 1cm, which the surgeon uses to insert a camera and other instruments to perform the surgery.

Your surgeon will advise if you are suitable for the minimally invasive procedure.



Heart-lung bypass machine

After the chest is open, the heart is visible and accessible to the surgeon. The heart-lung bypass machine is then connected, taking over the work of the heart and lungs during the operation. Blood returning to the heart from the body is diverted to the machine via tubing. The blood is then filtered and oxygenated and returned to the body. Once the bypass machine and tubing are working, the heart is stopped. The surgeon can then start operating on your heart.

When the surgery is completed, the heart is restarted and the heart-lung bypass machine is removed.

Will I need a blood transfusion?

Blood transfusions are only given when absolutely necessary as your bone marrow can rapidly replenish your stores. In Australia all blood products are thoroughly screened. If you have any objections to receiving blood products for any reason, it is very important that you discuss this with your surgeon before your surgery.

How long will surgery take?

Cardiac surgery takes on average four to five hours. Your surgeon will phone your next of kin after the surgery. It is best if your family remain at home so they can be easily contacted. If your family would like to visit you in the Intensive Care Unit (ICU) it is helpful for them to wait an hour or two after your surgeon calls before coming in, as this will allow the nurses to settle you in.

What happens in the ICU?

When the surgery is completed, you will be taken directly to the ICU for recovery. While there you will receive one-on-one nursing care and will be closely monitored by the doctors. When arriving in ICU you will still be 'asleep' under anaesthetic. You will be 'woken up' when the doctors think you are ready. The time varies for every patient but is usually four to 12 hours after the operation. The average length of stay in the ICU is one night or less than 24 hours. When the doctors think you are ready, you will be discharged from the ICU to the high dependency unit on ward G62.

After surgery

Equipment attached to you

Breathing tube (Endotracheal tube): Once you have been put under a general anaesthetic you will have a tube inserted in your mouth and down the windpipe (trachea). The tube will be connected to a ventilator which breathes for you. The tube is kept in for as long as you are sedated and is removed in the ICU when you wake up. Most patients will be asleep for less than 24 hours. After the tube is removed, an oxygen mask will be placed over your face. We will monitor your oxygen levels and remove oxygen therapy when your levels return to normal. The tube may leave you with a sore and scratchy throat for a short period; throat lozenges can help.



Nasogastric tube: You may have a plastic tube passed down through your nose to your stomach, it is used to keep your stomach empty and reduce the risk of vomiting while you are sedated. The nasogastric tube is usually removed in ICU.

Intravenous lines: Initially you will have a number of intravenous lines or drips, which are used for the administration of fluids and medication, taking blood samples and monitoring. Most of these are inserted during surgery while you are asleep. A large intravenous line known as a central venous catheter is placed into the major vein in your neck. This remains in for two to three days after surgery.

Drainage tubes: During the surgery, two to three drains are placed beneath the ribs to drain any blood, fluid and air that accumulate around the heart. These tubes remain in place for 24-48 hours. These will be removed by the nurses depending on the amount of drainage. Your surgeon will decide the best time to remove them.

Urinary catheter: This tube is placed into your bladder during surgery to drain your urine. This is necessary to allow the team to measure the amount of urine you are passing after surgery so we can assess your kidney function. The catheter is usually removed two to three days after surgery.

Heart monitor: After surgery you will be connected to a heart monitor via leads on your chest. This allows constant monitoring of your heart rate and rhythm. When you return to the ward you will be transferred to a wireless monitor called telemetry, which allows you to walk while still being monitored.

Pacing wires: During surgery you may have one or two pacing wires inserted in the upper part of your abdomen (just under your ribcage). On one end of the wire is an electrode, which lies on the surface of your heart, and the other end is outside your body. These are called epicardial pacing wires and are placed as a precautionary measure only. As the heart is not used to being handled, it can become irritated and beat too fast or too slow, or in an irregular manner. If required, these pacing wires can be connected to a temporary pacing box, which will allow staff to pace your heart. They are removed three to five days after surgery, unless they are being used.

Complications

Cardiac surgery is a big operation and does have serious potential complications. Your surgeon will discuss the most serious complications with you when you sign consent for the operation. Here we will discuss some of the more common post-operative complications you may experience when you are on the ward.

