

## PATIENT INFORMATION

# Torbay Cardiac Rehabilitation

Tel: 01803 527062



**Cardiac Rehabilitation Specialist Nurses**

Working with you, for you

## **CARDIAC REHABILITATION**

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### **OUR PHILOSOPHY**

By listening, discussing and teaching it is our aim to enable patients and their families to return to a state of well-being which is acceptable to them.

Each patient comes as an individual with their own experience of health and illness and we attempt to adapt the course to meet their needs.

We do not claim to have all the answers but hope that we can guide patients, their families and friends to a healthier way of life.

Although this booklet has been compiled by the team at Torbay and South Devon Cardiac Rehabilitation Team, we are aware that patients from Other areas will have access to it when visiting Torbay Hospital.

With this in mind, most of the information in this booklet is generic, although there may be local variations in cardiac rehabilitation facilities and protocols. If in doubt, telephone your nearest hospital for more details of their facility.

They can advise you on treatments, facilities, their own locally agreed exercise protocols and types of cardiac rehabilitation programmes on offer.

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## WHO'S WHO?

Some staff you may encounter on your 'patient journey' when you have a cardiac event.

### GP

Your GP may have made your initial referral to the hospital Cardiologist. If you have any concerns about your health, including your mood, questions about your tablets, if new symptoms occur or old symptoms recur, your GP is the first person to contact as they are responsible for your overall health.

### Cardiologist

A cardiologist is responsible for your cardiology care. He/she will also have a specialist interest/skill – such as performing angiograms, pacing, or other investigations/procedures. Cardiologists see patients in outpatients, on ward rounds and during procedures e.g. Angiogram.

### Cardiac interventionist

Is responsible for cardiac care like the cardiologist and also performs angioplasty/stenting. You may be referred to the interventionist for treatment by a non-interventionist cardiologist, but remain in the care of the initial cardiologist for on-going cardiology care.

### Hospital doctor

This doctor works as part of the consultant cardiac specialist's team. He/she will see patients on wards, in outpatients and can arrange investigations, amend medication and discharge/admit patients.

### Ward/Coronary Care nurse

This is a registered nurse who has chosen to specialise in cardiology.

They will be able to look after you before, during and after your cardiac event and have direct links to the cardiologists and their medical team, including junior doctors. They can liaise with pharmacists, physiotherapists/occupational therapists and the Cardiac Rehabilitation team.

They can prescribe and administer medicines for you and explain about the actions of these. They can also give you lifestyle advice for when you get home (e.g. driving).

### Physiotherapist/Occupational therapist.

If you have had a heart attack, or heart surgery, you may be seen by a physiotherapist. He/she will be able to give you advice about activities you are able to undertake both whilst in hospital and when you get home. They, in conjunction with occupational therapists, may undertake an assessment of your capabilities and be able to give you a plan of action for activities best suited to you.

### Pharmacist in hospital

The pharmacist visits the ward most weekdays. She/he ensures you have the correct medications in the correct dose and that they are prescribed at the right time (the doctor prescribes all medications). They have specialist knowledge of medications, their actions and interactions and can give you individual advice.

### Pharmacist at your local chemist/pharmacy

The pharmacist is trained in the same way as hospital-based pharmacists and responsibilities remain the same regarding medications. Many pharmacies offer a one-to-one medication review. They can also arrange to dispense your prescribed medications into weekly 'packs' with each day in a separate compartment.

### Dietician in hospital

Registered Dietitians (RDs) are the only qualified health professionals that assess, diagnose and treat diet and nutrition problems. Dietitians use the most up to date public health and scientific research on food, health and disease, which they translate into practical guidance to enable people to make appropriate lifestyle and food choices. Dietitians are the only nutrition professionals to be regulated and governed by an ethical code, to ensure that they always work to the highest standard. The title 'Dietician' is protected and can only be used by those appropriately trained professionals who have registered with the Health Professions Council.

Dietitians may work in one or more specialist areas e.g. diabetes, children's health, cancer etc. Patients may be referred to them based on a risk scoring system. The Dietitian may need to assess the patient on the ward and make recommendations regarding the most suitable dietary plan for the patient's needs. This can include special dietary products, meals or tube feeds. They are a key part of the healthcare team and work closely with the patients' doctors. Dietitians also provide nutritional training to nurses, doctors, allied health professionals and patients. They produce a wide variety of evidence-based information sheets regarding diet to support teaching.

### Cardiac physiologist for exercise tests, echocardiograms etc

He or she will have a scientific background and be specially trained in undertaking and assisting in analysing cardiac tests and investigations such as echocardiograms, exercise tests etc.

### Cardiographer

Will record (Electrocardiograms) ECG's on wards, or in outpatients, and will be involved with administering tests; such as fitting 24hr tape recorders of Blood Pressure or Heart Rhythm.

### Phlebotomist

A trained practitioner who may take your blood for testing. They work in hospitals and sometimes at your GP surgery.



### Practice nurse

Is a Registered Nurse who has chosen to work in the community setting based in a GP practice. They are able to assess and support you in terms of general health but may not always have the cardiology experience of a cardiac nurse. You may see the nurse for routine blood tests or about other health issues (e.g. Diabetes). You may discuss concerns about your social situation, your health and well-being, including your mood, your tablets and your wound(s). The Nurse has direct links to your GP in the surgery.

### District/Community nurse

Is a Registered Nurse who has chosen to work in the community. They are able to assess and support you in terms of general health but may not always have the cardiology experience of a cardiac nurse. You may discuss concerns about your social situation, your health and well-being, your tablets and your wound(s). The Nurse has direct links to your GP surgery. You may not see your community nurse, unless you have post-surgical wounds that need dressing. They are contacted through your GP surgery.

### Cardiac Rehabilitation Nurse

She/he can assess your progress, give lifestyle advice, organise a community follow-up for you (e.g. Cardiac Rehabilitation Course). She/he can also check your medications, but cannot prescribe medications. She/he can also liaise with your consultant. A named nurse will take you through your cardiac rehabilitation Risk factors/course/home exercise programmes.

### Cardiac Rehab Exercise Instructor

A small group of cardiac Exercise instructors have undertaken BACPR training in order to help support you before and after your cardiac event(s). They can contact patients (at the patient's request) this may be arranged by a cardiac rehabilitation nurse. They can help you with your exercise questions, help to gain your confidence getting back to normal activities and sports.

## INTRODUCTION

The purpose of this booklet is to give you and your relations some general advice now that you have had a Heart Attack and or PCI (angioplasty) or Cardiac Surgery. Read the sections relevant to you if you so wish. We are writing as if you are an 'average' patient. When talking to the doctors and nurses that are looking after you, do not be surprised if the advice you receive is not entirely uniform; patients differ. The general care will be the same.

This booklet is split into five sections.

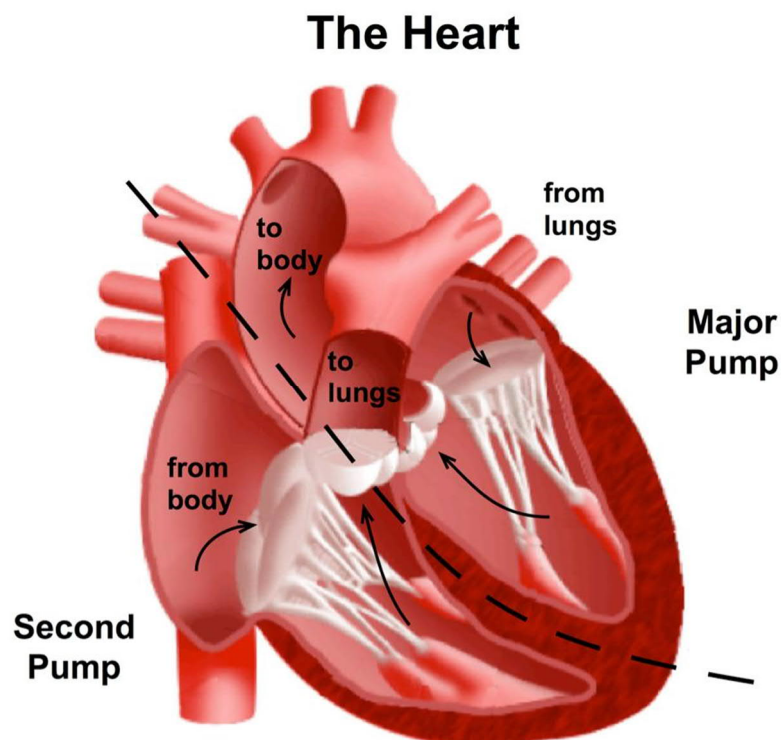
- Section A explains how the heart functions and what happens when it becomes impaired.
- Section B discusses your recovery both in hospital and once home. This section is split into two further parts, read:-
  - Part 1 If you have had a heart attack and/or PCI (angioplasty)
  - Part 2 If you have had open-heart surgery, such as coronary artery bypass surgery or valve repair/replacement
- Section C describes an exercise programme that can be performed at home, and what the Cardiac Rehabilitation Course involves.
- Section D discusses the reasons you may have Coronary Artery Disease, and how to address them.
- Section E includes information about medications and some useful contact details.

This booklet is designed to be a resource for you throughout your recovery; from your first day in hospital to your future well-being. The different sections are designed to be read during the various stages of your recovery.

## SECTION A

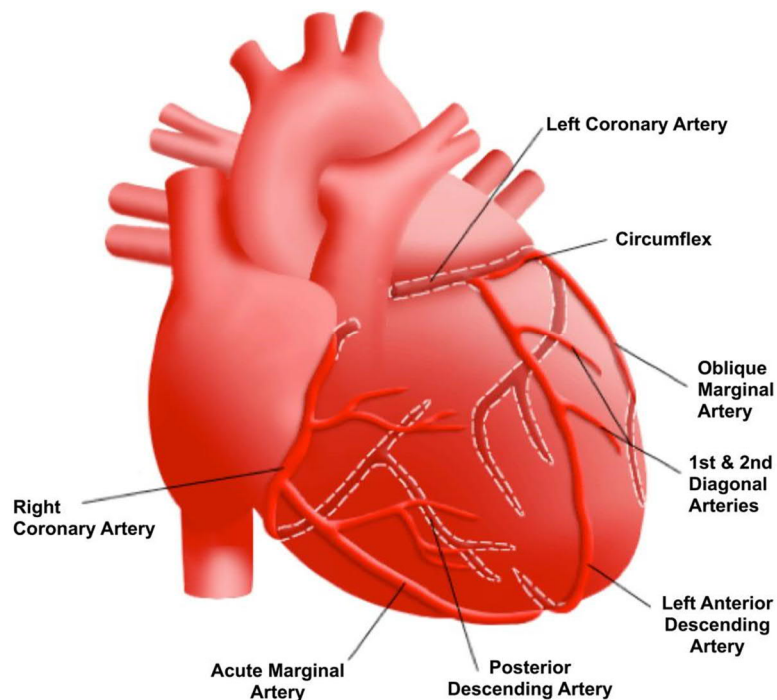
### THE HEART

The heart consists of two pumps side by side. The major pump takes blood from the lungs to supply the whole body with oxygen and other vital substances. The blood returns to the second pump of the heart and then to the lungs. Here, the waste products are breathed out into the air and oxygen is breathed in, completing the circuit. Thus, the heart is vital to your existence.



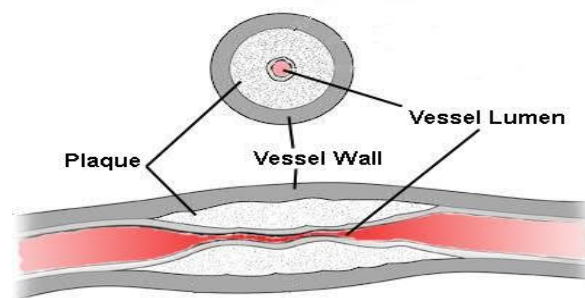
The pumps are made of muscle, which, unlike the muscles in your arms and legs, does not tire with constant use. In fact, the heart beats about once every second of your life. The energy needed to provide the work of the pump is in the form of oxygen and other nutrients contained within the blood. This blood is supplied to the muscle by vessels called the right and left coronary arteries (see diagram page 12). In a healthy person the balance between the supply of blood to the heart and the demand made by the heart muscle is carefully matched. When there is disease this is often no longer the case. Angina is only one of the symptoms that can be experienced if an imbalance occurs but it is by far the commonest. Another symptom, that is sometimes an angina equivalent, is breathlessness.

## Coronary Arteries of the Heart



### What is Coronary Artery Disease?

The inside of the coronary arteries (lumen) can become narrowed by a gradual build-up of fatty material. This process is called 'atherosclerosis' and the fatty material is called 'atheroma'. In time, the artery can become so narrowed that it cannot deliver enough oxygen-containing blood to the heart muscle when its demands are high (i.e. whilst exercising). People with coronary artery disease are at risk of having angina or a heart attack.



### What is Angina?

Angina is the symptom you experience when the coronary arteries become narrowed by atheroma, and as a result the heart muscle does not get an adequate blood supply. Angina can be described as a chest pain or discomfort (e.g. heaviness, pressure, dull-ache), in the chest, jaw, arm(s) or back. Sometimes it can be breathlessness or can only be shown on the ECG when an exercise treadmill test is performed. Stable angina is angina that predictably comes on with a particular amount of exercise or stress, and is well controlled with drugs. Unstable angina is angina that has developed for the first time, or angina that was previously stable but has recently become worse or changed in pattern, for example after an unpredictable amount of exercise or stress, or even at rest.

## What is a Heart Attack?

During a Heart Attack damage occurs to the lining of one of the diseased coronary arteries and a blockage occurs at this site. The blockage is made up of constituents from the circulating blood, including platelets, and is called a clot or thrombus. If the blockage persists, then the part of the heart muscle that should have been supplied with blood and oxygen is permanently damaged. This is a Heart Attack. You may have heard different terms used to describe a heart attack. Alternative descriptions include 'acute coronary syndrome', 'coronary thrombosis' and a 'coronary'. Most doctors term a heart attack as a myocardial infarction (myo = muscles, cardial = heart, infarction = dead tissue).

More often than not, the amount of muscle damage is small, and once the heart attack is over there is enough good muscle left for the heart to satisfactorily carry on its work.

How do I know that I have angina or a heart attack?

With angina the pain or discomfort is mild and rarely lasts for longer than 15 minutes. It may occur several times a day. The typical pain is a mild discomfort located in the chest, neck, arms, stomach or through to the back and usually has a restricting heavy or tight quality. It can be confused with indigestion type pain.

The majority of heart attacks are preceded by a history of angina. With a heart attack the pain is usually more severe and lasts for longer. Often there are additional symptoms such as nausea, sweating, breathlessness and dizziness. However, sometimes a heart attack is 'silent' and produces little discomfort. The heart attack may first be revealed at a routine medical examination. A heart attack may also cause the rhythm of the heart to be disturbed

Early treatment of certain types of heart attack by percutaneous coronary intervention (PCI) or less frequently using a thrombolytic drug ('clot buster') aims to restore blood flow to limit the amount of damage to the heart.

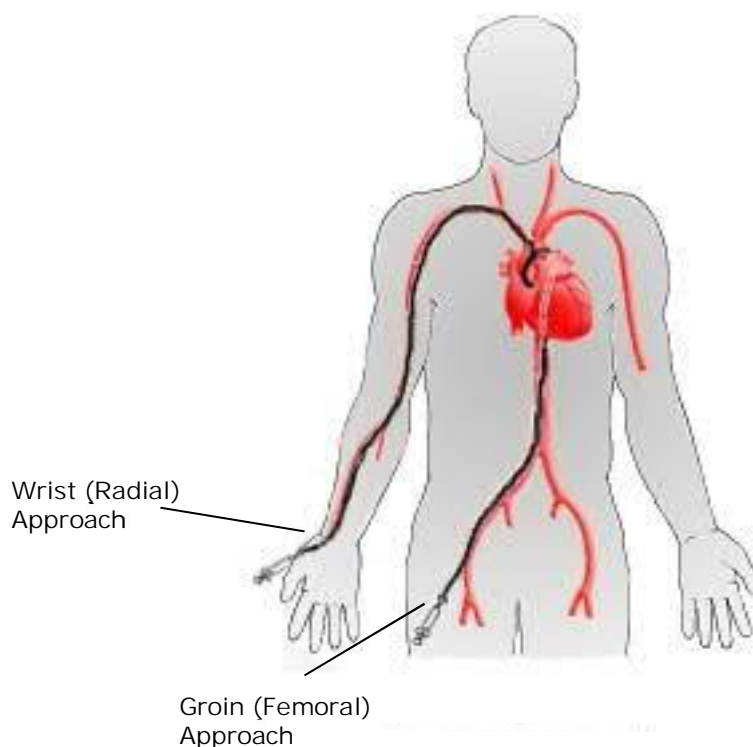
## What is an Acute Coronary Syndrome?

Acute Coronary Syndrome is the term that we use to describe patients who have been diagnosed with Unstable Angina or Heart Attack. The diagnosis is made by analysing the history of the symptoms, the electrical recordings of the heart (ECGs) and blood tests. The management is much the same apart from the use of a thrombolytic, which is only indicated for a certain type of Heart Attack. Most patients with an Acute Coronary Syndrome go on to have a Cardiac Catheter, also called an Angiogram.

## What is an Angiogram (Cardiac Catheter)?

This is an examination of the coronary arteries using a dye that shows up on X-rays. During an angiogram, the cardiologist inserts a small, hollow tube (catheter), into an artery usually in the groin or wrist, and then advances it into the heart's arteries. The cardiologist injects contrast (X-ray dye) through the catheter to outline the arteries and to show any blockage or narrowing that may exist.

Most patients experience little or no discomfort during the procedure. The nursing and medical staff will give medication and reassurance throughout the procedure.



The results of the angiogram may indicate that 'revascularisation treatment' is required. This means it is necessary to make the blood vessels wider, or restructure blocked arteries with grafts. This can control angina symptoms more effectively than medication alone.

