A guide to coronary artery bypass graft surgery

Heart Foundation™

Welcome

to this Heart Foundation booklet

If you have this booklet then like many other people in New Zealand, heart disease has touched your life. Whether it is you or a loved one who is looking to find out what is involved with coronary artery bypass graft (CABG) surgery, you are likely to have many questions.

We hope the information in this booklet will give you some of the answers, but remember you can talk to your doctor or nurse about any questions or concerns you have as well.

My checklist

After reading through this booklet, you should be able to check off the following statements:

- ☐ I know what's involved in coronary artery bypass graft surgery.
- ☐ I have talked to my doctor, nurse and other health professionals about any concerns I have.
- ☐ I have emailed hearthelp@heartfoundation.org.nz to sign up to the Heart Foundation's Heart Help e-newsletter.
- ☐ I have visited the *Journeys* personal stories section of the Heart Foundation's website: **heartfoundation.org.nz/journeys**

The Heart Foundation wishes to extend a huge thank you to Cynthia, Yvonne, Charlie, Lloyd and their families for generously sharing their experiences with CABG.

Photo (Lloyd) picture credit: Wairarapa Times-Age.

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You are not alone

Each month more than 300 New Zealanders have coronary artery bypass graft (CABG) surgery. This surgery can help to control your angina symptoms, but it does not fix the underlying heart disease that caused the symptoms in the first place.

Cynthia had three heart attacks within ten days and needed a triple bypass to stabilise her heart.

"The surgeons were very clear with me about the significant risks and complications especially since my heart had sustained damage."

Yvonne had thought her deteriorating health was just part of getting older.

One morning she woke with pain in her stomach and chest, and hurried to hospital. She was told she needed a heart bypass as soon as possible.

Charlie had always been fit, so alarm bells went off when he ran out of breath and failed his fitness test for the second time.

Several heart tests later, he was diagnosed with silent angina and scheduled for bypass surgery to open up three blocked arteries.

After having a heart attack, an angiogram revealed that **Lloyd** needed bypass surgery.

"I think it was as much of a shock to the family as it was to me. To go from being relatively healthy, certainly 100% active, to suddenly being in a hospital bed and getting open heart surgery."

To read the full stories, or to find stories from other people who have had bypass surgery, visit: **heartfoundation.org.nz/journeys**

Preparing for your surgery

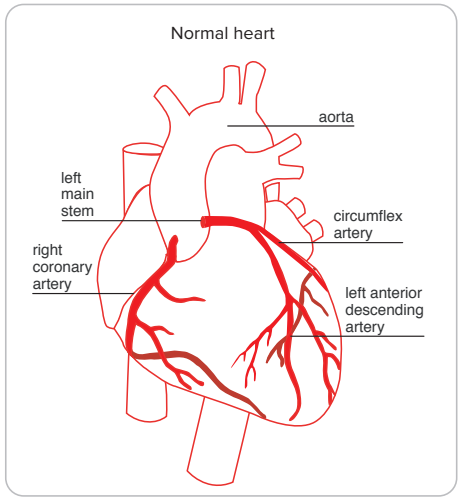
CABG surgery is performed mainly to relieve angina symptoms. Surgery improves the blood flow to the heart muscle. This can result in a better quality of life with less or no angina.

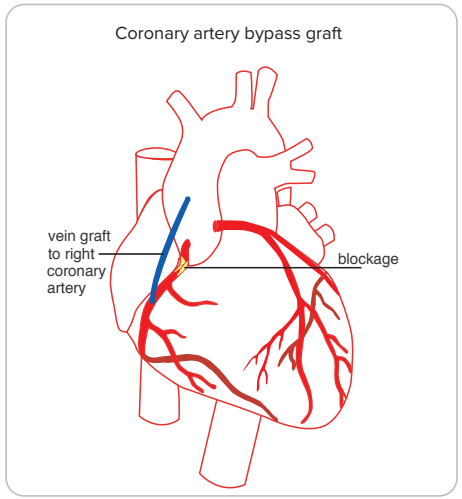
CABG surgery

CABG surgery is an operation that bypasses a narrowed or blocked part of a coronary artery using a graft. A graft is a length of vein or artery that is usually taken from the leg (saphenous vein), the chest wall (internal mammary artery) or the forearm (radial artery). It is quite normal to need one to six grafts.

One end of the graft is connected to the aorta, with the other end attached to the coronary artery. This bypasses the blockage or narrowing, providing a new channel that allows blood to flow to the heart muscle.