- **Atrial fibrillation (AF):** is when the heart beats irregularly and, sometimes, very fast. It can cause you to have palpitations and feel dizzy, lightheaded, breathless and tired. This is a very common complication post cardiac surgery, occurring in approximately 30 percent of CABG patients and 40 percent of valve patients. AF may be treated with medication or with electric defibrillator shocks if required. Treatment options will be discussed at the time.

- **Hallucinations:** Post-operative delirium is a common occurrence. It is thought to be a result of the heart-lung bypass machine and/or anaesthetic. However, the exact cause is unknown. Post-operative delirium may manifest as temporary confusion; however, the most common symptom is visual hallucinations or vivid dreams. If you experience any of these symptoms, please let your nurse know as the dreams and hallucinations can be treated with medication.
- **Constipation & nausea:** These are common complications after heart surgery. We will start you on medications to help relieve these symptoms.
- **Swelling:** During the operation you will be given intravenous fluid through your drip. This extra fluid may cause your hands and legs to swell, particularly if a vein has been taken from your leg or arm. Elevating the affected areas will help reduce the swelling. Fluid may also accumulate in the lungs. It is important to participate in physiotherapy and continue the deep breathing and coughing exercises to assist with fluid removal.

How long will I be in hospital?

The length of stay varies with each person's individual response to surgery. The average length of stay after coronary artery bypass surgery is four to six days and for cardiac valve surgery between five and seven days.

Discharge plan and follow-ups

During your first week at home it is important to have someone at home with you. You will be required to attend three follow-up appointments following your discharge:

1) GP follow-up one week after discharge. You will need to organise this. Other reasons to seek medical attention include:

- Wound infection
- Increased shortness of breath
- Fever or chills
- Dizziness or feeling faint
- Blood pressure monitoring
- Persistent irregular heartbeat (palpitations)

2) Cardiologist follow-up after four weeks. You will need to organise this. If you do not have a cardiologist, please let the team know prior to your discharge.

3) Cardiothoracic team follow-up after four to six weeks. We will book this appointment for you. If you are from the country, or find it difficult to get to the hospital, this appointment can be made via Telehealth.



Country patients

If you are from the country, we request that you stay in Perth for about a week after discharge. During this time, you will require someone to stay with you in Perth in case of an emergency. We will see you again at the end of that week in clinic and clear you to return home if appropriate.

Please contact the Patient Assisted Travel Scheme (PATs) department in your area prior to your surgery for travel assistance. If you require accommodation advice, please inform your local PATs office or the patient educator as soon as possible.

How do I take care of my sternum?

Your physiotherapist will discuss getting back to normal activities with you and provide activity guidelines and an exercise program to follow. Remember your breastbone will take eight to 12 weeks to heal and it is important that you follow these guidelines. Many people ask if they can lie on their sides to sleep. You will not harm your breastbone by lying on your side in bed; however, please do not lie on your stomach. Please continue to wear your seatbelt while travelling in a motor vehicle, but it is a good idea to position a pillow or cushion underneath your seatbelt initially.

How do I look after my wounds?

General wound care

Observe your wounds each day for signs and symptoms of infection (even if a plastic dressing is in place). Signs of infection include:

- Redness and/or swelling
- Increased pain or heat
- Discharge/pus

If this occurs, see your local GP or alternatively contact the patient educator at SCGH (see contact numbers at the back of this booklet).

To care for wounds that are uncovered:

- Wash them in the shower before the rest of your body
- Use your usual soap at home
- Gently pat dry before drying the rest of your body

To care for wounds covered with a plastic dressing:

- Trim loose edges as the plastic lifts
- If water pools beneath the dressing at any time, it should be removed
- Remove the dressing seven days post surgery. If the dressing is removed or falls off before this time, there is no need for a new dressing.

Avoid swimming pools, spas and baths for six weeks or until the wounds are completely healed. Do not apply any creams, lotions or powders to your wounds. Your wounds will take four to six weeks to heal. The colour of your wound will gradually change from purple to red to pink over the next few months as healing takes place.

Some important considerations

Medication: During your hospital stay it is likely that a number of your medications will change. When you go home you will be provided with medication and an up-to-date medication list. It is important you follow the new list only. Do not stop taking any heart medication without first seeing your cardiologist. If you are started on Warfarin remember to check with your GP or pharmacist before taking new medication, including vitamins and herbal supplements, as some medication can interact with Warfarin.