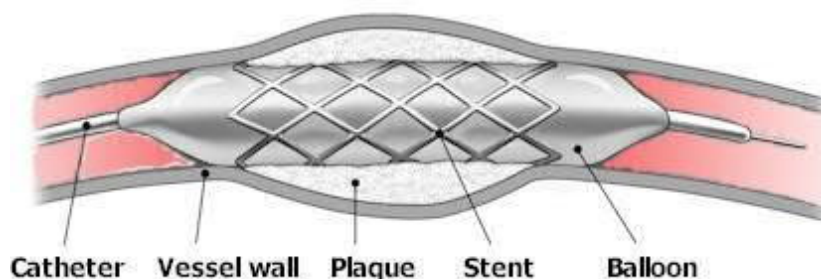
There are two forms of revascularisation. The most commonly performed is Percutaneous Coronary Intervention (PCI), otherwise known as "angioplasty or stenting" and is carried out at Torbay Hospital. For some patients Coronary Artery Bypass Grafting (CABG) is more appropriate, this would be carried out at a specialist cardiac surgery centre such as Derriford Hospital in Plymouth.

## What is a PCI?

Percutaneous Coronary Intervention is a procedure that widens a narrowed coronary artery, using specialized catheters. PCI can be performed as a planned procedure or as an emergency for someone who has an acute blockage/narrowing of the coronary arteries, such as a person suffering with severe angina or a heart attack. PCI can also be used if you have had coronary bypass surgery but a coronary graft has become narrowed.

The procedure is very similar to that of an angiogram. The cardiologist uses X-ray screening to guide a balloon mounted on a catheter to the narrowing in the coronary artery. The balloon is then gently inflated so that it compresses the fatty tissue responsible for the narrowing. This widens the artery (see illustration below) and to hold the area open, a stent is usually left in place. As the balloon is inflated, angina symptoms may occur, but the pain eases very quickly when the balloon is deflated. A PCI will often take longer than an angiogram.

### Coronary Artery with Stent



Prior to having a coronary angioplasty and for a defined period afterwards (which varies), certain 'anti-platelet drugs' will be prescribed to help both prevention of future coronary events and stent blockages.

**If you have a stent and there is any question of the Clopidogrel/Ticagrelor/Prasugrel being stopped by anyone, it MUST firstly be confirmed with your Cardiologist (Consultant at the hospital) see page 71 for more details.**

Sometimes, if the person has agreed to it beforehand, and the circumstances are right, the doctors may perform the PCI at the same time as the coronary angiogram.

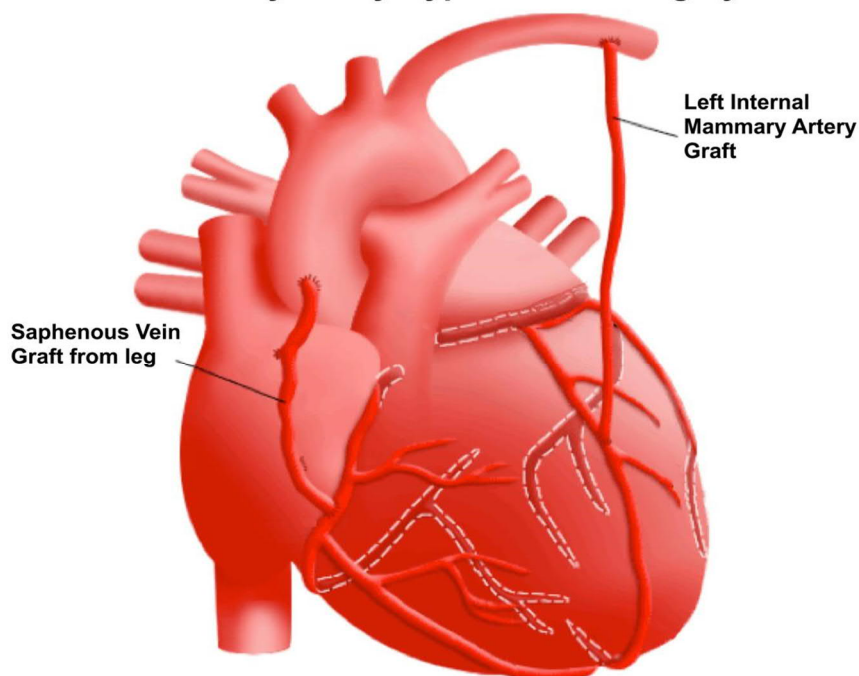
Technical advances in PCI have led to the use of tools such as a laser or Rotablator (miniature diamond drill) and special balloon-only procedures. These can assist the interventionist in opening up an artery. However, if PCI cannot be performed, or has been unsuccessful, the cardiologist may recommend a Coronary Artery Bypass Graft.



## What is Coronary Artery Bypass Grafting (CABG)?

Coronary Artery Bypass Grafting is an operation where a blood vessel (an artery or vein) is removed from one part of the body and attached on to the heart's coronary arteries to 'bypass' a blocked coronary artery (see illustration below).

### Coronary Artery Bypass Graft Surgery



Several of these 'bypass' grafts may be needed and at least one of the donor blood vessels used as a graft will usually be an artery. The donor blood vessels used may be obtained from the inside of the chest wall, the leg or the arm.

Patients needing cardiac surgery will be referred to a cardiac surgeon at a specialist cardiac surgical centre, (for example, Derriford Hospital).

Patients are usually admitted to Derriford Hospital the day or the day before their operation. The length of stay varies, but is usually 4-7 nights following the surgery. In the initial 24-48 hours, following the surgery, patients require close monitoring in an Intensive Care or High Dependency Unit.

If you require Cardiac Surgery and are waiting in hospital for transfer, the ward staff will be organising your transfer to the specialist cardiac centre.

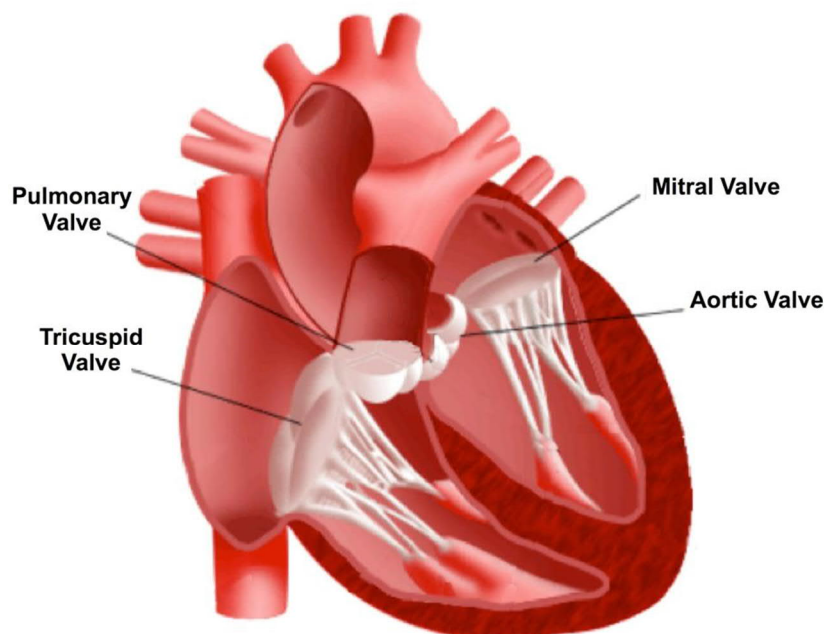
For information on what to expect following bypass surgery see pages 30-43.



## What is Valvular Heart Disease?

The pumping action of the heart is assisted by four valves that control the flow of blood in one direction through the chambers of the heart. They are composed of thin tissue and despite being in constant use, are remarkably durable. On each side of the heart the valves form the only structural link between the chambers.

### Valves of the Heart



A valve can fail in two ways. The valve can leak (termed 'incompetence' or 'regurgitation') or narrow (called a 'stenosis'). Often a valve can be both leaking and narrowed. The following situations illustrate what may happen.

The first is a narrowing (stenosis) of one of the two valves on the left side of the heart. Narrowing of the Mitral Valve, nearly always a consequence of rheumatic fever as a child, produces damming up of blood within the left atrium which in turn causes fluid accumulation in the lungs. The consequence of this is shortness of breath. The heart's pacemaker is often upset and irregular fast rhythms are common in patients with advanced mitral stenosis. Narrowing of the other left heart valve, the Aortic Valve, means that not enough blood can be circulated to the body. This is especially noticeable during times of effort and patients frequently present with dizziness.

The second situation is one where a valve is leaking. Again, this is more common and more likely to be of importance when this involves the left side of the heart. Additional strain is put on the pumping chambers because for every heartbeat a variable proportion of blood is going in the wrong direction and has to be emptied out each time to try and maintain a normal circulation. The usual symptom of an overtaxed heart, in this situation, is breathlessness. If the right side of the heart is involved then fluid collects in the ankles or abdomen rather than the lungs.

## Prevention of Infection

Before discussing those patients requiring some intervention, it is important to mention preventative measures. Anyone with Valvular Heart Disease runs a slight risk of infection of the valve. Whenever bacteria or other organisms get into the blood stream the body's defences rise up and kill these organisms. If, however, the bacteria can hide away in a diseased valve or other abnormal lining structure of the circulation, then they can remain undisturbed and immune to one's natural defences. The organisms can then multiply and infect the heart leading to serious structural damage.

A small dose of bacteria invading the blood is of no consequence but during certain procedures such as dental work near the gums, some surgical procedures or an investigation of one of the passages, the number of bacteria entering the blood can be considerable. In this situation there is a small risk of infection of the heart lining (called endocarditis). Such a risk can, in the case of dentistry, be reduced by good oral hygiene. It is important that you visit your dentist six monthly and take good care of your teeth and gums. In some circumstances your cardiologist may advise antibiotics before a dental procedure as a precaution.

## Treatment

Those patients who develop symptoms related to their valvular insufficiency will require some form of treatment. In the majority of cases this is medical. Tablets used are to reduce fluid accumulation (diuretics) and to open up the circulation and prevent backward flow (vasodilators). Other drugs may be used to correct the heart rhythm if this has been disturbed. Patients with turbulent blood flow, particularly if linked to a persistently irregular heart rhythm, may need to go onto a blood thinning treatment to prevent clot formation. Such treatment can be life-long.

In a small proportion of patients, a surgical solution is necessary. This usually means an operation on a heart valve. Diseased valves can sometimes be repaired but more commonly require replacement.

## Repair

The form of repair depends on which valve is involved and the type and severity of the abnormality. For example, a leaky mitral valve can sometimes be repaired. Valve replacement is however more common (and is the norm for the aortic valve).

## Replacement

There are two main types of artificial heart valve. The first are artificial man-made valves (prosthetic/mechanical) and the second type are constructed from human or specially treated animal tissues (biological/bio-prosthetic valves). Each have their own attributes and both give excellent results. The decision as to which type to use depends on many factors. The surgeon may not be able to make a decision until the time of the operation. The main concern for the patient is that the prosthetic valves tend to last longer but require the indefinite use of a blood thinning drug (anticoagulant). Most patients who require a heart operation find their previous symptoms improve or disappear. Some drug treatment is reduced or withdrawn completely and for those, who prior to the operation were not able to work because of their symptoms, are often well enough to return to their previous occupation.

## What is Heart Failure?

The term 'heart failure' is used when the heart muscle is impaired and failing to deliver as much blood and oxygen as the body requires. This can lead to breathlessness, tiredness and swollen ankles.

This may happen for a number of reasons, including, weakness or stiffness of the heart muscle, narrowed or leaking valves and abnormal heart rhythms. The most common causes of heart failure are heart attacks, high blood pressure and cardiomyopathy (a disease of the heart muscle). It may also be caused by, valve disease, congenital heart disease, uncontrolled irregular heart rhythms, alcohol and recreational drugs, and some chemotherapy.

Your consultant will tell you if you have heart failure, and may refer you to a Heart Failure Nurse specialist, who will contact you to offer support.

The British Heart Foundation produce a detailed booklet called "An everyday guide to living with Heart Failure". This can be found under their publication section at [www.bhf.org.uk](http://www.bhf.org.uk)

Treatment for heart failure aims to control symptoms and manage the causes of heart failure. With the support of a heart failure nurse you will be shown what you can do to help you manage your heart failure. This includes, taking your medication, monitoring your weight and changes in your symptoms, eating healthily, reducing salt intake, controlling your fluid intake, limiting alcohol, stopping smoking and keeping active.

If you have heart failure, it is important to keep an eye on your weight. This is because, if your weight goes up, it may be that too much fluid is building up in your body. Weigh yourself every morning and tell your doctor or Heart Failure Nurse about any sudden weight change (for example, if your weight goes up by about 4 pounds – just under 2 kilograms – over two days), or if you start getting more breathless, or have more ankle swelling. It may be that a slight change in your medication (such as water tablets) can improve the symptoms you have.

Torbay Heart Failure Team: 01803 655178

Visit: <http://pumping.marvellous.org> / [www.bhf.org.uk](http://www.bhf.org.uk)

## SECTION B

### PART ONE:

#### RECOVERY FOLLOWING A HEART ATTACK

For the first week or so you will probably feel tired. It is important to rest immediately following a heart attack and then slowly increase your physical activity levels, as this allows the heart to adjust and compensate for the area of damaged heart muscle.

Do rest when you feel tired. Although it can be good to see people, keep visitors to a minimum, as you can quickly become exhausted.

If you have stairs at home and if needed, the physiotherapist or nurse may assess your ability to manage stairs before you are discharged home.

#### RECOVERY FOLLOWING PCI (ANGIOPLASTY WITH OR WITHOUT STENTING)

If you are admitted as a day case, you **MUST** have someone staying with you for the first night just in case your wound bleeds or you begin to feel unwell.

#### Wound care following PCI

The catheter insertion site will most usually be in the wrist or groin. It is normal for the site (and sometimes an area around it) to develop bruising and feel tender. However, ...

If your wound bleeds heavily, or you have a swelling that appears to be visually growing:

- call for someone to help you and dial 999 for an ambulance to take you to the Emergency Department
- lie down (don't go upstairs if already downstairs)
- apply continuous pressure to the wound site
- if you have a groin wound keep your leg as straight as possible. If it is a wrist wound, raise your hand across your chest
- continue pressing until the ambulance arrives



Wrist Wound



Groin Wound

If you develop any of the following complaints or have any concerns please contact the Cardiac Catheter Suite (telephone number below):

- Persistent tenderness or swelling of the wound or limb.
- Redness or warmth to the touch of the wound or limb.
- Numbness/pain/pins and needles in the limb.
- Leakage from the wound
- Rash on limbs or body
- Temperature /Fever
- Lump in wrist wound (It is normal to have a pea sized lump in a groin wound)

#### General Wound Care

- Avoid lifting or any strenuous activity for 1 week, as it increases the pressure in the groin and wrist area, making it more likely that the wound will bleed.
- Avoid rubbing the wound site. Do not put creams, talcum powder or soap directly onto the site for up to a week after the procedure. This is to avoid irritation and reduce the likelihood of infection.
- Commencing the day after your procedure, shower/strip wash and change the plaster daily for the next 3-4 days or until the skin heals. Avoid baths and swimming for one week following the procedure. (also avoid washing up if you have a wrist wound)
- You may also get some bruising which could last for several days. If you have a groin wound, bruising could go down as far as your knee and up your tummy. If you have a wrist wound, bruising could go as far as your elbow. This is normal, providing it does not become swollen/hard or uncomfortable.

If you have any concerns:

- Mon-Fri 8am-5pm  
Telephone the Cardiac Catheter Suite on 01803 654734
- Out of these hours (evenings/nights/weekends)  
Telephone Coronary Care Unit on 01805 655554/ 01803 655566

#### Once you are discharged home

When you are discharged home, you may be given a brief letter together with a list of your medications, to give to your GP. The letter is a summary of what happened to you whilst in hospital. You will receive at least 2 weeks supply of tablets on discharge. If you have only been in hospital for the day/overnight you will only be supplied with any new medication. It is important that you contact your GP shortly after discharge, so that a repeat prescription of your new medication can be organised before the hospital tablets run out.

On discharge you may also be given a card about anti-platelet medication. This will explain how long antiplatelet medication is to continue. You may also be given a copy of your ecg to keep and show other health professionals should you become unwell in the future.

When you return home after being in hospital, it's not unusual to feel worried having left the environment of the hospital ward. If you live alone, you should try to make arrangements so that there is somebody available to call.

Following a heart attack, you will probably have good days and not so good days. You may feel low or fed-up after returning home. This is quite normal. You do not need to worry too much about this; it is a common, natural reaction to the stress of a major event in your life. As the days pass, you will be able to see that you are making progress and that you can gradually return to everyday activities.

You could be offered an appointment with a cardiac rehabilitation specialist nurse, approximately 1-6 weeks following your discharge. This appointment is important to discuss what has happened to you, review your medications and lifestyle, guide you on resuming normal activities and advise about reducing your future risk.

Cardiac Rehabilitation Office: 01803 527062

### What to do if you experience pain or discomfort

It is common to experience post-PCI discomfort/tenderness in the chest. This is normal and should settle within a few days. Some patients describe a slight stabbing or sharp pain, or a general feeling of 'something there'. This also should subside over time.

You may still experience angina following the procedure if you had more than one narrowed artery. Perhaps one of the other arteries is to be stented at a later date, or is not suitable for stenting. If this is the case your cardiologist will explain this to you.

If you have angina, it is best to immediately stop what you are doing and where possible, SIT DOWN. Take two sprays of your Glyceryl Trinitrate (GTN) Spray under the tongue and wait five minutes. Usually the pain will subside quite quickly but if, after five minutes, the pain/discomfort is still present you can take another two sprays of GTN. If after ten minutes you are still experiencing any discomfort, dial 999 and ask for an ambulance. GTN can cause some individuals to feel dizzy or faint, so is best taken if you are sitting down.



If at any stage the pain worsens or you feel unwell, call for an ambulance.

Once you have called an ambulance do NOT attempt to go upstairs to bed. Ideally, being near a phone is better. If the ambulance crew need to take you to hospital, being upstairs will delay things.

If you are undertaking an activity, which you know brings on an angina attack (for example walking upstairs), you can take two sprays of GTN prior to the activity to prevent the angina from happening.

NB: If you find that you are increasing the amount of GTN that you are using, (on average greater than four separate occasions a day) make an appointment to see your GP as soon as possible.