If the internal mammary artery is used as a graft, it remains attached to its own blood supply in the chest wall with the free end sewn onto the coronary artery, bypassing the blockage or narrowing.





"A week-and-a-half before my operation, we had a family hui and I just burst out crying, I couldn't control myself. I had no words to describe how I felt."

Before long, everyone in the room was crying with him – a moment that lifted his spirits. "That reminded me how important you are as a part of a family unit... I drew a lot of strength from that."

Charlie

Preparing yourself for surgery

Making appropriate lifestyle changes before your operation and maintaining them long-term will mean that you get the most from your surgery. Preparing yourself emotionally is also important. You will probably have a number of questions about your operation. You may find it helpful to write these down so you can discuss your concerns with your doctor or nurse.

Smoking: To improve the likelihood of a better recovery, it is advised that if you smoke, you stop now. This is because smoking causes breathing complications after surgery and increases the risk of your new grafts becoming blocked.

Work and legal issues: Following surgery, your recovery will take two to three months. Let your employer know that you intend to return to work within six to twelve weeks and arrange any sick leave entitlement. If financial assistance is required, ask your doctor about a referral to Work and Income.

Travel arrangements: If you need to be transferred to another centre for surgery, your referring hospital may meet the costs of your travelling expenses. Please talk to your doctor or nurse for more information.

Accommodation for relatives: Cardiac surgery units try to help with accommodation and/or social, emotional or practical problems that may arise when you have major surgery away from your home town. If you need help, talk to your doctor or nurse.

Waiting for your surgery: Even when you are given a date and time for your surgery, or when you have been admitted for surgery, your operation may be postponed until another day if an emergency case comes up.

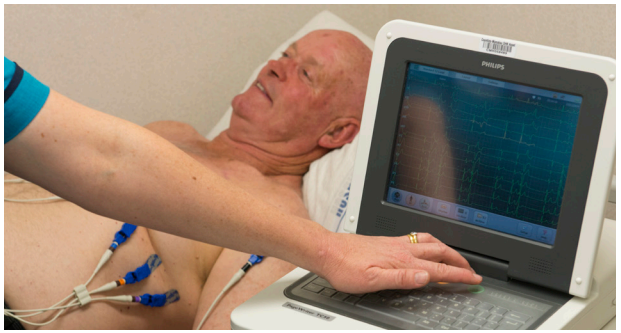
Your stay in hospital

The day before surgery

You are usually admitted to a hospital ward the day before your surgery. The surgeon and anaesthetist will explain the operation to you and record your medical history (including any allergies). They will also answer any questions you may have and ask you to sign a consent form agreeing to the operation and anaesthetic.

Bring loose-fitting sleepwear and clothes to the hospital. Ideally, women should have a wire-free, soft cotton, front-fastening bra that is one size bigger than usual. After surgery, your wounds and muscles will be sensitive and comfortable clothing is less likely to irritate them.

Before your surgery you will have some tests e.g. blood tests, chest X-ray and an electrocardiogram (ECG). An IV line may be placed in a vein on the back of your hand or arm. This is used to give your medications during surgery.



The hair around the operation site will be clipped/shaved, including your chest, legs and possibly arms. You may also need to have a shower using antibacterial solutions; a nurse will tell you when to do this.

Important – If you are taking medication(s), especially medication that prevents your blood from forming clots such as aspirin, warfarin, clopidogrel, dabigatran or ticagrelor, your doctor will advise you on whether to continue taking them. Do not stop taking your medication until your doctor advises you to do so. If in doubt ask your doctor, nurse or cardiologist. You should also bring all your medications to hospital.

The day of surgery

The nurse or anaesthetist will tell you when to stop eating and drinking before your operation. You will also need to remove any jewellery and/or glasses (you can give them to a relative or nurse for safekeeping). If you have dentures or plates the anaesthetist will tell you when you need to remove them.

Shortly before going to theatre, you will need to change into a hospital gown. You will then be given medications, which will help you to relax and may make you feel a little drowsy. When you arrive at the operating theatre, you will receive an anaesthetic to keep you asleep during the operation.

During the operation

The surgeon will make a cut (incision) down the middle of your chest, through the breastbone (sternum) to reach your heart.