Swelling: If you have a leg wound, some fluid accumulation is normal in the ankle and lower leg. This may persist for a few weeks, but this should not stop you from exercising. When sitting, always elevate your leg. Do not cross your legs and avoid standing still for long periods. If both ankles begin to swell, seek medical attention.

Pain: You may experience more pain than you had at discharge as you increase your activity levels. The wound may also be numb or feel tingly - this is normal. It is important that pain does not get in the way of recovery. You should continue with the exercise regimen and cardiac rehabilitation sessions. Taking regular painkillers will help you do so. It is recommended that you take regular paracetamol (Panadol), four to six hourly, for at least the first week post discharge. If you still experience pain when taking regular Panadol, a stronger painkiller can also be taken.

Palpitations: It is normal to experience some palpitations after surgery. The palpitations are due to the heart beating fast, irregularly or a having a few extra beats out of place. If you experience an episode of palpitations and it stops after 10-15 minutes, do not be too concerned. However, if you have an episode of palpitations that continues for more than 10-15 minutes and/or you are feeling sweaty, dizzy, nauseous, or short of breath it is important you seek medical attention.

Tiredness and mood swings: Even though you are well enough to go home, it takes time to recover and you may feel tired for the next four to eight weeks. If you continue to have trouble sleeping, see your GP. It is normal to have good and bad days, and ups and downs in your mood. A link between heart surgery and depression has been established and is not uncommon. It is important that you seek help from an appropriate professional (your GP can refer you to a psychologist) if you are experiencing this. Further information about depression and anxiety can be obtained at www.beyondblue.org.au or via the information line 1300 224 636.

Taste and visual disturbances: Some people find they experience some double or blurred vision after the operation. This can take about six weeks to settle down. If the problem persists after this time, then see your optometrist. Most people find that they suffer from a lack of appetite and taste disturbances. This is quite normal and your taste will generally return in two to three weeks.



When can I go back to work?

This depends on the type of job that you do. The general rules are six weeks off for everyone and this is extended out to 12 weeks for people with jobs that require manual handling due to the healing time of your breastbone. Sick leave is best discussed with your surgeon prior to leaving hospital or alternatively when you attend your follow-up appointment.

When can I be intimate again?

There are no restrictions on resuming intimacy. By the time you leave hospital, your heart will be able to cope with the amount of energy required. It is a matter of when you and your partner are ready.

Physiotherapy after surgery

The physiotherapist will see you to progress your physical activity once you are medically stable. This is important to enable the small air sacs in your lungs that have closed down to reopen, to remove any build-up of mucus, as well as ease the mechanical stiffness of your chest wall.

We remind you of three important things:

- Do not push or pull through your arms
- Cuddle a pillow or towel to your chest when coughing for support and comfort.
- Take 10 deep breaths every hour; in through your nose and out through your mouth

By assisting you to become active again you retain most of your natural muscle strength and balance, along with quickly regaining your independence and confidence. Everything is done in a controlled way. We monitor your heart rhythm and rate, as well as your oxygen levels, while you exercise to track your recovery. We progress your walking distance and pace as quickly as your body allows, in most cases reaching distances starting at 30 metres or more and building up to 200 metres four times a day by the fourth day.

We conduct a stairs assessment with you prior to discharge. This is seen as the maximum exercise test before you go. We also prescribe you a six-week activity program to progress your cardiovascular fitness, and optimise the flexibility of the wounds and ribcage.

Home activity program

This program will assist you to safely return to your normal activities and help you regain your strength after surgery. You should pace yourself and return to activities gradually. Take note of how you are feeling and adjust your activity levels accordingly. If you start feeling unwell, stop what you are doing, have a rest and try again when you are feeling better.

Most people will feel much stronger six weeks after surgery, but you can expect full recovery to take up to 12 weeks. Do not get discouraged, even if you are finding it difficult to keep up with the program, especially in the first two to three weeks at home. This is quite common and will usually pass as you feel stronger with time.

Resuming activities after surgery

Below is a guide indicating when you may be able to resume activities after your surgery and is usually taken from the date of surgery. These are the minimum guidelines for resuming activities and are based on the time it takes for the breastbone to heal; therefore most of your restrictions are about the use of your upper body. If you are unsure about returning to an activity, check with your surgeon or cardiologist first.