It may be helpful to make a note of what, if anything, brought the angina on and if anything relieved it. This will help you give an accurate description of your symptoms to the doctor, thereby assisting their diagnosis. An angina or symptom record sheet may be found at the back of this booklet on page 78.

### What activities can I do once home?

Everyone has differing levels of fitness and mobility prior to their admission to hospital, this will affect recovery, and therefore it is important to "LISTEN" to your body.

- If you are tired, rest.
- If anything causes you pain, stop!
- If you are too short of breath to talk, stop!

#### Following a routine PCI (not heart attack)

For the first few days you are home, avoid strenuous exercise, heavy lifting, and excessive pushing and pulling (e.g. cutting the grass, digging or hoovering). For the first week or two, GRADUALLY increase and return to usual everyday activities.

#### Following a heart attack

The following guidelines may be helpful to you in the initial weeks at home following your heart attack. Your return to normal can be considered in three stages:

#### Stage 1 (about the first 1-2 weeks at home)

Getting used to being back at home, you may feel more tired than expected; so, have a lie-in, an early night, or a nap in the afternoon. Your normal routine should gradually return.

#### Don't

- Go up and down stairs too often (no more than necessary)
- Drive a car (for more information see page 25)
- Jog
- Lift children
- Strain
- Pull, push or drag (including opening stiff windows or unscrewing a tight jar)
- Walk just after a meal

- Stand cooking for prolonged periods
- Shop
- Hang out washing
- Do gardening
- Exert yourself if you feel unwell

#### Do

- Get up and dressed every day
- Walk around the house on the level
- Take a warm shower or bath
- Wash your hair
- Be driven in the car for a short journey
- Get enough sleep: 6-8 hours including naps
- Walk outside if the weather is fine and not too hot or cold
- Sleep upstairs (if you normally do)
- Avoid constipation (drinking 1 litre of water per day in addition to tea & coffee, helps prevent constipation)
- Rest for an hour after a meal

#### Examples of activities that are 'ok'

- Play cards
- Light sewing or knitting
- Make a cup of tea
- Watch TV
- Reading

#### Stage 2 (2-3 weeks at home)

Gradually increase normal activities and exercise. Follow the exercise guidelines for specifics about exercising safely (see page 44).

#### Don't

- Change sheets or shake the duvet
- Carry any more than 5lbs in weight
- Do anything that makes you hold your breath or grunt  
(Holding your breath increases the pressure in your chest & abdominal cavity, and therefore increases your blood pressure)

#### Do

- Increase the distance you are walking
- Visit friends
- Go up and down stairs at a normal pace
- Light chores in stages

#### Examples of activities that are ok

- Light dusting
- Tidy the bed
- Water outside plants with a garden hose
- Resume gentle sexual activities
- Hobbies such as photography, drawing, and writing letters



### Stage 3 (3-6 weeks) Don't

- Carry heavy shopping
- Attempt heavy gardening (e.g. hedge trimming)

### Do

- Walk
- Go to the shops, get someone else to carry the shopping
- Avoid heavy lifting for at least 4-6 weeks

### Examples of activities that are ok

- Wash the dishes and clear up after a meal
- Do light weeding. Sit down to do this or use a hoe and lightly till the soil
- Resume sexual activities
- Use a lightweight electric lawn mower, cut the grass in stages. □ Go to the cinema

All of the above applies for the first 4-6 weeks, possibly longer depending upon you. Only you can assess how you feel. Sometimes people take up to 12 weeks or longer to fully recover.

REMEMBER TO LISTEN TO YOUR BODY AND **STOP** IF YOU FEEL UNWELL!

### Bathing/Showering

If you have had a PCI, avoid hot baths for the first 2-3 days, as this may encourage bleeding (it is safe to shower). If you have had a heart attack, you may find showers less tiring than a bath; avoid very hot baths or showers (as this may make you feel light headed/dizzy).

### Driving

Following a PCI (i.e. insertion of stents into one or more coronary arteries) do not drive for ONE week. Driving can recommence after this time, providing there are no other disqualifying conditions.

If you have had a heart attack which was successfully treated by PCI, driving may also recommence at one week, UNLESS; there is other urgent revascularization planned or there are complications from your acute event; in which case do not drive for FOUR weeks. Driving can recommence after this time, providing there are no other disqualifying conditions.

If in doubt, ask your doctor. You do not need to inform the Driver and Vehicle Licensing Authority (DVLA).

Initially following a heart attack people may find it difficult to concentrate, so avoid rush hour and keep journeys short, gradually increasing them.

If you ever have an attack of angina whilst you are driving, you should discontinue driving until you have discussed the episode with your GP, and he/she is happy for you to return to driving. (Your symptoms must be well controlled before you can start driving again.)

You should inform your car insurance company to ensure the terms of your policy are not affected due to you having a heart condition. The price of your premium should not be affected.

If you have an occupational license, for example to drive a large goods vehicle (LGV) or a passenger-carrying vehicle (PCV), you MUST inform the DVLA about your heart attack/PCI. You will not be able to drive for at least 6-8 weeks and then the DVLA will ask your cardiologist to carry out various tests including a specific type of exercise tolerance test – walking on a treadmill. The results of these tests will help the DVLA decide whether you can keep your license.

DVLA

Swansea

SA99 1TU

Telephone: 0300 790 680

For more information regarding the DVLA's medical guidelines visit:  
[www.direct.gov.uk/driverhealth](http://www.direct.gov.uk/driverhealth)

### Stress & emotions following a heart attack

These may fluctuate, especially in the initial stage of recovery. Remember it can take some weeks or longer to feel back to normal. Expect some good and not so good days. You may feel tearful or depressed; remember this will pass in time. Talking to those with whom you have most contact, may help reduce some stress; they will only know how you feel if you tell them.

Following a heart attack, sleeping may take a while to return to what is normal for you.

### Sexual Activity

There is no reason why sexual relations cannot be resumed 2-6 weeks after a heart attack and 1 week after a PCI. Be guided by how you are coping with other physical activities. Try to avoid undue exertion at first, stop if you develop chest pain. Speak to your GP if you have any concerns.

Consult your GP before taking Viagra or similar erectile dysfunction drugs as it may interact with some of your medication including GTN spray.

## Why should you exercise?

Exercise is necessary to improve the stamina of the heart muscle i.e. its staying power.

It is common for someone's angina/breathlessness to limit their ability to exercise prior to PCI. Following PCI it is important to gradually introduce exercises that strengthen the heart muscle, thereby improving the stamina of the heart.

Following a heart attack, it's natural to feel concerned/ unsure about exercising. If you injure any muscle in your body, initial rest and then gradual training can help restore the muscle function. When a heart attack occurs the heart muscle is damaged and therefore less effective. As with other muscles, staged training/exercise will aid the heart's recovery and improve its efficiency.

Provided within this booklet is a guide to 'Exercises for Cardiac Patients' (see page 44). The guide can help you to increase your exercise abilities gradually, and can begin towards the end of the first week you are at home. Here you will find examples of exercising safely and an exercise routine which is appropriate for all.

## Relaxation

Relaxation benefits the heart as it can help lower your blood pressure and heart rate. It is important that you regularly set aside time to relax following your discharge home, as well as practicing it in stressful situations. The following are two simple relaxation exercises that can be used in any situation.

### A Breathing Exercise

1. Breathe in slowly through your nose for a count of eight. As you breathe in, imagine you are filling your stomach/abdomen area first and then your chest.
2. Hold this breath in for as long as it is comfortable
3. Expel the air out through your nose for a count of eight, expelling the air from your abdomen upwards through your chest.
4. Refrain from taking another breath for a little longer than usual, and then repeat the process.

### The Emergency Stop Technique - an Emergency Relaxation Technique

This technique is to counteract panic and the build-up of tensions.

1. Say sharply to yourself "STOP!" (Aloud if the situation permits).
2. Breathe in and hold your breath for a moment before slowly breathing out. As you do so, relax your shoulders and hands.
3. Pause for a moment, then again breathe in slowly and hold. This time as you breathe out relax your forehead and jaw.
4. Stay quiet for a few moments then go on with what you were doing, moving slowly and smoothly.

## Eating & Drinking

Eating certain foods following a heart attack/PCI can help aid your recovery and reduce your risk of a further narrowing developing in the coronary arteries. Aim for a healthy diet (often described as a Mediterranean style diet); generally low in fat (particularly low in saturated fat), low in salt, high in fibre (roughage) (see page 64).

Eating plenty of fresh fruit and vegetables can help prevent constipation. This is important, as straining when going to the toilet can increase the pressure on the heart. Current recommendations are to eat 5 (to 8) portions of fruit and vegetables in a day. Typically, a portion is a handful of fruit/vegetables (see page 64). It is ok to drink small amounts of alcohol (see page 67).

## Returning to Work

A heart attack should be viewed as a temporary setback. As long as you are feeling well, with no on-going symptoms (such as angina), then your GP is likely to advise you to go back to your job. Most people have returned by two months, although at first it can be wise to work part-time. If the job requires a lot of physical exertion, then the return should be delayed until full physical activity is reached.

Following PCI your cardiologist will advise you not to work for at least one week following the PCI. If the job requires a lot of physical exertion, then the return should be delayed until full physical activity is reached.

The cardiac rehabilitation nurse will be able to guide you on returning to work and any concerns you may have. If you require a sick certificate you should contact your GP

## Holiday

Most airlines have guidelines on when to travel after an acute heart attack or PCI, as long as they do not have any complications or symptoms. However, it may be better not to travel until you have fully recovered. If you can walk briskly for 100 yards on the flat without chest pain or too much breathlessness, you may be fit to travel by air. If you are worried about whether you are fit to travel, speak to your GP (It may also be helpful to discuss your condition with the airline).

Following a heart attack a holiday may help aid your recovery as it can give you the chance to relax. It is important to plan your holiday carefully to avoid unnecessary problems. It is best not to travel to countries that are very hot or very cold, or to places at a high altitude. It may be wise to go to a place that you have visited before, because it will be familiar to you. Travelling to and from your destination can be a major source of stress.

Plan your trip carefully.

- Allow plenty of time for whichever form of transport you are taking.
- Don't carry heavy bags or rush around.
- If you are going abroad, check your travel insurance to make sure you have enough cover.
- Take enough of your medications with you. Always take a list of all your medication and their doses with you.

If you get angina, it is safe to use your GTN spray whilst you are on the plane. Avoid booking into accommodation that is on a steep hill or slope, unless you are confident that you are fit enough for that level of activity. Find out what local transport is available and how close the hotel is to the local restaurants, shops, amenities and entertainment that you are planning to use.

If you have a problem obtaining travel insurance, the British Heart Foundation has a list of insurance companies that are 'sympathetic' to heart patients. This list gives details of companies which offer travel, life, health and car insurance.

Either write to:  
British Heart Foundation  
14 Fitzhardinge Street  
London  
W1H 6DH  
Tel: 020 7935 0185

Or visit: [www.bhf.org.uk](http://www.bhf.org.uk)

## PART TWO:

### RECOVERY FOLLOWING CARDIAC SURGERY

The first 24-48 hours following cardiac surgery will be spent in an Intensive Care or High Dependency Unit. The nurse and physiotherapist caring for you there will guide you on how much you can do following the operation.

Physiotherapy following heart surgery is very important. After your surgery, your lungs are less inflated and you may have more phlegm. It is important that you aid re-inflation of your lungs and clear any phlegm in order to avoid breathing problems. This is done by early mobilisation (i.e. getting out of bed and walking) and deep breathing exercises.

It is also important that you maintain good blood flow around your body. You do this by regular leg exercises and early mobilisation.

### Exercises immediately following the operation

#### Breathing Exercises

Position yourself comfortably; it is important that you are not slumped in bed to do these exercises. The best positions are either sitting upright in a chair or lying on your side.

Keep your shoulders relaxed all the way through the exercises.

- Breathe in slowly through your nose, as deeply as you can.
- Feel your ribs move outwards.
- Gently let the air out again.
- Breathe deeply like this 4 times.
- Go back to breathing normally for about 30 seconds.
- Repeat this cycle three times.

Do these exercises every 30 minutes that you are awake.

#### Coughing

Cough any time that you need to. To lessen the discomfort of coughing, you may want to hold a rolled-up towel/small cushion to your chest, over the wound site.

#### Leg Exercises

Whilst in bed it is important that you move your feet and legs regularly to maintain good blood flow around your body after your surgery. Perform the following exercises every 30 minutes that you are awake.

- Move your feet up and down then round in circles 10 times with each foot.
- Slide one foot up the bed towards you by bending at the hip and knee; then straighten. Repeat with the other foot. 10 times with each foot

## Pain

Pain control is very important. Pain can restrict you from moving, deep breathing and coughing properly. If your pain control is poor, you must tell a nurse, who can review your medication with the medical team.

## Protecting the sternum

It takes approximately 8-12 weeks for your sternum (chest bone) to heal and completely knit back together; therefore, it is very important you are not pushing down through your arms to move yourself around. For example; it is a habit for most of us to push through our arms to get in and out of bed, or a chair. Instead of using your arms, use your legs and bottom to shuffle backwards and forwards. You can put your arms across your chest when moving to avoid using them. It can also be useful to rock backwards and forwards a few times, to get some momentum, before attempting to stand from a bed or chair.

## Lifting and carrying

In the first 12 weeks it is very important that you do not do any activity that will place a force of ten pounds (4.5kg) or more on the chest. So; -

- NO lifting of heavy bags of shopping (spread light loads of shopping in 2 bags evenly),
- NO lifting of children,
- NO digging, mowing the lawn or vacuuming.

It is safe to do deep breathing exercises, cough and have gentle movements of the chest. Try to relax the muscles across your shoulders, neck and back; allow these muscles to move freely. Remember it may be more comfortable to support your chest with your hands, a towel or cushion when you cough.

## Mobilisation

Early mobilisation after heart surgery is essential for rapid recovery and lowers the risk of complications. You will be given pain relief to help you move freely. On the day after the operation, you will probably sit in a chair and take a few steps on the spot. The following day you will start walking a short distance regularly. The physiotherapist will supervise and encourage you whilst you regain your confidence. The distance you walk will be gradually increased each day. You will be advised on how to pace yourself. You should not feel unduly breathless and should be able to hold a conversation, without gasping.

Stair climbing will be practiced before you leave hospital. This is safe for you to do and will help you get back to normal function as soon as possible. If you have any specific questions about exercise or daily activity, please ask your physiotherapist.

## Avoid

- Golf
- Cycling
- Swimming

In the first 3 months.

## Common problems after heart surgery

Each patient reacts in a different way to having an operation. Here are a few common problems that you may have following your heart operation and things that can be done for them.

- Nausea and sickness are common following an anaesthetic– you can be prescribed anti-sickness medicine which should relieve it.
- Sore throat and a hoarse voice may occur due to irritation by a breathing tube in your mouth during and shortly after the operation. It typically takes around a week to fully recover and drinking fluids will help this.
- Poor appetite, indigestion and constipation are very common after surgery but will gradually improve with the help of antacids, laxatives and mobilising. Some people find that eating small, but frequent, meals aids the return of normal appetite.
- There may be a small amount of discharge from the chest wound but this should settle after a few days. The nurses will keep a check on your wounds.
- Some pain and stiffness in the chest area, shoulders, neck and back is to be expected but will improve slowly over a few weeks, and painkillers will help to relieve this. Perform the gentle stretches on page 37 to help ease this discomfort.
- Ankle and foot swelling are common, particularly if you have had a vein taken from a leg. The nurses will look for this. In some people this is due to too much circulating fluid, in which case water tablets may be prescribed by the doctor to help. It will improve as you become more active.
- After heart surgery tiredness is very common, it will gradually improve over the 12 weeks following the operation. It is important to remember that rest is vital after an operation; visitors should be kept to a minimum until you feel ready.

## Once you are discharged home

Returning home is an important stage in your recovery. Your journey home may be tiring and at the end of your journey it is advisable to rest. In the first week after discharge, it may be nice to have a family member or a friend with you at home to give general support. The first few days can be both physically and emotionally tiring. You may miss the support of hospital staff and that of other patients. These are normal reactions and will gradually resolve.

You will be given just a supply of the tablets you need to continue taking. You will also be given pain relief tablets to take home. The pharmacist will make sure that you know the reason for taking them, the correct dose and time to take them. You should not take any other tablets or medicines unless instructed by your doctor. If you are taking warfarin tablets, you will be given a booklet explaining the special precautions you must take and the need for regular blood analysis tests to ensure the correct dose is prescribed (see page 75).



When you are less active following surgery you are at high risk of clots forming in your legs. Your surgical centre will send you home with support stockings to wear.

The stockings are designed to improve the circulation in your legs and prevent clot formation. For this reason, it is important to continue to wear the stockings as directed by your surgical centre until you return to your usual level of mobility.

Your surgical centre will refer you to the cardiac rehabilitation team, who will contact you in the first few weeks following your discharge home. At Torbay you may be invited to an Outpatient appointment with the cardiac rehabilitation nurse to discuss your progress, this can be via Telephone or at Old farm Surgery in Paignton. If you have any questions once home, you can telephone the cardiac rehabilitation team who can guide you on your medication, pain control and resuming normal activities.

Cardiac Rehabilitation Office: 01803 527062

### Wound Care

Your chest wound

The stitches in your chest wound will dissolve after two to three weeks and the wound will heal. There is no need to cover the wound with a dressing, unless small amounts of oozing persist during this time. Just below your chest wound you will have two or three small stitches from where your chest drains were removed. The nurse on the ward may remove these four days after the drains were taken out.

For the surgeon to operate on your heart it was necessary to divide the breastbone. Small wires are inserted to hold the bone together to allow it to heal. These wires stay there permanently and rarely cause any problem. They do not rust, and they will not affect any airport security scanners in the future.

It is common for the wound to feel numb and sometimes itchy in the weeks after the operation. Some people are aware, at first, of a lump at the top of their chest wound. This is due to the wound healing and as time passes this will gradually disappear. The wound can also be very sensitive, wearing light cotton next to the skin can help.

If you notice any discharge from the wound, contact your GP or community nurse (through the GP surgery) to assess the wound.

Female patients

We advise female patients to wear their bra after the operation as this may help to support your wound. It is advisable to wear it for a few hours each day to begin with, so by the time you go home you will be able to tolerate it all day.