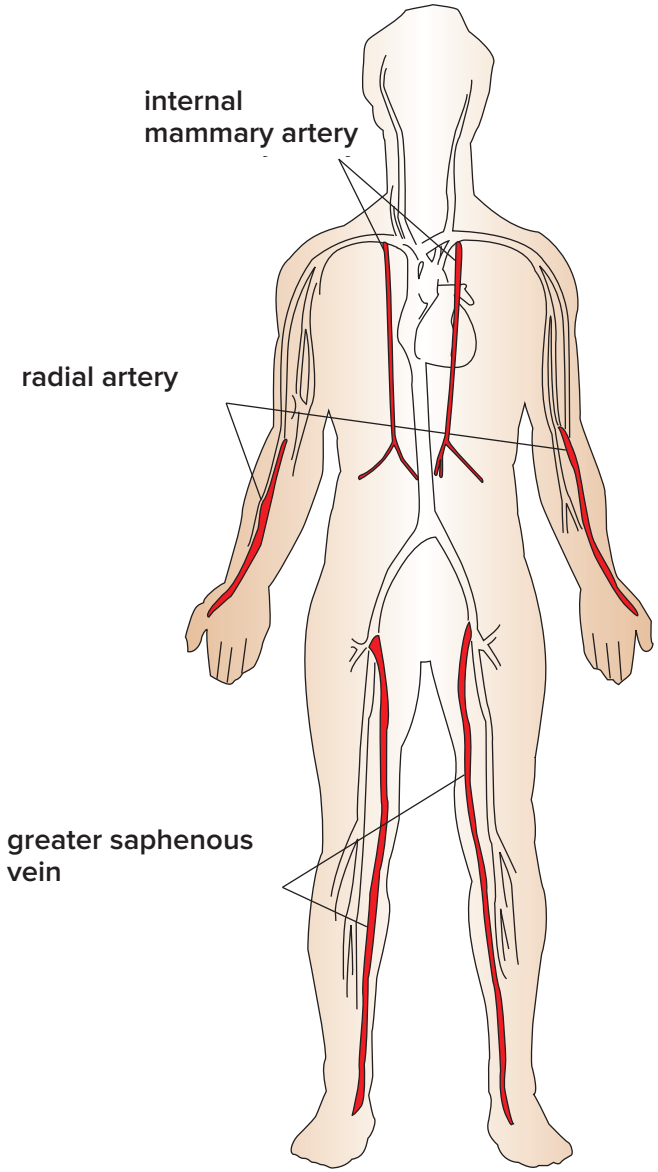
While your heart is being operated on, it may be temporarily stopped. During this time, the flow of blood to the heart and lungs is re-routed through a heart/lung bypass machine. The bypass machine takes over the heart's job of pumping and the lungs' job of breathing.

Alternatively, they may perform off-pump bypass surgery, where a heart/lung bypass machine is not needed. Coronary artery bypass graft surgery usually takes between three to six hours, depending on what is required.

You may have an incision in either your leg or arm, depending on where the graft has been taken from. For the first few days following your operation, these will be bandaged or covered by a dressing.

You may have endoscopic vein harvesting, where the vein from the leg is collected using up to three small incisions, which reduces scarring.

Graft collection sites



After the operation

After your operation, you will wake up in the Intensive Care Unit (ICU) or High Dependency Unit (HDU). You will be monitored closely for 12–24 hours, until you have regained consciousness.

It is normal to wake up with a breathing tube in your throat. As soon as you start waking up, the tube will be removed and you will be given oxygen via a mask or nasal prongs to improve your breathing. Most people do not remember having a breathing tube and it is common to feel a bit disorientated, but this will pass.

It can be noisy in the ICU/HDU as machines are monitoring your heart and body's condition. You may notice narrow tubes in your neck, arms, chest and bladder. Do not be alarmed, as this is usual following surgery.

The narrow tube in the neck (central line) gives medication and fluids, monitors blood pressure and allows for blood samples to be taken. The tubes in the arms may also be used for medications and fluids. The tubes in the chest drain any excess fluid as a result of your surgery (you may see some blood in these tubes, which is normal). The tube in the bladder (catheter) drains your urine away.

You will also feel very sleepy and it is usual to sleep a lot in the first few days. You may not remember your stay in ICU, which is normal.

"There were tubes everywhere. My right leg had an incision from the ankle to near the top of the thigh and from abdomen to neck. I was in ICU, with monitors going off and people coming out of anaesthesia. I was monitored every second of the day."

Yvonne

Returning to the ward

Once fully awake, you will be transferred from ICU/HDU to the ward, where the nurses and doctors will continue to care for you.