2 weeks	6 weeks	8 weeks	12 weeks
<ul style="list-style-type: none">• Lifting 2kg max• Light desk work (short periods)• Golf - putting	<ul style="list-style-type: none">• Lifting 5kg max• Driving• Raking leaves• Lawn bowls• Pier fishing• Swimming - dipping (if wounds healed)• Stationary cycling	<ul style="list-style-type: none">• Vacuuming• Lawn mowing• Golf - chipping• Swimming - breaststroke	<ul style="list-style-type: none">• Gardening• Golf - driving• Boat fishing• Swimming - freestyle• Surfing/paddling• Cycling• Jogging/ball sports

Typical program of activities after discharge

These guidelines are useful for you to review regularly so you know what sorts of activities you are able to do week by week.

Week 1 (usually first week out of hospital)

- Balance your light activities with frequent rest periods
- Take stairs slowly and rest midway if necessary
- Avoid wide arm movements (except for exercises), stooping and bending
- Do not lift anything heavier than 2kg (kettle, 2L milk bottle)

Week 2

- Light chores: Making a light meal, tidying the bed, washing dishes
- Watering the garden with a hose, looking after indoor plants
- Going for short drives as a passenger (people living in the country can be driven home but with frequent rests along the way)

Week 3

- Light activities in the garden
- Outings in the community for short periods of time (make sure there is somewhere you can sit down to rest and avoid busy times)
- Do not lift anything heavier than 4kg until you can drive

Week 4

- Household activities - ironing, hanging out washing (not sheets and towels), light sweeping
- Indoor bowls
- Go to see a film or spectator sport (prolonged sitting)

Week 5 & 6

- Continue to pace yourself
- No activities that require prolonged stooping and bending - no vacuuming, no scrubbing the floors
- Most routine chores - clean bathroom, kitchen tidy-up

Daily walking program

For most people, walking is the most beneficial form of cardiovascular exercise to assist recovery after surgery.

Why? Walking:

- Conditions your heart and lungs
- Helps to control blood pressure and cholesterol levels
- Helps to burn energy and aids in weight loss
- Improves muscle tone and endurance
- Makes you feel good and improves quality of life

You are encouraged to walk twice daily at a minimum in the beginning, as prescribed by your physiotherapist.

Remember:

- Walk at a comfortable pace
- You should be able to keep up a conversation as you walk. If not, then slow down a little.
- Walk in comfortable conditions - avoid extreme heat or cold
- Avoid hills and uneven ground for a few weeks, although some inclines cannot always be avoided
- Do not take the dog with you in the first few weeks
- Do not walk if you are feeling unwell
- Do not walk immediately after meals - wait about 45 minutes before exercising
- If possible, walk with someone until comfortable to go alone
- If walking alone ensure you take a mobile phone with you in case of an emergency

While walking, if you experience:

- More intense breathlessness
- Chest pain
- Nausea
- Dizziness
- Headache
- Inappropriate tiredness
- Muscle cramps

➔ Stop and Rest

If these symptoms persist for more than 10 minutes or return when you resume walking, you should consult your GP. As you improve you will find yourself walking at a brisker pace. As you increase the distance and pace of your walk, include a five-minute warm-up (a slower walk) at the start and a five-minute cool down (another slow walk) at the end of the walk. This helps to prepare the body for the increased activity and prevents general muscle soreness from developing. After six weeks you should aim to maintain your fitness levels by continuing a minimum of 30 minutes of cardiovascular exercise at least five times per week.



Guide to your walking progression

Aim to increase your walking time half to one minute per day. Constant gradual progression is better than under or overdoing activity.

Week 1	Minutes x 2 per day
Week 2	Minutes x 2 per day
Week 2	Minutes x 2 per day
Week 4	Minutes x 2 per day
Week 5	Minutes x 1 per day
Week 6	Minutes x 1 per day

Cardiac rehabilitation exercise group

Cardiac rehabilitation exercise groups are run at Sir Charles Gairdner Hospital (SCGH) by a physiotherapist and at various other venues around the State that we encourage you to attend.

Cardiac rehabilitation is a progression from the home activity program that you have been given in hospital. The group is designed to help you achieve a new or previous level of fitness in order to return safely to full activity and encourage you to maintain this level following completion of the program. It is highly recommended to further progress your fitness, strength and flexibility to optimise your recovery.