## Your leg wound(s)

During surgery it can be necessary to remove veins from one or both legs. Most stitches are dissolvable but others will be removed seven to ten days after your operation.

It will take a while for the circulation in your legs to adjust and, as already stated, during this period your affected leg(s) may swell - especially around the ankle and foot. This is to be expected and will gradually improve. You may need to use some mild painkillers. In the meantime, you can help the circulation in your legs by:

- Sitting with your feet on a stool.
- Avoid crossing your legs, as this restricts the normal flow of blood in the veins.
- Going for walks.
- Wearing support stockings (follow the advice from your surgical centre)

Some numbness and discomfort associated with the leg wound may be expected until it is completely healed. There will also be some bruising, but this will gradually improve over the first month.

## Your forearm wound(s)

An artery from your forearm may have been used for grafting. Stitches in this wound are usually dissolvable. Otherwise clips are usually removed ten days after your operation. You may experience some numbness or loss of sensation around the wound, which may extend to the thumb. This is usually a temporary occurrence.

## What to do if you experience pain or discomfort

You will be given painkillers when you are discharged home. Usually paracetamol and sometimes a stronger painkiller such as Tramadol or a codeine-based painkiller. Do not be in a hurry to reduce your painkillers. It is important that you are able to breathe deeply, cough, and move freely.

If you are taking a stronger painkiller in combination with paracetamol, try to wean yourself off the stronger ones first. Do this slowly over a few days.

Be aware that the stronger painkillers may make you feel more nauseous. If this becomes a problem, try to reduce, and then replace these painkillers with paracetamol. They can also sometimes cause constipation. Your GP can prescribe laxatives. It is important you do not allow yourself to go more than 3 days without a bowel movement.

Paracetamol works best when it is taken regularly. When you start to reduce the frequency, start off with cutting the painkillers midday or tea time. Paracetamol at night will help to keep you more comfortable and therefore enable you to sleep. First thing in the morning it will help you mobilise more easily.

It is normal for some people to still need painkillers 8 weeks after the operation.

## Breathlessness

It is normal to be more aware of your breathing following heart surgery. Particularly if you are experiencing discomfort in the chest and/or are feeling anxious. Over time you will become less aware; continue your painkillers as you need them and practice the relaxation exercises on page 41, to help relieve any anxiety you may have.

When you exert yourself, it is normal to feel slightly breathless, if you feel so breathless that you cannot talk, slow down or stop until your breathing settles.

Occasionally following heart surgery, you may develop a chest infection or small amount of fluid around the lungs. In which case you may be given medication to help fight the infection or reduce the fluid. It is important to speak to your GP if you notice your breathlessness isn't improving or is getting worse.

## Eating & drinking

While things are returning to normal, you may prefer frequent light meals. As your appetite returns, try to avoid large, heavy meals and remember to drink plenty of fluid. It is common to experience constipation after your operation. You will be offered laxatives and encouraged to eat a high fibre diet. General advice on healthy eating for those with coronary heart disease can be found on page 64.

## Mood swings and poor concentration

During your stay in hospital and for the first few months after your operation you may experience changes in your mood. This may affect you in different ways. Some people feel depressed, some cry for no apparent reason and some people become easily irritable. It is important to remember that these mood changes are only temporary and will gradually resolve. Discuss your feelings with your family. Try to be honest with each other about how you are feeling. If you feel unduly depressed, or have continuing problems let your GP know.

Memory loss is common after surgery. This can be related to an inability to concentrate and will gradually improve.

## Visual disturbances

'Floaters' (small black spots seen in peripheral vision line) are commonly experienced during the first 3 months. This is due to the by-pass machine. Any routine eye-tests should be done only after 3 months. If the 'floaters' continue, consult your GP.

## Sleeping patterns and rest

There may be a change to your sleeping pattern, in that you may only be able to sleep for short periods of 2-3 hours. This is quite common after cardiac surgery. You may find that your normal sleeping position is not comfortable in the early days after the operation due to soreness around the chest. It is important to continue to regularly take your painkillers. Some people have found it more comfortable to sleep lying on their back, sitting up slightly with an extra couple of pillows. In time you will find the position most comfortable for you. If you can't sleep at night, it can help to get up and try again a little later.

Adequate rest is as important in your recovery as exercise. This is important for you in the early days following surgery. While you are in hospital there is a rest period in the early afternoon, where visiting is discouraged – or in some places prohibited. At home, plan to continue having a rest in the afternoon. Try to limit visitors to one or two per day in the first couple of weeks, as this also can be very tiring.

### Increased awareness of heartbeat

It is very common in the early stages after surgery to find you are more aware of your heartbeat, especially when you are relaxing or in bed. This is nothing to worry about.

Following heart surgery, you may experience palpitations related to atrial fibrillation (an irregular heart beat). This is a common complication and you may be discharged on medication such as amiodarone to help regulate the heartbeat. Often atrial fibrillation will resolve; this will be reassessed at your outpatient appointment with the cardiologist.

### Bathing/Showering

You will be able to shower from the 3rd or 4th day after your operation. A nurse may supervise you for your first shower, and will also be available to assist you as necessary during the shower. Do not use excessively hot water as this may make you feel dizzy. Follow general advice under 'Protecting your sternum' (page 33). Your wounds can be gently cleaned, but you should not scrub them. Avoid soap, talc and perfumed products. It is OK to have a bath when you are at home. If you wish to, you will be able to dress in your day clothes. It can help you feel you are returning to 'normal' to get dressed each day.

### Exercise

Exercise is important to help you to become fit again and to return to your normal (or an improved) quality of life. During your stay in hospital the physiotherapist and the nurses will guide you on gently increasing your mobility. Once you are home, continue the breathing exercises and start some regular walking. Contained within this booklet is a suggested walking programme designed to gradually increase your stamina. Alternatively, there are some exercises that can be performed within the home. See 'Exercises for Cardiac Patients' page 37. Listen to your body; do not force yourself to exercise if you are feeling unwell.

## Flexibility Exercises

The following flexibility exercises are in addition to the 'Walking' or 'Home Exercise Programme' (starting on page 44). These exercises are designed to stretch and prevent stiffness in areas that may be tight following your surgery. Start these exercises 1-2 days following discharge from hospital. Ensure you are standing or sitting in an upright position. Ideally, use an upright chair such as a dining chair without arms. You should only feel a 'stretch' but no pain with these exercises.

Perform the following exercises 2-3 times a day – as able.

### • HEAD TILT

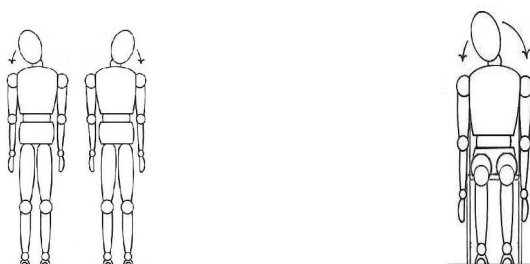
Starting position Stand with feet hip width apart, knees slightly bent and arms relaxed at your sides.

OR

Sit upright with your back straight, feet firmly on the floor and arms relaxed at your sides.

Movement Tilt your head towards one shoulder until you feel a stretch on the opposite side. HOLD FOR 5 SECONDS. Repeat to other side.

**STRETCH 5 TIMES EACH SIDE**



### • HEAD TURN

Starting position Stand with feet apart, knees slightly bent and arms relaxed at your sides.

OR

Sit upright with your back straight, feet firmly on the floor and arms relaxed at your sides.

Movement Turn your head toward one side until you feel a stretch. HOLD FOR 5 SECONDS. Repeat to other side.

**STRETCH 5 TIMES EACH SIDE**



## SHOULDER CIRCLING

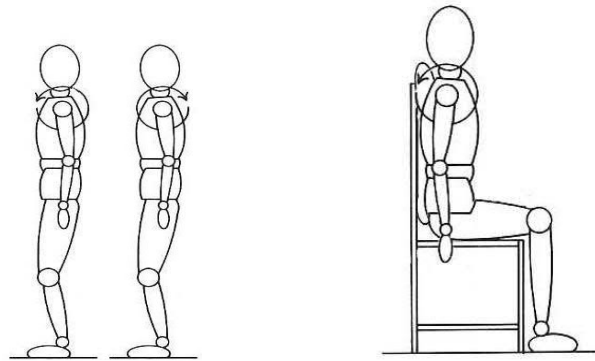
Starting position Stand with feet hip width apart, knees slightly bent and arms relaxed at your sides.

OR

Sit upright with your back straight, feet firmly on the floor and arms relaxed at your sides.

Movement Keeping the arms at the side, rotate both shoulders in a circular movement, forwards and backwards.

REPEAT 5 TIMES EACH DIRECTION



## • OPEN CHEST STRETCH

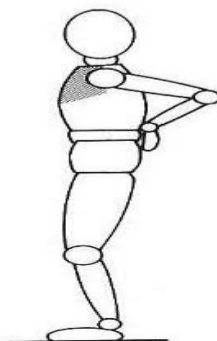
Starting position Stand with feet apart, knees slightly bent and hands on your hips.

OR

Sit upright on a backless chair with your back straight, feet firmly on the floor and hands on your hips.

Movement Pull your shoulder blades together, by squeezing your elbows towards each other, behind your back. HOLD FOR 5 SECONDS.

STRETCH 5 TIMES

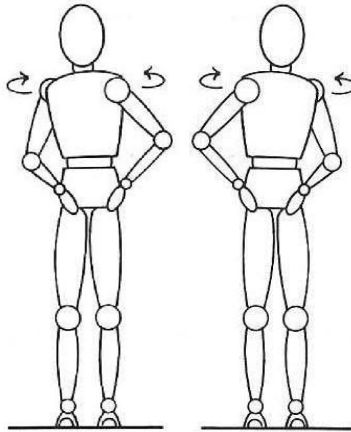


- UPPER BODY TURNS

Starting position Stand with your feet apart – knees slightly bent, pelvis tucked in, and hands on your hips.

Movement Move arms and trunk to the right, looking over your right shoulder as you turn. HOLD STRETCH FOR 5 SECONDS, then return to start position. Repeat to the left side.

STRETCH 5 TIMES EACH SIDE.

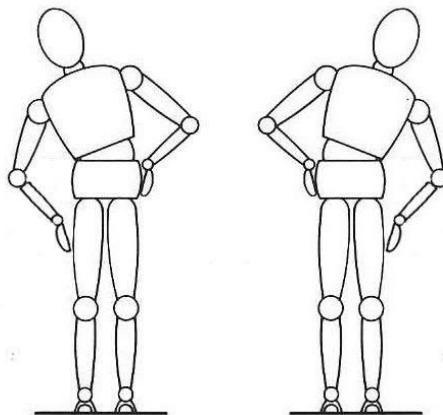


- SIDE BENDS

Starting position Stand with feet apart, knees slightly bent and hands on the sides of your thighs.

Movement Bend to your left side, stretching your left hand down your left thigh. A stretch should be felt on the right side of your trunk. HOLD FOR 5 SECONDS. Now slide the left hand back up, returning to the start position. Repeat to the right side.

STRETCH 5 TIMES EACH SIDE.



## Getting back to normal

You will have good and perhaps not so good days. Sometimes two steps forward may be followed by one step backwards, but you should see a gradual improvement over the first six to eight weeks. It is important to PACE yourself, do not try to do too much on the good days as it often affects the following day. You can gradually introduce light tasks into your routine, e.g. washing up and pottering around the garden. Increase your activities, as you feel able. Eventually you should be able to do all the daily activities you used to do before your illness. Remember to listen to your body.

## Driving

You must not drive for at least four to six weeks after your surgery. You do not need to inform the Driver and Vehicle Licensing Authority (DVLA).

Following your operation your reactions and concentration will be affected. Also, it may place more stress on your shoulders and chest wound than you expect. We advise you to be sure you feel safe and confident before you drive.

There is no exemption from wearing seat belts. Placing a small cushion between the belt and your chest may ease any discomfort.

You should inform your car insurance company to ensure the terms of your policy are not affected due to you having heart surgery. The price of your premium should not be affected.

If you have an occupational license, for example to drive a large goods vehicle (LGV) or a passenger-carrying vehicle (PCV), you MUST inform the DVLA about your heart surgery. You will not be able to drive for at least 3 months and then the DVLA will ask your cardiologist to carry out various tests including a specific type of exercise tolerance test – walking on a treadmill. The results of these tests will help the DVLA decide whether you can keep your license.

DVLA

Swansea

SA99 1TU

Telephone: 0300 790 680

For more information regarding the DVLA's medical guidelines visit:

[www.direct.gov.uk/driverhealth](http://www.direct.gov.uk/driverhealth)



## Returning to Work

Most people are able to return within eight to twelve weeks. This will depend on factors such as; the type of work you do. A person doing a light office job could expect to return sooner than one doing a heavy manual job. The progress of your recovery is also important. If you have the opportunity to return to work gradually, it is a good idea to take advantage of this. Remember, your colleagues or manager may quickly forget you have had heart surgery and may make demands upon you, that you are unable to meet at that time, so don't rush.

Try to avoid stressful situations and do not get over-tired by thinking you are capable of more than you are.

## Sexual Activity

Sexual activities may resume within a couple of weeks after your discharge from hospital. Many people who have undergone heart surgery experience some anxiety about resuming sexual activities. This is perfectly normal. Take time for discussion about how you are both feeling. Some people think sex places enormous strain on the heart, when in fact it has been shown to result in less strain than briskly climbing two flights of stairs. Choose a time when you are relaxed, choose a position that is comfortable, does not restrict breathing and does not stress your chest (perhaps a passive role). If you have any on-going problems, then discuss them with your GP.

## Relaxation

Relaxation benefits the heart as it can help lower your blood pressure and heart rate. It is important that you regularly set aside time to relax, as well as practicing it in stressful situations. The following are two simple relaxation exercises that can be used in any situation.

### A Breathing Exercise

1. Breathe in slowly through your nose for a count of eight. As you breathe in, imagine you are filling your stomach/abdomen area first and then your chest.
2. Hold this breath in for as long as it is comfortable
3. Expel the air out through your nose for a count of eight, expelling the air from your abdomen upwards through your chest.
4. Refrain from taking another breath for a little longer than usual, and then repeat the process.
- 5.

The Emergency Stop Technique - an Emergency Relaxation Technique  
This technique is to counteract panic and the build-up of tensions.

1. Say sharply to yourself "STOP!" (Aloud if the situation permits).
2. Breathe in and hold your breath for a moment before slowly breathing out. As you do so, relax your shoulders and hands.
3. Pause for a moment, then again breathe in slowly and hold. This time as you breathe out relax your forehead and jaw.
4. Stay quiet for a few moments then go on with what you were doing, moving slowly and smoothly.

## Holiday

It is advisable to remain in familiar surroundings for the first four to six weeks after your operation, and therefore you should plan any holidays for after your follow-up appointment. It is advisable not to fly for at least 6 weeks. Airlines may require a medical form to be completed by your doctor. Guidelines on flying will vary between airlines.

Plan your trip carefully.

- Allow plenty of time for whichever form of transport you are taking.
- Don't carry heavy bags or rush around.
- If you are going abroad, check your travel insurance to make sure you have enough cover.
- Take enough of your medications with you.
- Always take a list of all your medication and their doses with you.

If you have a problem obtaining travel insurance, the British Heart Foundation can send you a list of insurance companies that are 'sympathetic' to heart patients. This list gives details of companies which offer travel, life, health and car insurance.

For details either write to:

British Heart Foundation  
14 Fitzhardinge Street  
London  
W1H 6DH  
Tel: 020 7935 0185  
Or visit: [www.bhf.org.uk](http://www.bhf.org.uk)

## Dental care

Visiting the dentist every six to twelve months is important for everyone. If you have had a valve operation it is even more vital that you update your dentist regularly.

Anyone with a replacement valve or Valvular Heart Disease runs a slight risk of infection of the valve. Whenever bacteria or other organisms get into the blood stream the body defences rise up and kill these organisms. If, however, the bacteria can hide away in an artificial/diseased valve or other abnormal lining structure of the circulation, then they can remain undisturbed and immune to one's natural defences. The organisms can then multiply and infect the heart leading to serious structural damage.

A small dose of bacteria invading the blood is of no consequence but during certain procedures such as dental work near the gums, some surgical procedures or an investigation of one of the passages, the amount of bacteria entering the blood can be considerable. In this situation there is a small risk of infection of the heart lining (called endocarditis). Such a risk can, in the case of dentistry, be reduced by good oral hygiene. It is important that you visit your dentist six to twelve monthly and take good care of your teeth and gums. In some circumstances your cardiologist may advise antibiotics before a given procedure.

### Follow-up appointment with the cardiology team

You will be given a cardiac outpatient appointment for approximately 6-12 weeks following your operation. At this appointment, the emphasis is on ensuring you are making a good recovery and any concerns regarding your recovery can be addressed.

### Cardiac Rehabilitation

After your follow-up appointment you will be invited to attend a cardiac rehabilitation programme, which is an important part of your recovery and recommended by all the Cardiologists. The aim of this programme is to help you return to normal life and health following your surgery (for more information see pages 61 & 62).

## SECTION C

### HOME EXERCISE PROGRAMME

The Home Exercise Programme consists of warm up exercises, main (stamina) exercises and cool down exercises.

#### Warm Up Exercises

A warm-up should consist of mobility, pulse raising activities and stretches. The warm up prepares the body for exercise. It allows the body to gently increase the heart rate, respiratory depth and rate so that the exercise does not come as a shock to the body.

A warmed-up muscle will produce a stronger, more efficient contraction and a stretched, supple muscle and joint, will help prevent injury. Each stretch should be held for five seconds. All exercises should be performed SLOWLY and SMOOTHLY with no jerky or bouncing movements, as this only serves to increase the risk of injury.

A WARM UP NEEDS TO BE UNDERTAKEN GRADUALLY and should take at least 10 minutes.

The warm up consists of Limb Mobility, a Warm Up Walk & Stretches.

#### Limb Mobility

##### • ANKLE MOBILITY

###### Purpose

To mobilise the ankle joints.