For the first few days, your medications will be changed as your body adjusts to the operation. You will be on several standard medications, each of which has a different job to do.

"You feel drowsy from medication, you feel tired and uncomfortable, and people around you are distressed. It's hard to not let that affect you. But I guess for me, it was important for my own recovery to stay positive."

Cynthia

Some common after-effects from surgery are listed below:

Pain: You will feel a bit sore after the operation and will need to take regular pain relief. You may be given a device used to administer pain medication intravenously called Patient Controlled Analgesia (PCA). A staff member will show you how to use the PCA properly, so you can give yourself pain relief when needed. Having the appropriate pain relief will help you recover more quickly. Ideally, you should be able to breathe and cough comfortably with little discomfort. Remember, it is important to let the nurses know if you are in pain.

You may feel sore in your arms and shoulders for sometime after your operation. This is due to the position you were placed in during the operation – on your back with your arms extended. This will improve in time.

Heart rhythms: Irregular heart rhythms (heartbeats) can occur after surgery, which can be treated.

Altered perception: You may experience vivid dreams, visual disturbances and occasional disorientation during the first few nights following your operation. Tell your doctor or nurse if you experience these.

Feeling sick (nausea): It is common to experience nausea for several days after your surgery. Nursing staff can provide you with medication to ease this.

Sleeping patterns: Many people do not sleep as well as usual for the first few weeks after surgery. If you are experiencing pain, taking regular pain relief may help you sleep better.

Memory loss: You may also be affected by some memory loss after surgery. This is usually temporary and improves within six months after surgery.

Constipation: You may get constipated after surgery. Tell your nurse if this happens.

Altered taste: You may experience a metallic taste in your mouth for a time after surgery. This will pass.

Depression: You may experience the "cardiac blues" a few days or weeks after your surgery. Tears are not unusual and you may experience mood swings. It may help to talk to other patients who have had surgery or to staff. If these feelings persist, seek help from your doctor or nurse.

It took meeting with a neurologist to put **Charlie** on the road to recovery after his triple bypass.

"He told me, 'I know what you've done. You've prepared yourself for death, haven't you? But did you prepare yourself to live? You got so worked up about the operation, worried about surviving it. Did you have a plan to survive it?'"

Physiotherapy

To aid your recovery, physiotherapists will visit soon after your surgery. They will help get you back on your feet within one to two days following your surgery. You can help your recovery by practicing the exercises your physiotherapist has given you.

Physiotherapists help you with:

- mobilising, breathing exercises and supported coughing to improve lung function. This may help prevent chest infections and blood clots
- the best ways to move to minimise wound discomfort
- advice on an exercise programme to improve your fitness at home
- advice on your gradual return to normal work and leisure activities.

As the muscles, bones and joints of the chest wall need time to heal, avoid lifting heavy objects and doing movements that place stress on your chest area.

It is important to discuss a home exercise plan with the physiotherapist or nurse prior to discharge. Your physiotherapist or nurse can advise you and answer any questions.

Returning home

You will usually stay in hospital for five to seven days following your surgery. Your doctors and nurses will advise you when you can go home. Please discuss any concerns/questions you have with one of them prior to discharge.

You may have to wear supportive stockings in hospital and possibly for a short time when you are home, as advised by your doctor or nurse. This is to reduce the risk of blood clots.

To reduce discomfort caused by a seatbelt to your chest, it is advisable to ask the person collecting you to bring a small pillow or soft towel. Place this between your chest and the seatbelt. You may be given a Heart Foundation cushion by your nurse.

"It was good to be home but settling down to food and medicines was not easy. I learnt to take deep breaths and to keep calm. We had to curtail visitors as I was still too weak to cope."

Yvonne

Before returning home, make sure someone can look after you for between seven – ten days after discharge. You are advised not to go home alone. If there is no one to take care of you, tell the doctors and nurses and they will arrange for someone to talk to you about care options.

Your stay in hospital

Staying well after surgery

Your recovery

It takes about three months for the sternum (breastbone) to heal, so during this time you should expect some discomfort in your chest. Regular paracetamol will reduce this. To improve your rate of recovery, plan to gradually increase your daily activities, especially walking. It is important to follow the activity guidelines given to you before leaving hospital. If you have any concerns about your recovery, please contact your doctor or nurse.