The purpose of the program is to:

- Assist your recovery from surgery
- Improve your cardiovascular fitness and muscle strength
- Improve your quality of life
- Provide you with further information about exercising correctly
- Provide you with a program that you can continue at home

The SCGH Cardiac Rehab group is free and is run twice per week for one hour per session. People are expected to attend twice weekly for a six-week period. For more information on cardiac rehabilitation groups, please ask your physiotherapist prior to discharge, or contact them through switchboard on 6457 3333 pager 4060.

If you don't live close to SCGH, there may be a cardiac rehabilitation centre and exercise program in your area. **Please note:** there may be a fee to attend cardiac rehabilitation in your area. You must complete an assessment prior to starting a cardiac rehabilitation group to determine your exercise ability.

Good posture after your operation

This is very important, especially in the first six weeks, to minimise muscle stiffness and chest discomfort. There may be a tendency to lean forward and round your shoulders initially, particularly if your incision is painful. Always remember to be aware of your posture, whether you are lying down, sitting or walking. Try to keep your head upright, shoulders back and back straight. Use cues such as looking in the mirror to check your posture.

In the first six weeks, it is also important to continue with supporting your chest when coughing and/or sneezing.

Stretches

It is common to feel some discomfort and stiffness, particularly in your shoulders and chest after surgery. The following stretches are designed to stretch and maintain the muscles of your shoulders and chest wall. All these stretches should be done slowly and you should feel a gentle stretch without pain with each one. If you have any pain, or your breastbone clicks more than normal when doing the stretches, you should stop.

Sit on an upright chair without arms (eg: a dining chair), so your back is supported but your arms are free to move sideways.

Repeat each of the following exercises five times, twice a day minimum, for the first six weeks after surgery.

For the following, always use both arms at the same time. Please let your physiotherapist know if you have any pre-existing neck or shoulder injuries whilst you are in hospital.



1. Sitting up tall, lift your arms up keeping your elbows in. Breathe in on the way up and out on the way down.



2. Sitting up tall, lift your arms up sideways with your thumb leading the way. Breathe in on the way up and out on the way down.



3. Sit with your back straight and feet firmly on the floor. Gently pull your shoulder blades together while turning your thumbs and hands outwards.

Useful contacts

Cardiothoracic patient educator

Phone (08) 6457 3333 (during working hours) and ask for the cardiothoracic patient educator to be paged on 4391.

Cardiothoracic physiotherapist

Phone (08) 6457 3333 (during working hours) and ask for the cardiothoracic physiotherapist to be paged on 4060.

After hours

Phone (08) 6457 3333 and ask to be transferred to Ward G62 and ask to speak to the nurse in charge.

Cardiothoracic office

Phone (08) 6457 2383 (during working hours), Monday to Thursday.

We hope that this booklet has helped you through your hospital stay and recovery after your heart surgery.

Booklet reviewed by
CTS Pt Educator, Kylie. F (Physiotherapist), David. D (SDN), Mandy. C (CNS) August 2022



Principal investigator: Professor Chris Reid

Project number: 336/20

Introduction

We would like to include you in the Australian and New Zealand Society of Cardiac and Thoracic Surgeons (ANZSCTS) Cardiac Surgery Database because you are about to have, or have recently had, heart surgery. Participating in the Database does not have any effect on the treatment you receive. The Database only collects information about your treatment and its results. Participation in this Database is voluntary. If you do not wish to take part, you do not have to. If you decide to take part and change your mind later, you are free to withdraw from the Database at any time.

The ANZSCTS Database is a clinical registry that was started in 2001. Clinical registries collect and store data from the eligible population to monitor and report on the quality of care provided to patients. The information in the ANZSCTS Database is used to assess and make sure that care for heart surgery patients in Australia and New Zealand is safe and has good outcomes. By understanding which heart procedures and methods have the most successful outcomes and what factors contribute to patient complications, we plan to improve the standard of care over time for all patients.

The Database aims to record information on every adult having heart surgery in Australia and New Zealand. Having every patient participate in the Database makes the information more useful for improving health services.