###### Starting Position

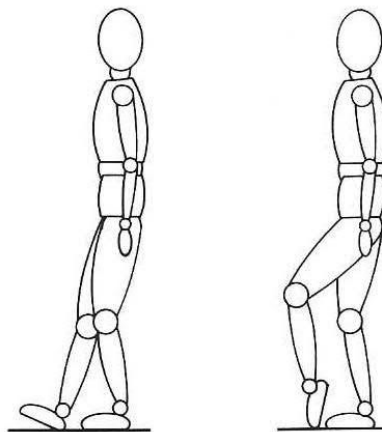
Stand in a comfortable position with feet apart, knees 'loose' and relaxed and pelvis tucked under.

Or, if easier, this exercise may be performed whilst sitting in a chair.

###### Movement

Move the ankle in a controlled manner, by placing the heel of one foot on the floor in front of you, then lift this foot and place the toes of that foot on the floor in front of you (the supporting leg should be relaxed and slightly bent). Repeat this with the other foot.

REPEAT UP TO 5 TIMES EACH LEG.



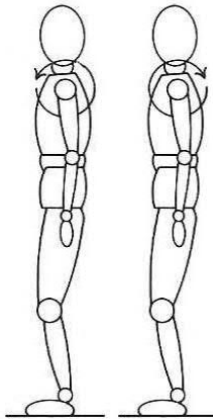
- SHOULDER CIRCLING

Purpose To mobilize shoulder joints

Starting position Stand with feet apart, knees slightly bent and arms relaxed at your sides.

Movement Keeping the arms at the side, rotate both shoulders in a circular movement, forwards and backwards.

REPEAT UP TO 5 TIMES



### Warm Up Walk

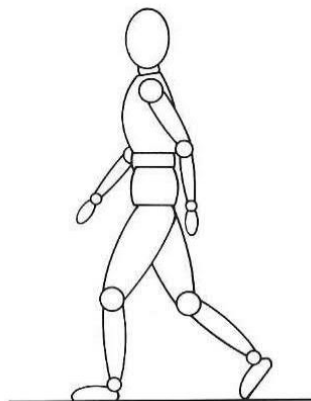
- WALKING

Walking can be done on the spot or around the room.

Start walking slowly and GRADUALLY increase the pace until you are walking briskly, letting your arms swing freely.

Initially do this for 30 seconds then, as you feel fitter, gradually increase to 2 minutes. (e.g. increase by 30 seconds each week until you are walking for 2 minutes)

START WALKING FOR 30 SECONDS BUILD UP TO 2 MINUTES (AS ABLE)

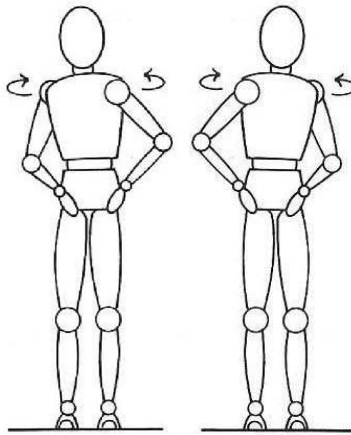


## Stretches

(NB: shaded areas on the diagrams depict the area a stretch should be felt)

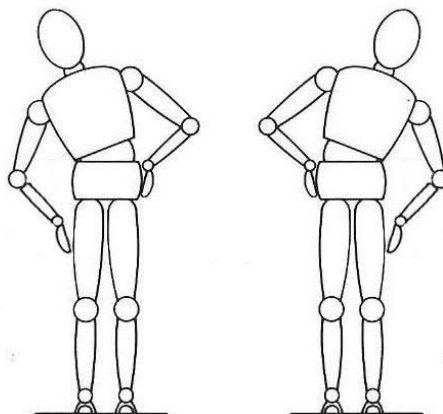
### UPPER BODY TURNS

- Purpose To mobilize the lower (lumbar) and middle (thoracic) sections of the spine.
- Starting position Stand with your feet apart – knees slightly bent, pelvis tucked in, and hands on your hips.
- Movement Move arms and trunk to the right, looking over your right shoulder as you turn. HOLD STRETCH FOR 5 SECONDS, then return to start position. Repeat to the left side.
- STRETCH ONCE EACH SIDE.



### • SIDE BENDS

- Purpose To mobilize the lower (lumbar) and middle (thoracic) sections of the spine.
- Starting position Stand with feet apart, knees slightly bent and hands on the sides of your thighs.
- Movement Bend to your left side, stretching your left hand down your left thigh. A stretch should be felt on the right side of your trunk. HOLD FOR 5 SECONDS. Now slide the left hand back up, returning to the start position. Repeat to the right side.
- STRETCH ONCE EACH SIDE.



• TRICEPS STRETCH

Purpose

To lengthen the back of the arm (triceps) muscle.

Starting position

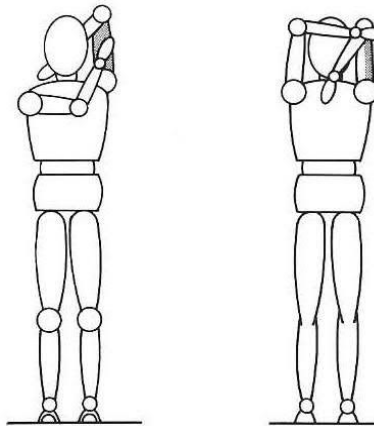
Stand with the legs slightly apart.

Movement

Place the left hand, palm down, on to the left shoulder, whilst lifting the left elbow above the head. Use the other hand to apply gentle pressure on the left upper arm. The stretch should be felt in the back of the upper arm.

HOLD THE STRETCH FOR 5 SECONDS. Repeat on the right arm.

STRETCH EACH ARM ONCE.



• CALF STRETCH

Purpose

To lengthen the calf muscle.

Starting Position

KEEP YOUR BACK UPRIGHT AND STRAIGHT.

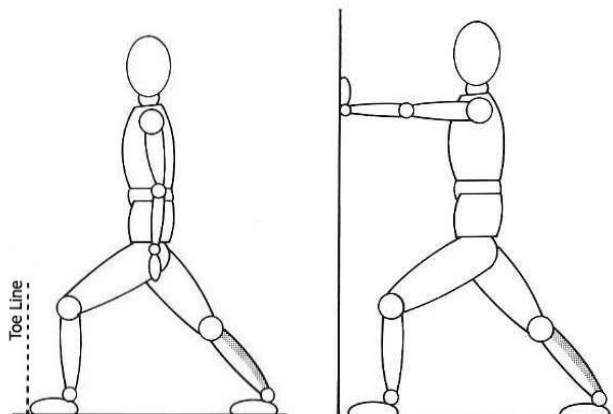
Stand with one foot in front of the other, feet a comfortable distance apart, both feet facing forward.

This stretch may be performed in front of a wall for support.

Movement

Slowly bend the front knee (not beyond the toe line) keeping your heels on the ground. You should feel the stretch in the back of the calf. HOLD THE STRETCH FOR 5 SECONDS. Repeat with other leg.

STRETCH EACH LEG ONCE



• HAMSTRINGS

Purpose

To stretch the back upper leg (hamstrings).

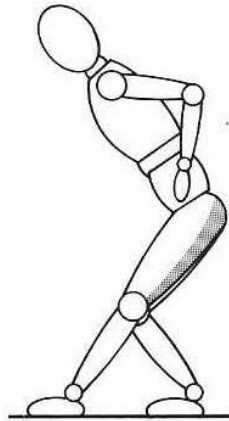
Starting Position

Stand with one foot in front of the other, a small distance apart, both feet facing forward, back leg slightly bent. Your weight should be supported by the bent back leg.

Movement

Whilst keeping the back straight, place both hands on the hips and lean forward slightly. Straighten the front leg, tilt the bottom towards the ceiling – and then keep the head and shoulders lifted until a gentle stretch is felt in the back of the thigh (in the straight front leg). HOLD THE STRETCH FOR 5 SECONDS. Repeat on the other leg.

STRETCH EACH LEG AT LEAST ONCE.



• QUADRICEPS STRETCH

Purpose

To stretch the front thigh muscles.

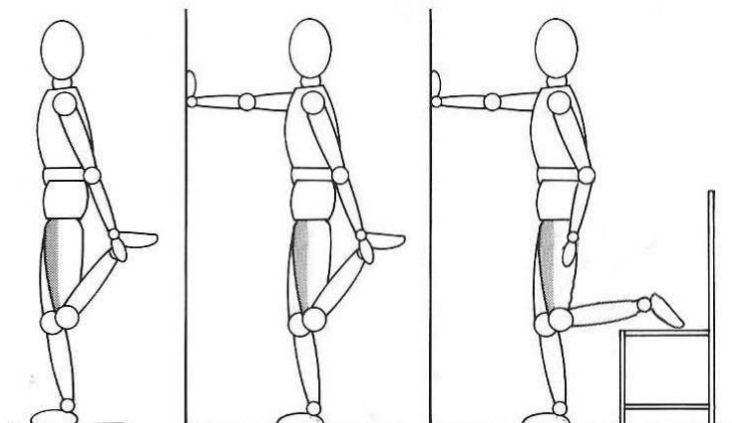
Starting Position

Stand by a wall or chair for support. Whilst keeping your back straight stand on the left foot, keeping the left knee slightly bent.

Movement

Bend the right leg at the knee, and using the right hand, grab the ankle/foot/trouser leg from behind. Keep the knees together. If you cannot get hold of the leg you can rest the foot on a chair. A stretch should be felt on the front of the right thigh. HOLD FOR 5 SECONDS. Repeat with the other leg.

STRETCH EACH LEG AT LEAST ONCE.





## Main Exercises

Stamina activity can be taken as simply as walking. The pace you use will depend on both your previous fitness level and your present ability. All stamina activities should include smooth, gentle movements with no straining or sudden bursts of energy required.

Ideally you should be completing 20 minutes of stamina exercise, although initially this time will be shorter, and as you are feeling more able, the time and intensity can slowly be increased.

The Main Stamina Exercises consist of Repetitive Exercises and Walking.

### Repetitive Exercises

Initially perform the repetitive exercises only 3 times and as you feel able gradually build up to 20 times.

#### • LEG RAISERS

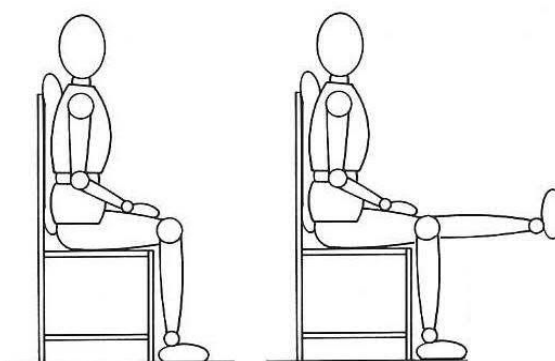
##### Starting Position

Sitting on a hard-backed chair.

##### Movement

Raise each leg alternately and lower again.

START AT 3 REPETITIONS BUILDING UP TO 20 REPETITIONS (AS ABLE)



#### • SIT TO STAND

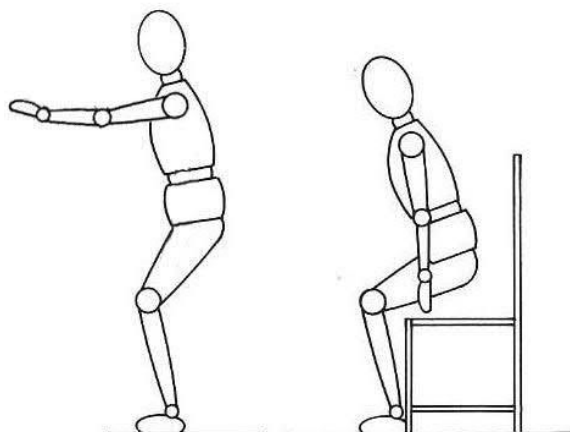
##### Starting Position

Sitting on a hard-backed chair.

##### Movement

Stand and raise arms to shoulder level, then sit down again slowly dropping arms to the side.

START AT 3 REPETITIONS BUILDING UP TO 20 REPETITIONS (AS ABLE)



- ARM RAISING

Starting Position

Standing upright, feet slightly apart.

Movement

Raise alternate arms to shoulder height whilst keeping the feet moving up and down.

START AT 3 REPETITIONS BUILDING UP TO 20 REPETITIONS (AS ABLE)



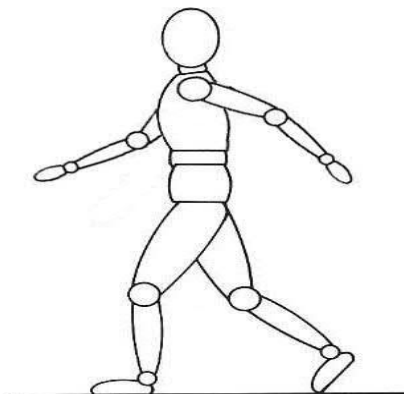
### Walking

- WALKING

Walk briskly round the room or on the spot, letting the arms swing freely at the sides. You should reach a perceived exertion rating of 2-3 (see feelings on exercise chart page 41).

As you improve, increase your BRISK walking 2 minutes at a time until you reach 20 minutes.

START WALKING FOR 2 MINUTES AND BUILD UP TO 10 MINUTES (AS ABLE)



REMEMBER DURING THESE ACTIVITIES YOU SHOULD **NEVER** BECOME SO BREATHLESS THAT YOU CANNOT CARRY ON A CONVERSATION.

## Cool Down Exercises

Throughout the stamina exercises, it is important to work at a level that increases your breathing rate; however, to allow your body to return to its pre-exercise level it is important that you GENTLY decrease the pace. This gentle decrease in exercise should take at least 10 minutes and is called a 'cool-down' period.

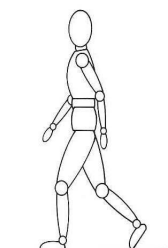
The importance of cool-down cannot be over emphasised. The cooling-down procedure encourages a gradual return of the heart and respiratory rates to normal. GENTLE stretching relieves the tightness present in tired muscles so that they are relaxed and able to function normally. Stretches that were performed for warm-up are repeated but held for 10 seconds each stretch.

The Cool Down consists of a Cool Down Walk and Stretches.

### Cool Down Walk

- WALKING

It is important to walk round SLOWLY until your breathing begins to slow down and return to normal. You MUST keep moving for a MINIMUM of 5 minutes before you move on to the stretches. It may take up to 10 minutes to return to normal (i.e. Level 1 on the 'Feelings on Exercise' chart page 59). Some people take longer to cool down.



### Stretches

(NB: shaded areas on the diagrams depict the area a stretch should be felt)

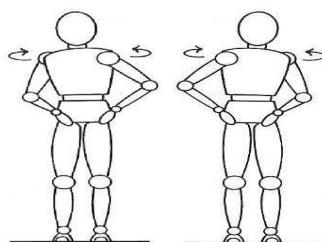
- UPPER BODY TURNS

Purpose To mobilize the lower (lumbar) and middle (thoracic) sections of the spine.

Starting position Stand with your feet apart – knees slightly bent, pelvis tucked in, and hands on your hips.

Movement Move arms and trunk to the right, looking over your right shoulder as you turn. HOLD STRETCH FOR 10 SECONDS, then return to start position. Repeat to the left side.

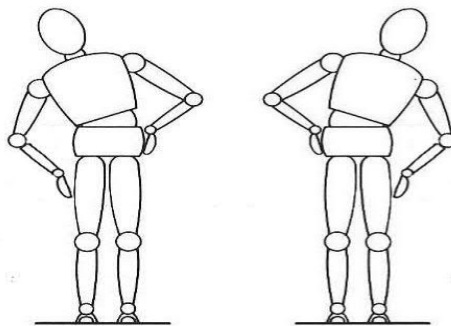
STRETCH ONCE EACH SIDE.



• SIDE BENDS

- Purpose To mobilize the lower (lumbar) and middle (thoracic) sections of the spine.
- Starting position Stand with feet apart, knees slightly bent and hands on the sides of your thighs.
- Movement Bend to your left side, stretching your left hand down your left thigh. A stretch should be felt on the right side of your trunk. HOLD FOR 10 SECONDS. Now slide the left hand back up, returning to the start position. Repeat to the right side.

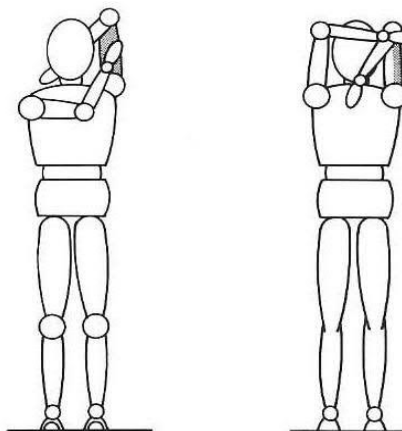
STRETCH ONCE EACH SIDE.



• TRICEPS STRETCH

- Purpose To lengthen the back of the arm (triceps) muscle.
- Starting position Stand with the legs slightly apart.
- Movement Place the left hand, palm down, on to the left shoulder, whilst lifting the left elbow above the head. Use the other hand to apply gentle pressure on the left upper arm. The stretch should be felt in the back of the upper arm. HOLD THE STRETCH FOR 10 SECONDS. Repeat on the right arm.

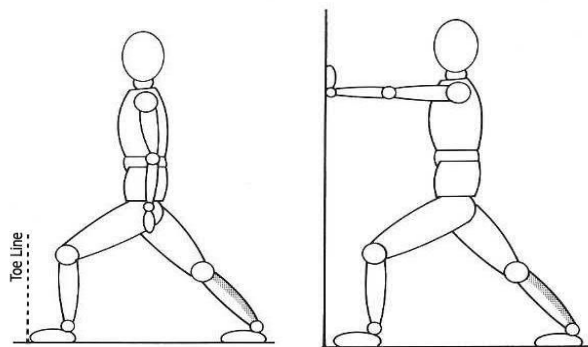
STRETCH EACH ARM ONCE.



• CALF STRETCH

<u>Purpose</u>	To lengthen the calf muscle.
<u>Starting Position</u>	KEEP YOUR BACK UPRIGHT AND STRAIGHT, Stand with one foot in front of the other, feet a comfortable distance apart, both feet facing forward.
<u>Movement</u>	This stretch may be performed in front of a wall for support. Slowly bend the front knee (not beyond the toe line) keeping your heels on the ground. You should feel the stretch in the <u>back</u> of the calf. HOLD THE STRETCH FOR 10 SECONDS. Repeat with other leg.