The scars on your arms and legs may need dressings until they are healed. If the scars swell, you should elevate the affected limb for an hour or two. To help with swelling, your doctor may advise you to wear support stockings. The tissue beneath your scars may feel hard and tender but it will eventually feel normal. You may experience some numbness, tingling, sharp stabbing and pins and needles around the scars, which will gradually disappear as the body heals.

Memory and concentration can be affected temporarily and because of this, it is not advised to return to work early. It is also advised to delay making decisions as you may feel differently in the future.

"One of the things I personally struggled with was just the mental fade and the physical tiredness, particularly in the afternoon and evenings. Mentally I found that frustrating because I was so used to my previous lifestyle of activity, busyness and general wellbeing."

Lloyd

"At least for the first few months with that kind of chest injury, I wasn't supposed to lift or carry anything, not even raise my arms over my head to hang out washing – I didn't feel so bad about that! My young daughter still wanted to be picked up and cuddled, so she learnt very quickly to come and sit next to me on the couch. The whole family adapted."

Cynthia

Getting the most from your surgery

CABG surgery is a treatment of symptoms and **not a cure** for the underlying heart disease that caused the symptoms in the first place. Some renarrowing of the arteries will occur over time. You'll start taking medications before leaving hospital, and will need to keep filling your prescriptions and taking your medications when you go home.

Heart pills are not just a one-off prescription. It is important that you keep taking these for the long term. **Do not stop taking your pills but talk to your GP or nurse if you are having problems.**

The goal of this surgery is to lower your risk of future angina and heart attack. For about eight out of ten patients, surgery will be a success, providing immediate and lasting relief from angina. For others, the surgery will only **improve** their angina. If your angina does return, tell your doctor. You may need more tests to assess the best course of treatment.

Over time the grafts can also develop narrowing, so it is very important to continue taking your heart medicines and make changes to your lifestyle to help prevent future heart disease.

Choices you can make to lower your risk of heart attack and stroke

Stop smoking | **Take medications** | **Make heart healthy eating and drinking choices** | **Move more** | **Lose weight**

For more information about lowering your risk, search 'risk': **heartfoundation.org.nz**

Cardiac rehabilitation

Cardiac rehabilitation programmes can help you to improve your heart health and reduce your chances of having another heart event. Attending cardiac rehabilitation is as important as your follow up visits to your doctor. It is part of your treatment and will provide you and your partner or family/whānau members with information, tools and support for a faster recovery so you can fulfil your lifetime.

Programmes are delivered in different ways and usually have three phases:

Phase 1: While you are in hospital you may be invited to attend a cardiac rehabilitation programme. Here you may be given advice on lifestyle changes and the medications you are on.

Phase 2: Following discharge, this rehabilitation programme is an important part of your recovery. Health professionals are available to give you advice and support on exercise, healthy eating, becoming smokefree, stress management, medication and work. Ask your cardiac rehabilitation nurse what is available in your area.

Phase 3: Your local heart support group can offer you on-going support to maintain healthy lifestyle changes. These groups can offer education, exercise and emotional support for you and your family/whānau. You should also be visiting your doctor or nurse regularly for check-ups.

To find out about your nearest cardiac rehabilitation programme or heart support group, contact your nurse or visit our online Heart Help directory: **heartfoundation.org.nz/hhd**

Cardiac rehab is something **Lloyd** would highly recommend to others following heart surgery.

"I found it beneficial on a number of levels: mixing with some other patients and getting a good cross section of information in the rehab courses. Plus it was very caring and practical."

Feelings and relationships

"For a period of time, my husband wouldn't leave me by myself. I had one of the St John's emergency bracelets for a little while, and that just gave us peace of mind."

Cynthia

You and your partner/support person are likely to feel anxious about you leaving hospital to go home. This is quite normal after an operation. You might find it helpful to talk about your feelings with close family members or friends. Family and whānau may also experience similar concerns.

These feelings should ease as your life returns to normal. However for some, the anxiety may become more severe and it is important to seek help. Contact your cardiac rehabilitation nurse or family doctor to discuss your feelings with them.

Sex after your surgery

A healthy sex life is part of returning to normal life after heart surgery. It can be very beneficial for your relationship, helping you feel secure and happy. While it may take a little while for you to feel like having sex, the desire should soon return. Try to take things slowly, making an effort to discuss your feelings and concerns with your partner.

The amount of energy needed for sexual intercourse is about the same as walking up two normal flights of stairs briskly, so it will not unduly affect your heart. Find a position that is comfortable and doesn't place any stress on your chest or restrict your breathing and avoid positions where your arms are supporting your body weight.