Ethics approval for the ANZSCTS Database

All research in Australia involving humans is reviewed by an independent group of people called a Human Research Ethics Committee. The ethical aspects of this research project have been approved by the Alfred Hospital Ethics Committee and Monash University Ethics Committee. This study will be carried out according to the NHMRC *National Statement on Ethical Conduct in Human Research 2007 (updated 2018)*. This statement was developed to protect the interests of people who agree to participate in human research studies.

What information is needed?

The information we collect includes your full name, date of birth, Medicare number, hospital identification number, the name of the hospital, the reason you are having heart surgery, and other information related to your health before, during and after your operation. All of this information is included in your medical records at the hospital. The hospital will monitor your progress for 30 days from the day of your surgery. Your health status at 30 days will be included in the Database. Identifying information is needed to link back to your medical records for collecting follow up information and for matching to other health related databases.

How is the information collected?

You will not be contacted by the Database staff, and are not required to do anything. The data will be collected on forms by hospital staff and entered into the Database. Information about you and your surgery will be taken from your medical records. Information about your health 30 days after surgery will be collected from your medical records or by the hospital calling you to ask a few simple questions about how you have been since your surgery.

How is the information stored and kept confidential?

The data is stored securely at Monash University in Australia using systems that meet all applicable data protection and privacy obligations. The Database security measures conform to national standards to prevent unauthorised access. All information collected for the Database that can identify you will be treated as strictly confidential. Identifying information is protected by State and Commonwealth privacy laws and would only be shared with your



permission, or in compliance with the law. Data access is limited to approved Database staff. Any future access to Database data by other organisations or researchers must be approved by a Human Research Ethics Committee and will be bound by the same privacy laws. To allow us to track long-term outcomes and changes to heart surgery over time, the information will be kept indefinitely.

How will the information be used?

We will produce reports on heart surgery outcomes for the public, government, clinical and research audiences. We expect these reports will help people understand common trends and needs that may exist for providing heart surgery services. **You will never be identified in any reports or publications from the Database.**

Researchers may use non-identified group Database data for future research projects. Non-identified means data that does not include your name, contact information, or other information that could identify you. Please be aware that by allowing your information to be stored in the Database, the non-identified information may be used for further research and quality assurance activities about the standard of care provided to patients having heart surgery. Any further research using Database data will require approval by a Human Research Ethics Committee.

The Database links the data to other hospital and government databases including the Australian Institute of Health and Welfare's National Death Index to determine long-term outcomes. All linkage activities are bound by privacy laws and must meet specific privacy and security conditions before ethics approval is granted.

Potential risks and benefits of participating

Having your data entered into the Database will not affect or alter the care and treatment you receive in any way. However, the information will allow us to continue assessing and help improve the standard of heart surgery care for all patients over time. Hospital staff involved in the data collection will have access to your medical records. The hospital and the Database will treat your information confidentially and store it securely.

You can choose not to be in the Database or ask for more information

Participation in this Database is voluntary. We understand that not everyone is comfortable having their personal information included in a Database. Your decision whether or not to take part will not affect the care you are provided in any way. If you decide to allow your information to be included in the Database but change your mind later, you are free to withdraw from participation at any stage. Please be aware that your information will be included in the Database unless you contact the Database to say that you do not want your information to be stored.

If you do not wish to have your information included in the Database, or have any questions about the Database, please contact the ANZSCTS Database Project Coordinator on the free call number: 1800 285 382

Once you have asked for your information to be removed from the Database, all your identifying information (such as name, date of birth and contact information) will be removed. However, your heart surgery information will remain in the Database anonymously.

Questions, concerns or complaints

If you have any questions about the Database, you may call the Database Project Coordinator on 1800 285 382.

If you have complaints about any aspect of the project, the way it is being conducted or any questions about being a research participant in general, then you may contact:

Complaints Officer, Office of Ethics & Research Governance, Alfred Health

Ph: (03) 9076 3619; Email: research@alfred.org.au and please quote the following project ID: 336/20



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Sir Charles Gairdner Hospital

- 📍 Hospital Ave, Nedlands WA 6009
- 📞 General enquiries (08) 6457 3333
- 📞 Hearing impaired (TTY) (08) 6457 3900
- 🌐 scgh.health.wa.gov.au



We are proud to be a smoke-free site. Thank you for not smoking or vaping. Ask a staff member about free nicotine therapy to help your cravings during your hospital stay.

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