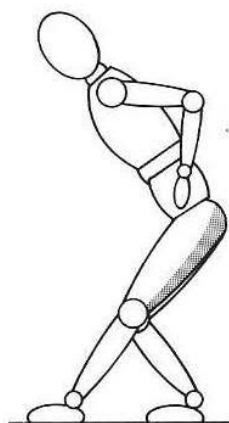
STRETCH EACH LEG ONCE



• HAMSTRINGS

<u>Purpose</u>	To stretch the back upper leg (hamstrings).
<u>Starting Position</u>	Stand with one foot in front of the other, a small distance apart, both feet facing forward, back leg slightly bent. Your weight should be supported by the bent back leg.
<u>Movement</u>	Whilst keeping the back straight, place both hands on the hips and lean forward slightly. Straighten the front leg, tilt the bottom towards the ceiling – and then keep the head and shoulders lifted until a gentle stretch is felt in the <u>back</u> of the thigh (in the straight front leg). HOLD THE STRETCH FOR 10 SECONDS. Repeat on the other leg.

STRETCH EACH LEG AT LEAST ONCE.



• QUADRICEPS STRETCH

Purpose

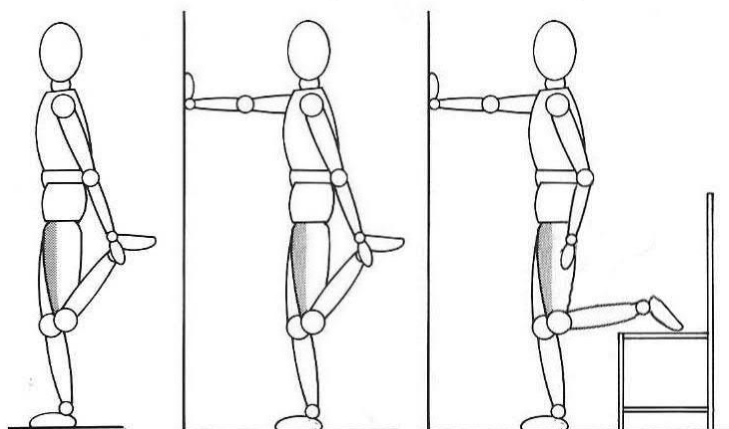
To stretch the front thigh muscles.

Starting Position

Stand by a wall or chair for support. Whilst keeping your back straight, stand on the left foot, keeping the slightly bent.

Movement

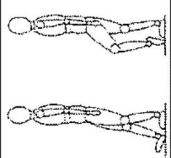
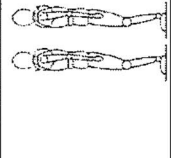
Bend the right leg at the knee, and using the right hand, grab the ankle/foot/trouser leg from behind. Keep the knees together. If you cannot get hold of the leg/foot you can rest the foot on a chair. A stretch should be felt Repeat with the other leg.



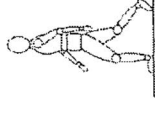
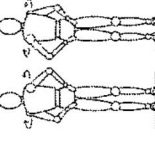
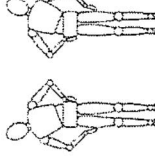
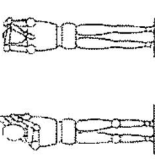
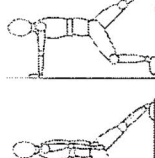
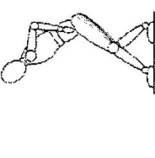
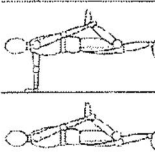
### Home Exercise Programme

Once you are familiar with the exercises in the home exercise programme; use this sheet to help you remember which exercise to do and in what order. **As a rule if the exercise feels comfortable 2 sessions in a row** and you feel no adverse effects the next day, **then increase** the repetitions of the main exercises and/or time spent on the main walk.

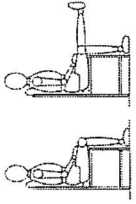
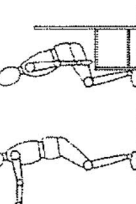
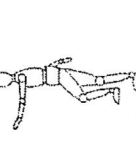

#### LIMB MOBILITY

Ankle Mobility	Shoulder Circles
	
5 x each foot	5 x forward & back

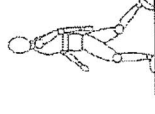
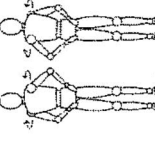
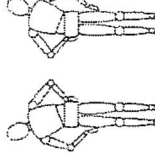
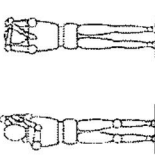
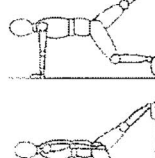
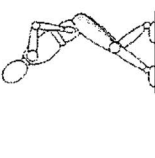
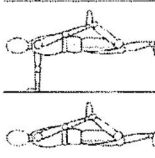
#### WARM UP

Walk	Upper body turn	Side Bend	Tricep Stretch	Calf Stretch	Hamstring Stretch	Quadricep Stretch
						
30 seconds – 2 minutes	Stretch once each side and hold for 5 seconds					

#### MAIN EXERCISES

Leg Raisers	Sit to Stand	Arm Raising	Walk
			
3 – 20 repetitions			2 – 10 minutes

#### COOL DOWN

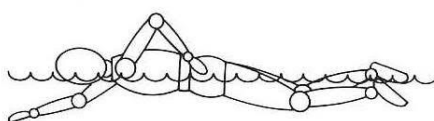
Walk	Upper body turn	Side Bend	Tricep Stretch	Calf Stretch	Hamstring Stretch	Quadricep Stretch
						
5 – 10 minutes	Stretch once each side and hold for 10 seconds					

## Tips on increasing your activity level

- Walking is an ideal activity as it is free, and easy to do in plenty of locations.
- Look for opportunities to be active throughout the whole day, for example, walk to the next bus stop on a bus route, or take 10 minutes of your lunch break to go for a walk.
- Try using the stairs instead of the escalators.
- Always choose activities you enjoy, perhaps involving friends and family or surroundings that you prefer. If you do not enjoy the type of exercise you undertake, you will not be as likely to continue.

You may wish to return to activities, such as the ones listed below:

- Swimming
- Tennis
- Bowling
- Dancing
- Cycling
- Golf



After a heart attack these can be started at around 6-8 weeks after discharge from hospital (unless you have had heart surgery, when it is after 8-12 weeks). Remember to restart them gradually, and notice how you feel following the activity. It is a good idea to cut down on the length of time spent on these activities until your stamina increases.

If you have had cardiac surgery, it is recommended to wait at least 8 weeks before swimming or cycling, this allows more time for the sternum to heal and prevent the discomfort you may feel across the chest when cycling.

Following PCI, you may recommence these activities much sooner, be guided by how you are feeling and reintroduce them gradually. Your cardiac rehabilitation nurse can help guide you on resuming these activities.

To have the greatest benefits regular exercise activities should include stamina, strength and flexibility type exercises.

Examples of these are:

- Stamina type: walking, swimming, cycling and dancing.
- Strength type: Walking uphill, climbing stairs and gardening.
- Flexibility type: Swimming, dancing and yoga.

For more specific advice on returning to exercises you enjoy, speak to the Cardiac Rehabilitation Team.



## EXERCISES FOR CARDIAC PATIENTS

Exercise will help improve your physical fitness and heart muscle; indeed, many people find that they are fitter after a heart attack than before. Exercise not only improves your feeling of well-being but can also reduce the risks of stroke, bowel cancer and osteoporosis.

You may feel ready to start exercising once you have been home about three to seven days. A good starting point is to exercise on alternate days. You are working towards 30 minutes of physical activity at a moderate pace at least 5 times a week.

### What type of Exercise is best?

Moderate intensity exercise that works the stamina of the heart muscle (i.e. 'aerobic' exercises) is excellent. This type of exercise will raise your heart rate for a prolonged period.

Walking is perhaps the best activity that can be easily structured into an activity that 'exercises' the heart, thereby helping to regain fitness following a heart attack or surgery and maintain fitness in the future. In the following pages is a guide to exercising through a walking programme, or alternatively an exercise programme that can be performed within the home.

If you have difficulty walking (e.g. due to arthritic conditions) the following exercise plan can be adapted. Speak to the cardiac rehabilitation nurse for more guidance.

Most importantly exercise needs to be an activity you enjoy.

You may already have been exercising at a high level before your cardiac event. This level will need to be re-evaluated before returning to it. Ask one of the Cardiac Rehabilitation nurses or physiotherapist/exercise leader if you are not sure.

### Exercising Safely

Safety is paramount and exercise should always be undertaken in a safe environment.

- A warm up and cool down **MUST** be undertaken before and after each session.
- Throughout the exercise you should **NEVER** feel so breathless that you are unable to easily have a conversation with another person.
- **REMEMBER TO LISTEN TO YOUR OWN BODY.** Do only the amount of exercise that feels comfortable (see the feelings on exercise chart 59).
- If you have been prescribed GTN, always have it to hand when exercising, also any inhalers you have been prescribed.

### DON'T

- Exercise after a heavy meal  
(leave 1½ hrs after a heavy meal & ½ hr after a light meal e.g. sandwich)
- Exercise when ill (e.g. with a heavy cold or flu)
- Exercise in extremes of temperature
- Compete with others
- Drink alcohol before exercising

STOP if during exercise you feel

- Chest or upper body pain
- Dizziness or Nausea
- Faint
- Uncomfortable or severe breathlessness
- A cold sweat
- Palpitations (a very fast or irregular heart beat) If any of these symptoms persist, speak to your GP.

REMEMBER

- Don't push yourself. If you don't feel up to it, your body is telling you it isn't ready.
- All exercises MUST be undertaken at your OWN pace. Do not compete with others.

### About Exercising

With any activity/ exercise it is important to begin slowly and build up gradually.

Normal response to exercise:

- Faster and stronger heart rate (pulse)
- Slight sweating
- Slight breathlessness
- Slight muscle ache (lasting approximately 36 hours after exercise)

After exercising you may feel:

- That your muscles have worked
- That your breathing has deepened
- That you feel warmer
- That you are tired

There should also be a feeling of well-being. These are all good feelings.

As you continue to exercise you should

- Begin to feel fitter
- Begin to feel stronger
- Begin to feel more confident

If there are any exercises you cannot do because of a previous condition (e.g. arthritis) omit them and just do the exercises of which you are capable.

The repetitions stated within this booklet are given as a guide only – it is not compulsory that you complete the number of repetitions given. You may do more, or less, depending on your fitness levels.

## Feelings on Exercise Chart

As you increase your intensity and level of exercise, you start to become more breathless and can start to feel your muscles working. The chart below is a simple method of assessing whether you are reaching the most effective intensity of exercise that helps your heart the most (i.e. low to moderate intensity).

During the stamina (main) exercises you should feel that the intensity of exercise should be rated at a level of 2-4. If you rate your feeling of exercise at level 5, the intensity of exercise is too great and you should reduce the intensity. As you become fitter and more used to exercising you can slowly increase to level 4.

Perceived Exertion Rating	During Exercise	Immediately after Exercise	Day after Exercise
Level 1	Easy, effortless, breathing comfortable. No muscular tension.	No aches or pains, comfortable	Rested. Could repeat the exercise.
Level 2	Mild effort. Breathing more deeply. Can feel muscles.	Recover quickly (2-5 mins). No aches or pains, comfortable.	Rested. Could repeat the exercise.
Level 3	Breathing harder. Slight sweat. Muscles working. Heart beating	Short recovery (4-7 mins). Comfortable.	Comfortable. No aches or pains. Could exercise again
Level 4	Breathless not speechless. Sweating. Muscles working hard. Heart beats strongly.	Short recovery (5-10 mins). Comfortable. Feel that muscles have worked. Alert, invigorated.	Not tired. Feeling of well being
Level 5	Very breathless, speechless. Uncomfortable. Chest tight. Dizzy. Muscles hurt. Nauseous.	Long recovery time (greater than 10 mins). Muscles tense. Palpitations. Nauseous. Dizzy	No energy. Exhausted. Depressed. In pain, sick.

## WALKING PROGRAMME

Walking is an excellent form of exercise and can be used as an alternative to, or in conjunction with, the Home Exercise Programme found in the following pages.

Plan to walk, or exercise, every day, but remember, if you don't feel up to it, don't push yourself. If you feel you need it, allow your body a day or two of rest.

Your first walk away from the home is your confidence walk, so don't over do it! Choose either a circular walk or a walk on a bus route (so you can get the bus back home). If you have no problems during the walk, i.e. pain, breathlessness or tightness in your chest, then start extending the walk a little each day.

Initially walk at your own pace on the flat. Gradually increase the pace of the walk (i.e. walk briskly), so that you feel slightly breathless, but able to walk and talk at the same time (i.e. Perceived Exertion Level 2-3 see page 59). As you near the end of the walk, reduce the pace and continue walking until your breathing has returned to normal.

The following is a suggested GUIDE for those returning to, or beginning new, activity. Please take existing fitness into consideration when referring to this guide. As a rule, if the walk feels comfortable 2 days in a row and you feel no adverse effects the next day then increase the time spent on the walk. The guide is aiming for you to achieve 30 minutes walking 5 times a week. For more advice speak to the Cardiac Rehabilitation Team; they can assist you in developing appropriate weekly goals that you wish to achieve.

Weeks at home	Examples	
	Following MI/CABG/Valve surgery/ Restricted by other conditions	Following PCI/ Previously able to exercise well
	Time spent walking	Time spent walking
1st	5mins	10-15mins
2nd	10mins	15-20mins
3rd	15mins	20-25mins
4th	20mins	25-30mins
5th	25mins	30mins
6th	30mins	30mins

When you walk any distance, remember the return journey should also be considered. What may seem easy on the way out may be too much on the homewards trip. If there are hills on the walk, try and walk uphill on the way out and downhill on the way home.

If you have been given a GTN spray or tablets, carry it/them with you at all times. When going out in the cold weather make sure you are wrapped up well, particularly around the chin, neck and throat area.

Very cold winds can bring on chest pain (if the cold usually gives you angina, you can use your GTN spray prior to going out in the cold).

If you do too much activity one day, rest the following day and then continue at a reduced level the next day. If you find any week difficult to complete, repeat the week (rather than increasing to the next level), until you are able to progress comfortably.

## CARDIAC REHABILITATION

After a heart attack, PCI or a heart operation, time is needed for physical and mental recovery. A rehabilitation programme can help by...

- improving physical fitness
- ensuring a more rapid recovery
- helping prevent anxiety or depression
- reducing future cardiac problems by addressing 'risk factors' Patients with heart failure also benefit from cardiac rehabilitation.

It is normal to feel anxious about exercising after a heart attack or surgery or any cardiac event. Participating in a Cardiac Rehabilitation Course can help give you the confidence to become active again. The Course gives you the opportunity to ask questions and talk about any worries you may still have. You can also meet other people who have been through a similar experience to you.

### What Torbay Cardiac Rehabilitation involves

The Cardiac Rehabilitation Team may have received a referral for you to participate in the Cardiac Rehabilitation Course.

Prior to participating in a course, you may be invited to attend for an exercise assessment and Risk factor talk at a clinic appointment based at Old Farm Surgery in Paignton.

Those patients who have stated that they are unable to exercise, but would like to take part the Cardiac Rehab Health Education and Relaxation components of the course, should let the Cardiac Rehabilitation Team know.

Torbay Cardiac Rehabilitation Office: 01803 527062

The Torbay Cardiac Rehabilitation Team run courses in Both Newton and Paignton Leisure Centres every week including both Main and Gentle exercise courses.

## The Aims of the Course

To enable you to return to a state of well-being which is acceptable to you, help you understand things you can do to help your heart and optimise the medication your heart needs.

## How is this done?

The course usually lasts for a number of weeks (slightly longer for the Gentle course) and each "session" lasts for up to two hours.

The course is made up of three components to help address you as a whole person.

### 1. EXERCISE

This is under the supervision/guidance of an exercise specialist. The exercises are designed to suit people of varying abilities. Everyone can exercise at their own level.

### 2. HEALTH EDUCATION

This is an informal discussion, listening and teaching time; aiming to address your heart health and the risk factors leading to heart disease; including:

- Coronary Heart Disease Risk Factors
- Medications
- Exercise
- Healthy Eating & Cholesterol
- Blood Pressure
- Stress/Anxiety

### 3. RELAXATION

A simple form of relaxation is taught. This can be used to help people to cope with stress.

If you have any queries contact the Cardiac Rehabilitation Team on 01803 527062  
There are 3 short videos' available to view online on the Hospital Website at

<http://videos.torbayandsouthdevon.nhs.uk/cardiology/49556>

They explain the process of Cardiac Rehabilitation, Here in Torbay.

## **1 What is Cardiac rehabilitation;**

Which talks about CR, the four phases including hospital stay, telephone call, outpatient appointments, classes and final goals.

## **2 Introduction to Cardiac rehabilitation classes;**

Which talks about both Main and Gentle classes and actually shows the Paignton and Newton Classes, noting education sessions and individual home programmes.

### **3 Exercising safely in Cardiac Rehabilitation;**

Which talks about safe exercising, the Borg scale of breathlessness, a walking programme and safety points whilst exercising.

Currently the BHF website also have Exercise Videos online to look at alongside advice and Guidance from your Cardiologist and Cardiac Rehab Team. They start with a Sitting programme on Week one increasing to standing exercises up to Level 5, but does depend on your previous level of fitness and time from your event or surgery.

[www.bhf.org.uk](http://www.bhf.org.uk)

**Please discuss with The Cardiac Rehab team before undertaking this programme of Exercise.**

#### **Other Cardiac Rehabilitation Providers**

Regionally, Cardiac Rehabilitation is also offered at Kingsbridge, Plymouth and Exeter. If you live in these areas, details of their Cardiac Rehabilitation courses may be slightly different.

If you live elsewhere in the UK, your local hospital will have details of the Cardiac Rehabilitation service that is provided; or details can be found at [www.cardiacrehabilitation.net](http://www.cardiacrehabilitation.net) - where you can check by postcode for your nearest centre.