Life after surgery

Getting behind the wheel

NZ Transport Agency's (NZTA) guidelines state that you legally must not drive for four weeks following your surgery. However, some specialists recommend six weeks as this allows more time for the bone to heal. You may need to have an assessment by a specialist before returning to driving.

If you hold a vocational licence and drive passenger vehicles, trucks, fork lifts, courier vans or fly aeroplanes, different rules apply. Generally, you can apply to start driving three months after your surgery. Your licence needs to be approved by a cardiologist or specialist who has examined you and ensured you are safe to drive. It also pays to check with your insurance company to ensure that you are fully covered.

For more information, contact the NZ Transport Agency phone 0800 822 422 or visit www.nzta.govt.nz

Travelling by air

It is best to discuss air travel plans with your doctor first. Usually you will need to wait at least ten days after your surgery before considering air travel. Each airline has a different policy for air travel following surgery.

It is recommended you contact your airline prior to booking your flight. If you are going overseas, you will also need travel insurance, including a policy that will cover you for pre-existing conditions.

Ensure all medications are in labelled boxes. Speak to your doctor about providing a letter that details your prescribed medications. Take medications in carry-on luggage in case your luggage is delayed or lost.

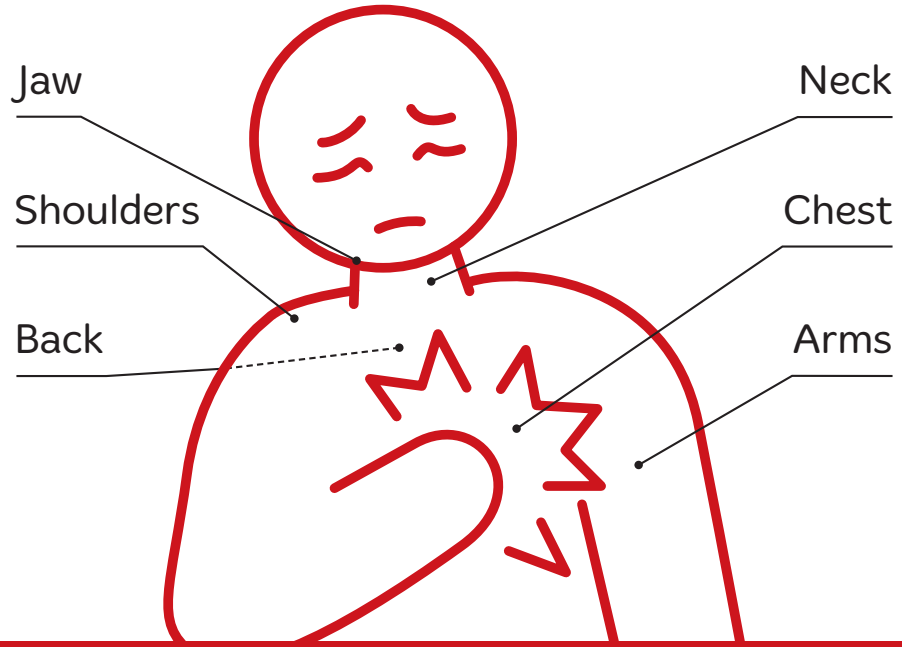
If you are travelling overseas to a country with a time difference, discuss your medication regime with your doctor or pharmacist.

Heart attack warning signs

Know these signs and symptoms

Heart Foundation

Pain or discomfort in any of these areas:



You may also feel:

Dizzy or lightheaded | Short of breath | Sweaty | Sick

You may be having a heart attack.

Call 111

Hearts fit for life

The Heart Foundation is the charity that works to stop all people in New Zealand dying prematurely from heart disease and enable people with heart disease to live full lives.

Visit our website **heartfoundation.org.nz** to find out how to:

- join information and support sessions
- share your story
- ask questions.

To speak with a nurse about your condition, call our Heart Helpline **0800 863 375**.

If you would like to help people in New Zealand who are living with heart disease, please consider donating.

To donate:

Visit: heartfoundation.org.nz/donate

Phone: 0800 830 100

Heart Foundation, PO Box 17160, Greenlane, Auckland 1546
T 0800 863 375 **F** 09 571 9190 **E** info@heartfoundation.org.nz

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As a charity, we thank our generous donors for helping bring this resource to life.

Heart Foundation™