When you are discharged from Torbay Hospital, a referral will have been made to your nearest Cardiac Rehabilitation Provider. If you have no contact from your local centre, within 2 weeks of going home, please telephone us or ask your local GP.

## **SECTION D**

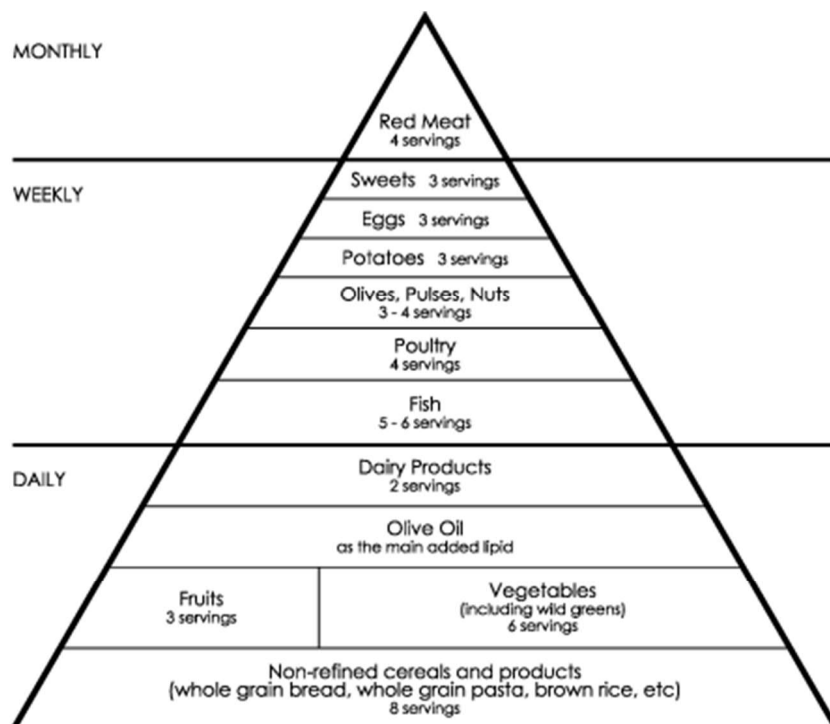
### **HOW CAN I REDUCE MY RISK OF FURTHER CORONARY ARTERY DISEASE?**

For the majority of patients, there are strong reasons why Coronary Artery Disease has occurred. These reasons are called 'risk factors' and relate to your lifestyle and health. A 'risk factor' is something that increases people's risk of getting coronary artery disease. There are several known addressable risk factors for coronary artery disease. The main ones are:

- High blood cholesterol
- Poor diet
- Overweight or obesity
- Drinking too much alcohol
- High blood pressure
- Smoking
- Lack of physical activity
- Diabetes
- Stress

## Healthy Eating

Everyone benefits from eating a healthy, balanced diet. Concentrating on certain aspects of the diet can help prevent further narrowing in the heart's arteries from developing. A Mediterranean style diet is a healthy diet that is generally low in fat (particularly low in saturated fat), low in salt, high in fibre (roughage). This can be achieved by eating more wholegrain bread, pasta, fruit, vegetables and fish; less red meat; and replace butter and cheese with products based on plant oils. Research has shown, that following a Mediterranean style diet can reduce the chance of developing conditions such as heart disease, type 2 diabetes, high blood pressure, obesity and even Alzheimer's disease. The following chart is a guide on how to follow a Mediterranean style diet.



One serving equals approximately half of the portions as defined in the Greek market regulations (portions served in restaurants)

Also remember to:

- drink plenty of water
- avoid salt and replace it by herbs (e.g. oreganon, basil thyme, etc)

Supreme Scientific Health Council 1999  
Hellenic Ministry of Health

## Fruit & Vegetables

Eating plenty of fresh fruit and vegetables not only helps to prevent constipation, by increasing fibre intake; but also provides the majority of the vitamins and minerals required by the body. Current recommendations are to eat 5 (to 9) portions of fruit and vegetables in a day. Typically, a portion is a handful of fruit/vegetables.



A glass of fruit juice

is considered a portion, but potatoes do not count as part of the 5 (to 9) portions. Aim to eat fruit and vegetables of different colours, such as red peppers, green apples,



yellow melon etc... This will enable you to obtain a variety of vitamins and minerals from your food.

### Salt

No more than 6g/1 level teaspoon of salt per day. People who have a lot of salt in their diet are more likely to have high blood pressure. To cut down on your salt intake, initially try not to add salt to your food at the table. Later on, also try cooking without adding any salt (use herbs and spices to add flavour instead). You may want to check the ingredients' labels on food packaging, to find out how much sodium the food contains. You will find that within about a month your taste buds will have adjusted and you may not like salty foods. You will get all the salt you need from the 'hidden salt' in processed foods and bread.

### Cholesterol & Fats

Cholesterol is a fatty substance made mainly in the liver, which circulates in the blood and contributes to the gradual narrowing of the coronary arteries (atherosclerosis). To help reduce your cholesterol level you need to do the following:

- Cut right down on saturated fats (e.g. butter and fats from animal origin). Try using monounsaturated and polyunsaturated fats. e.g. olive oil/ sunflower oil (including spreads). Remember all fats contain calories. Swapping to a lower saturated fat will not, however, reduce the calories.
- Reduce the total amount of fat you eat – especially if you are overweight. For example, you could eat less pastries, crisps or biscuits, and replace them with healthier alternatives such as fruit. Or, at mealtimes, you may be able to cut down on the amount of fatty foods by filling up with starchy foods such as bread, pasta or rice instead.
- Eat lots of foods high in fibre. This helps your body to reduce absorption of fats. Eat 5-9 portions of fruit or vegetables a day, as these contain high levels of fibre.

Examples of changes to diet:

- Change from full fat to semi-skimmed or skimmed milk
- Use half fat cheese (or a smaller portion of full-fat cheese)
- Use skimmed milk for cooking
- Eat fewer cakes and biscuits
- Swap red meat for white meat, e.g. beef/pork for chicken/fish □ Choose leaner cuts of meat, remove the skin from chicken.
- Grill rather than fry foods
- Dry roast meat
- Cut visible fat off meat

Treats are OK e.g. fish and chips, cream tea, and birthday cake, but only occasionally. For more information on healthy eating visit: [www.nhs.uk/LiveWell/healthy-eating](http://www.nhs.uk/LiveWell/healthy-eating)

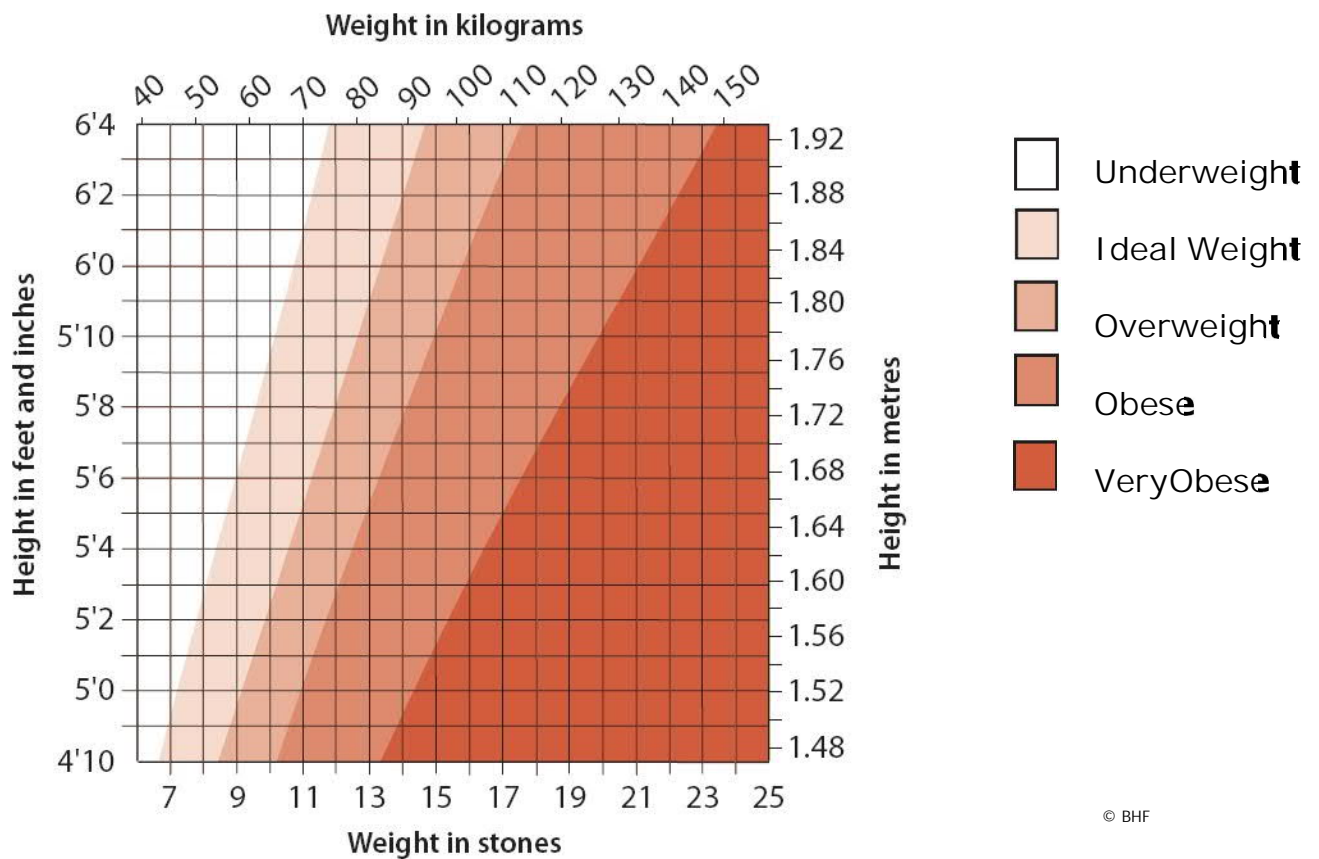
### Lose Weight

If you are overweight, reducing your weight will reduce the workload of your heart, help keep your blood pressure down and lower your cholesterol. Weight gain is directly

related to the calories you consume. Remember that losing weight involves both eating healthily (by reducing the amount of fat in your diet and reducing your calorie intake) and by increasing your daily physical activity.

Tools such as the Body Mass Index (BMI) or waist circumference can be used to create goals that you can aim for when losing weight.

The BMI is a calculation based on your height and weight, it may be used to assess whether you are your ideal weight for your height. Using the graph below, take a straight line up or down from your weight, and a line across from your height. Put a mark where the two lines meet to find out if you need to lose weight.



Waist circumference is another way of measuring your risk of future health problems related to obesity. Carrying too much weight around your middle increases your risk of further heart problems and can also be related to diabetes. It is also associated with higher levels of cholesterol.



Measure your waist circumference by placing the tape measure half way between your hipbone and your lowest rib. This will be about 5 cm (2 in) above your belly button. Wrap the tape measure around you in a circle. Make sure the tape measure is level all the way around. The tape measure should not push in or indent the skin. Relax, exhale and measure.

It is ideal to measure your waist circumference on bare skin. If you are wearing clothes, be sure to measure with the same clothes on each time.

	Ideal (less than)	Moderate Risk (between)	High Risk (greater than)
Men	88cm (35 inches)	88-102cm (35-40 inches)	102cm (40 inches)
Women	80cm (32 inches)	80-88cm (32-35 inches)	88cm (35 inches)

A waist circumference that falls in the moderate risk group increases your future risk of not only heart attacks but stroke and diabetes too. This risk increases again when the waist circumference falls into the high-risk group.




### Alcohol

Too much alcohol can damage the heart muscle, increase blood pressure and also lead to weight gain. During the weeks after your heart attack or heart surgery it is best to limit the amount of alcohol you drink. Small amounts, for example a half pint of beer or a glass of wine, will do you no harm. If you are taking sleeping tablets, remember that alcohol will have a more powerful effect.

If you have heart failure, it is recommended you limit alcohol as much as possible because of the damage it may cause to the heart muscle. Should you have heart failure caused by alcohol you should avoid alcohol completely; abstaining may even reverse some of the damage to the heart muscle.

Everyone should avoid binge-drinking but this is particularly important if you are taking anticoagulant tablets (i.e. warfarin). Too much alcohol can interfere with the anticoagulation process so, if you do drink alcohol, it is better to have a small amount on a regular basis.

Men and Women should drink NO more than 3 units in any one day and a total of NO more than 14 units of alcohol per week.

1 UNIT =  half a pint, (3.8% lager)  1 SMALL glass of wine, (125ml)  pub measure of a spirit (25cl)

Don't binge drink. Have at least TWO alcohol FREE days a week.

Remember to drink responsibly, visit: [www.drinkaware.co.uk](http://www.drinkaware.co.uk)

### High blood pressure

Otherwise known as Hypertension; this refers to a higher than normal pressure flowing through the arteries of the body. As well as affecting the coronary arteries, it

may lead to damage to Kidneys, brain, eyes and other organs in the body. If you are known to have high blood pressure, you are likely to require antihypertensive medication to control it (examples found on page 72). It is not uncommon to require more than one medication, sometimes up to four. It is important this medication is taken regularly as prescribed, and must not be stopped suddenly unless under medical supervision. Your GP may ask you to occasionally monitor your own blood pressure at home. As previously stated eating a low salt/sodium diet will help with high blood pressure (see page 65).

For more information visit the British Hypertension Society, [www.bhs.org.uk](http://www.bhs.org.uk)

### No Smoking



If you were/are a smoker, you will have been strongly advised, whilst in hospital, that you **MUST** stop smoking. Although easy to enforce in hospital, once home, it may be tempting to slip back into your old habits. If you continue to smoke after having had a heart attack, you double your chances of having another one compared to if you stopped.

Although it's not something that's going to be easy, this is one of the most important lifestyle changes you can make. Speak to your practice nurse, GP or local Smoking service team for more advice and help regarding quitting and which aids are available to you (e.g. nicotine patches/ gum).

Devon Smoking Service is part of the NHS and provides FREE support and advice to assist people wishing to give up smoking. Specially trained staff can help you to understand why you smoke and give you ways to cope when you decide to stop.

Tel: 0800 2982654

NHS Smoking Helpline Tel: 0800 1690169

Or visit: [www.nhs.uk/smokefree](http://www.nhs.uk/smokefree)

### Physical Activity

Many of us do not take enough exercise. It is important to review just how active you used to be. Some forms of exercise are harmful, particularly those that are associated with sudden extremes of effort or require a lot of straining. e.g. heavy weight lifting. The best exercises involve a lot of free movement, with little resistance i.e. cardiovascular exercise. These include walking, jogging, cycling and swimming.

Physical activity helps:

- Lower high blood pressure and prevent high blood pressure from developing.
- Improve your blood cholesterol levels.
- Maintain, or reach, a healthy weight.
- Control your diabetes, if you are diabetic.
- Improve general well-being, and speed up recovery following a heart attack.

Once you have completed a cardiac rehabilitation course, aim to exercise 5 times a week for at least 30 minutes, at moderate intensity (i.e. an exercise that makes you feel warm and slightly out of breath). Alongside this, keep as physically active as possible e.g. housework, gardening, hobbies, golf, bowling. In general, be more active more often.

For advice on how to gain the most benefit from exercise, speak to the Cardiac Rehabilitation Team

### Diabetes

Diabetes is a condition in which the blood sugar is raised to an extent that it leads to damage of the blood vessels throughout the body. Patients with diabetes are at a higher risk of heart attacks. If the blood sugar is only slightly elevated, you may not be aware that you are affected. Blood sugars are routinely checked after a heart attack and if persistently raised, you will require regular treatment.

If you are diabetic, it is important to gain good control of your blood sugar. This reduces the chance of a narrowing developing in the heart's arteries. All patients diagnosed with, or a suspected diagnosis of, diabetes should have regular reviews of their diabetes with their Practice nurse, GP or with the Diabetic Team at the hospital. [www.diabetes.org.uk](http://www.diabetes.org.uk)

### Stress

Stressors are a part of everyday life. There is some evidence that those who find it difficult to manage their stressors are more likely to suffer from heart attacks. Stress puts an immediate strain on the heart by increasing blood pressure and the pulse rate. Relaxation and meditation may help you to avoid this. Examples of relaxation techniques can be found on page 41. For more information and advice on stress and your health visit: [www.nhs.uk/Conditions/stress-anxiety-depression](http://www.nhs.uk/Conditions/stress-anxiety-depression)

### MAINTAINING A HEALTHY LIFESTYLE

Having completed a Cardiac Rehabilitation course, the hope is that you will feel motivated enough to become self-sufficient in maintaining a healthy lifestyle. There are many ways you can maintain the level of physical activity you have achieved. You can continue exercising at the local gym, at home, or join local clubs that organise walks and other activities. The options available to you will be discussed towards the end of your Cardiac Rehabilitation course.

Message from the Torbay Cardiac Rehab Team.....

'Recently you have experienced a cardiac event, more often than not there are factors that have contributed to this, so called risk factors. Most of you will be familiar with some of these... smoking, diabetes, high blood pressure and raised cholesterol. There are however others, less well defined, which we recognise are just as important although more difficult to quantify. These include lack of physical fitness, inflammatory disorders such as some forms of arthritis, poor kidney function, stress, social isolation and depression.

The Torbay cardiac rehabilitation programme is here to help you regardless of age, gender or your personal circumstances.

Our reason for talking to you is to ask you to consider the long-term.

Many patients, for example the majority treated by coronary angioplasty (stent, PCI), have rapid treatment, a short hospital stay and then can return to work after one week. It is understandable if you have followed such a path, that you would want to put the event behind you and assume that you can go on as before. However, there is sustained risk regardless of drug therapy and the cardiac interventions that you will have undergone.

To reduce your long-term risk and improve your quality of life is more than taking the tablets. The CR Course which I hope you will find helpful, is the start of a journey. Cardiac rehab exists to cater for the long term. Members participate in regular based exercise and education thus maintaining physical fitness.

There is also the opportunity to share health concerns, socialise within your exercise group and participate in long term goals.

Members gain a more positive outlook to life.

We know that well organised long-term exercise-based cardiac rehabilitation programmes such as ours, reduces cardiovascular mortality and hospital admission from cardiovascular events. We are large enough to cater for all levels of fitness, ranging from those that can run a marathon to those that have difficulty walking for whom we have seated/Gentle exercise classes. There are other exercise-based programmes out there, but few that are solely dedicated to patients who have had a major cardiovascular event. We are almost unique in providing such a service in the local leisure centres'

Karen Collins/Kelly Graham

Cardiac Rehabilitation Specialist Nurses

Torbay and South Devon NHS Foundation trust

## SECTION E

### MEDICINES FOR THE HEART

What follows is basic information about some of the more commonly used medicines. The information provided has been selected for patient use. It is not intended to be comprehensive.

#### Aspirin

Whenever a blood vessel wall is damaged, certain cells (called platelets) collect around the area of the damage and clump together to form a clot. If the clot becomes too large it can block the blood vessel and prevent blood from reaching the heart muscle. This is what happens when you have a heart attack. Aspirin (in low doses) helps stop platelets sticking together, which prevents clots forming and prevents your new stent or bypass graft from blocking.



Aspirin can sometimes cause stomach irritation or heartburn. To reduce the risk of irritation, it is important that you take your aspirin with or just after food and dissolve it in water before taking it. If you do get indigestion with aspirin, you may find that the coated form of aspirin is better.

If you need to take a painkiller, avoid painkillers that contain aspirin, ibuprofen, naproxen or any other non-steroidal anti-inflammatory drug (NSAID). Paracetamol or Co-Codamol can be used instead. If you would like some help with choosing a suitable painkiller, ask your Pharmacist or local chemist.

### Antiplatelets (e.g. Clopidogrel, Ticagrelor, Prasugrel)

Antiplatelets are similar to Aspirin as they also help to prevent platelets sticking together and forming a clot. Patients who have undergone an angioplasty with stenting, or who have had a heart attack will be given both Aspirin and one other, either Clopidogrel, Ticagrelor or Prasugrel. The Aspirin will usually be continued indefinitely and the Clopidogrel, Ticagrelor or Prasugrel for a set period of time; this will be stated on an antiplatelet card which will be given to you before discharge.

If you have a stent and there is any question of the Clopidogrel, Ticagrelor or Prasugrel being stopped by anyone, it MUST first be confirmed with your Cardiology Consultant at the hospital.

Notify your dentist if you are taking Clopidogrel/Ticagrelor/Prasugrel.

Please note: Whilst taking Aspirin/Clopidogrel/Ticagrelor/Prasugrel you may notice that you bruise more easily or if you cut yourself it takes slightly longer than usual to stop bleeding. This is quite normal but you are advised to see your GP if you have any concerns or develop any other unusual bleeding from any other areas, e.g. bowels.

### Proton Pump Inhibitors (e.g. Omeprazole, Lansoprazole, Esomeprazole, Pantoprazole, Rabeprazole)

Proton Pump Inhibitors reduce the production of acid in the stomach, preventing or relieving irritation of the stomach lining.

Aspirin combined with another antiplatelet can irritate the lining of the stomach and, due to this action on platelets, may lead to blood loss. Omeprazole or a similar agent has been prescribed to reduce the likelihood of this happening.

The omeprazole (or similar agent) will usually be stopped on stopping your clopidogrel, ticagrelor or prasugrel. You may however continue on omeprazole (or similar agent) despite stopping clopidogrel, ticagrelor or prasugrel if you are likely to have or have previously had stomach trouble. This will be guided by your GP.

### Statins (e.g. simvastatin, atorvastatin, pravastatin, rosuvastatin, Fluvastatin)

Cholesterol is produced in the liver with the help of an enzyme. Statins block the effect of this enzyme and reduce the production of cholesterol. Statins reduce the levels of bad cholesterol (LDL's) and increase the levels of good cholesterol (HDL's).

It is recommended that people who have coronary artery disease take lipid-lowering drugs such as statins to reduce their blood cholesterol. Even if your cholesterol is not high, reducing it will lessen the chance of you having another heart attack or stroke.

Statins can cause stomach pain, wind, constipation or diarrhoea. If this happens to you, tell your doctor because reducing the dose may make this better. A rare but serious side effect of statins is inflammation of the muscles (myositis). You must tell your doctor if you have any unexpected muscle pain, tenderness or weakness.

Drinking grapefruit juice or eating grapefruit should be avoided if you are taking a statin drug called simvastatin. However, if you are taking another statin, such as atorvastatin, then grapefruit juice (or the grapefruit) can be taken in small quantities.

### ACE Inhibitors (e.g. lisinopril, ramipril, perindopril, captopril, enalapril)

ACE inhibitors (Angiotensin converting enzyme inhibitors) have several actions. They reduce blood pressure by dilating blood vessels and reducing fluid retention. Your heart is a muscle and after a heart attack will have suffered some damage, the heart will have to start to work harder to pump blood around your body. ACE inhibitors allow the blood vessel walls to relax and widen, reducing the work the heart has to do which reduces your chances of heart failure or a further heart attack.

Whilst you are taking ACE Inhibitors your GP will routinely arrange a blood test to check your kidneys are working well. This is particularly important when you first start this medication.

A dry, tickly cough can sometimes develop when taking ACE inhibitors. This is quite common and you should not worry about it. If it becomes troublesome you should speak to your doctor who can change you to a similar drug, called an angiotensin II receptor antagonist (or an ARB). The cough you had with the ACE inhibitor may take 3 or more weeks to disappear once the ACE inhibitor has been stopped. It is important NOT to stop taking them suddenly. Discuss any concerns with your GP.

### Angiotensin II Antagonists (e.g. Candesartan, Valsartan, Losartan)

Angiotensin II receptor antagonists work in a very similar way to ACE inhibitors, reducing blood pressure and fluid retention, but do not cause the persistent dry cough that ACE inhibitors can sometimes cause.

### Beta-blockers (e.g. atenolol, bisoprolol, nebivolol, carvedilol, metoprolol)

These drugs work by reducing the effects of adrenaline in the body. Adrenaline normally increases the heart rate and causes a rise in blood pressure. By blocking these effects, beta-blockers lower the work the heart has to do and therefore reduce the chance of you having angina, abnormal heart rhythms or experiencing a further heart attack.



Minor side effects are common and include tiredness and cold hands and feet. Other less frequent effects include nausea, diarrhoea, skin rashes, impotence or other sexual disorders, nightmares and pins and needles in the fingers.

It is important **NOT** to stop taking them suddenly as this may bring on angina and/or an increase in your blood pressure. Discuss any concerns with your GP.

### Diuretics 'water tablets' (e.g. furosemide, bumetanide, Bendroflumethiazide and others)

Diuretics control the amount of water in the body. They get rid of extra water and salt in your urine, and relieve congestion in your circulation.

You will need to use the toilet frequently for a few hours after taking these tablets so find a time of day that suits you. It is best to take diuretic tablets in the morning but if you are directed to take them twice a day, take your second dose at lunchtime or early afternoon

If you have a special occasion to attend, where frequently visiting the toilet would be a nuisance, you can take the tablet at a different time that day.

It is important not to stop taking diuretic tablets without first consulting your GP, as missing even one dose could lead to fluid building up within the body.

### Potassium Sparing Diuretics (e.g. eplerenone, spironolactone)

These are weak diuretics that increase the output of water, but prevent too much potassium being lost at the same time. This helps maintain the balance of salts within the blood. They do this by inhibiting the action of aldosterone, a substance produced within the body which controls your blood pressure and heart function. Diuretics and potassium sparing diuretics are used to help manage the symptoms of heart failure.

Before you are started on diuretics or potassium sparing diuretics a blood test will check your potassium level and kidney function. Further blood tests should be repeated within the first week of starting, after a month, or after a change in dose.

### Nitrates (e.g. glyceryl trinitrate tablets and spray, isosorbide mononitrate)

These work by widening coronary arteries and increasing blood flow through them, allowing the heart to get more oxygen.

Glyceryl trinitrate (GTN) comes as tablets or a spray and is used to relieve symptoms of angina.

How to use your GTN:

1. If you get angina symptoms, stop what you are doing and rest. Sit down if possible

2. If your pain does not ease within a minute spray one or two puffs, or place one to two tablets, under the tongue
3. If after 5 minutes your pain has not resolved take a second dose
4. If after 10 minutes (2 doses) you still have pain you should call an ambulance. You can continue to take your GTN every 5 minutes until the ambulance arrives
5. With GTN tablets, once the pain has resolved either spit out, or swallow, the tablet. If you need to take a second dose, spit out the tablet and place another one under the tongue.
6. If using GTN spray, once the pain has resolved rinse your mouth with water to remove excess spray (if possible).

Always carry your GTN with you. If you do not use your GTN very often, SIT DOWN before you take a spray as it can cause a rapid dilation of blood vessels making you feel lightheaded. Other side effects include facial flushing, dizziness or headaches. These will subside as the drug wears off. Paracetamol can be used to relieve the headache (do not use ibuprofen or aspirin).

If you find that you are increasing the amount of times you are using GTN, (on average greater than four separate occasions a day) make an appointment to see your GP as soon as possible. It may be helpful to make a note of what, if anything brought the angina on and if anything relieved it. This will help you give an accurate description of your symptoms to the doctor, thereby assisting their diagnosis. An angina/symptom record sheet may be found on page 78.

If you have been prescribed Sildenafil (Viagra), Tadalafil (Cialis) or Vardenafil (Levitra) leave at least 12 hours between taking one of these and using your spray, or if you take nitrate tablets, allow at least 24 hours (48 hours for Cialis).

Long-acting Nitrates (e.g. Isosorbide mononitrate, Isosorbide dinitrate)

These are tablets taken either once daily or twice a day to prevent attacks of angina. If you are prescribed this medication twice daily then the second dose should be taken no later than 4pm, this allows your body to have a 'nitrate free period' and reduces the likelihood of intolerance.

Initially they may give you headaches, but this usually settles as the body adjusts to the medication. If it is particularly troublesome problem then discuss this with your GP.

Do NOT take Sildenafil (Viagra), Tadalafil (Cialis) or Vardenafil (Levitra) whilst you are prescribed Isosorbide Mononitrate or Isosorbide dinitrate unless advised appropriately by your Cardiologist.

## Anticoagulant medicines

Blood clots are made up of platelets (tiny blood cells clumped together) and a protein called fibrin. If a clot is not treated, it could travel to the brain and cause a stroke, or travel to the lung and block a main artery (known as a pulmonary embolism). Anticoagulants help to prevent such harmful blood clots from forming.

They are most commonly prescribed for people who have an abnormal heart rhythm, such as atrial fibrillation, or for those who have an artificial heart valve. Both of these conditions increase the risk of a blood clot forming inside the heart, which can then increase the risk of having a stroke.

Anticoagulants are particularly valuable for treating clots that have already formed, such as those that develop in the veins of the legs (deep vein thrombosis).

Whilst taking an oral anticoagulant it is important to carry an anticoagulation card with you and inform any health care professionals, of your treatment.

You will only be prescribed one of the following: Warfarin or a Direct Oral Anticoagulant (DOAC).

### Warfarin

Warfarin has been prescribed as an anti-coagulant for many years. It acts on vitamin K, an essential factor for the formation of various clotting factors in the body.

Warfarin can be prescribed to prevent clots forming for a number of different reasons. You may be prescribed warfarin if you have an abnormal heart rhythm, if you have a certain type of artificial heart valve or if you have had a clot in the leg or lungs.

There is no standard dose for Warfarin. The dose is guided by your blood clotting time, which is known as your "INR" (International Normalised Ratio). The only way of knowing the correct dose of warfarin for someone is to measure the INR regularly. Once the correct level is found these blood tests will become less frequent.

The main risk with warfarin is bleeding. Usually this is a minor problem but if you are worried about any bruising, observe dark stools, blood in the urine or unusual bleeding, speak to your doctor immediately.

Always tell any health professional that you are taking Warfarin. Warfarin interacts with other medications so if you start or stop other medications you may need to have a blood test to ensure that your INR stays within the desired range.

### Interactions with food:

Some foods can also affect Warfarin. The most noticeable one is cranberry juice, which should be avoided as it can increase the effect of the warfarin. Dark-leaved greens can be eaten in small portions, as large amounts taken infrequently can alter the INR.

Alcohol can also affect your INR. It is recommended that if you drink alcohol, to drink the same small amount every day. i.e. 1-2 units a day for men and women (see page 67).

If you are taking Warfarin and require further advice about it, then please speak to your anticoagulation clinic or your community pharmacy.

### Direct Oral Anticoagulants (DOAC's) – Dabigatran, Apixaban, Edoxaban and Rivaroxaban

These anticoagulant medicines have been approved for use for people who have atrial fibrillation, to reduce the risk of having a stroke, for treatment of deep vein thrombosis (DVT) or pulmonary embolism (PE). You cannot take them if you have a heart valve problem or if you have had heart valve surgery.

The main benefit of these anticoagulant medicines is that you don't need to have the regular blood tests that you would need if you were taking warfarin.

These medicines are not affected by the amount of vitamin K in your diet. This means that vitamin K will not reverse the effects of any bleeding that may occur. If there is any bleeding, your doctor will tell you to stop taking the medicine, in order to reduce the level of the medicine in your blood.

These medicines may affect the way that other medicines you are taking work. Your doctor should discuss this with you. It is important that your doctor discusses with you the risks and benefits of taking any of these medicines rather than warfarin.

#### Dabigatran

Dabigatran helps to reduce the risk of blood clots forming by thinning the blood. It does this by working on an enzyme called thrombin. Dabigatran needs to be taken twice a day as its effects wear off quickly. This means that missing a dose increases the risk of having a stroke. There is an antidote (Praxbind) that can reverse the effect of Dabigatran, if needed in an emergency.

#### Rivaroxaban and Edoxaban

Rivaroxaban and edoxaban cause your blood to become thinner by affecting the blood clotting process. They need to be taken once a day. It is very important not to miss a dose

#### Apixaban

This works in a similar way to Rivaroxaban and Edoxaban, but it should be taken twice a day as its effects will quickly wear off. This means that missing a dose increases the risk of having a stroke.

#### Side effects of anticoagulants

The main side effect of taking any anticoagulant medicine is bleeding. This happens because the anticoagulant affects the blood-clotting process, helping to prevent blood clots from forming. The anticoagulant may cause internal bleeding, or make bleeding from a minor injury worse.

Any of the following symptoms could mean that your dose of anticoagulant may need to be checked.

- Cuts which bleed for longer than usual.
- Bleeding that does not stop by itself.
- Nose bleeds that last for more than a few minutes. (If a nose bleed lasts for more than 20 minutes, you must go to your GP surgery or to the accident and emergency department of a hospital.)
- Bleeding gums.
- Severe bruising.
- Red or dark-brown urine.
- Red or black bowel movements.
- For women, heavier bleeding during periods, or other vaginal bleeding that is not caused by periods.

If you receive a hard blow to the head or to another part of the body, you should seek medical help without delay to make sure you don't have internal bleeding as this may not be noticeable straight away. If you are worried, contact your GP or anticoagulant clinic, or go to the accident and emergency department at your local hospital. Take with you your anticoagulation treatment booklet and any other medicines you are currently taking.

If you are taking an oral anticoagulant and require further advice about it, then please speak to your anticoagulation clinic or your community pharmacist.

### Amiodarone

Amiodarone is used to treat an irregular heart rhythm; it works by correcting this rhythm and slowing the heart rate if it is beating too fast. It is usual to start taking amiodarone three times a day, reducing to twice a day after 7 days, then once a day after a further 7 days. It is then continued once a day.

Side effects associated with amiodarone include:

- Feeling sick
- Blurred vision, it is recommended to have an eyesight test each year as you may develop deposits in the eyes. These should not affect your vision but you may find that you are dazzled by car headlights if you drive at night.
- Feeling either extremely tired and weak, or extremely restless and agitated; either of these can be caused by changes in thyroid function. It is important to have your thyroid function checked every 6 months.
- Blue or grey marks on areas of skin exposed to the sun due to increased sensitivity to the sun. It is advisable to use a high factor sunscreen (at least factor 15, that protects against UVA and UVB) to protect any exposed areas of skin whilst taking amiodarone.
- Changes in the way things taste, feeling shaky, nightmares and difficulty sleeping.

If you are experiencing any of these side effects and they persist or become troublesome speak to your doctor or pharmacist.

Amiodarone can stay in the body for a number of weeks after taking the last dose, so side effects may continue even after stopping the drug.

If you experience any of the following rare but possibly serious symptoms contact your doctor for advice straightaway:

- Breathing difficulties or unexplained cough.
- Yellowing of skin or whites of your eyes that could be a sign of jaundice.
- A severe skin rash that could be a sign of an allergic reaction

Other medications can interact with amiodarone so always check with a pharmacist when buying medicines that they are safe to take together. Grapefruit juice can increase the level of the drug in the body so it is best to avoid this whilst taking amiodarone.

#### REMEMBER..

Once your prescription is nearly finished, it is important you get your repeat prescription from your GP in plenty of time so you do not run out of your tablets and Never stop any medications without a conversation first with your GP or Cardiologist.

Buying Medicines online, or from health food shops

These sources may not be reliable in terms of the drug's content. Generally, it is not safe to buy from sites unless they are registered with the Royal Pharmaceutical Society of Great Britain and displaying this logo.



If you use herbal remedies or supplements, it is wise to check with your pharmacist that there is no interaction between these and your prescribed medication.

Paying prescription charges

If you pay for your prescriptions a pre-payment prescription certificate (PPC) may help with the cost. If you need more than 13 prescribed medicines each year, you could save money with a 12-month PPC. You can also buy a three-month PPC, which will save you money if you need more than three prescribed medicines in three months.

To buy a PPC go to: <https://apps.nhsbsa.nhs.uk/ppcwebsales/>

Or for telephone assistance call: 0300 330 1341

### SYMPTOM RECORD

This is to keep a record of any chest pains or other symptoms you are experiencing. Increase in the frequency or intensity of discomfort/pains should always be reported to your GP. This form can help your doctor assess your symptoms more accurately.

Date	Time	Activity at time of symptoms	Type of Symptoms	Duration of symptoms	Relieving factors (e.g. GTN, rest)

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For further assistance or to receive this information in a different format, please contact the department which created this leaflet.

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