

Image: The Yorkshire Heart Centre Jubilee Building, Leeds General Infirmary.

Your Heart Your Recovery

Information Booklet for people with Coronary Heart Disease and their Families

> Written by the Leeds Cardiac Rehabilitation Multidisciplinary Team



Please read about Take Heart at rear of this booklet





YORKSHIRE HEART CENTRE



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Foreword by Consultant Cardiologist

The treatment of coronary heart disease is a success story. Heart disease can be present for years and decades without problems. The risk of both immediate and longer term complications after a heart attack is a fraction of the risk of a few years ago.

Most patients with coronary heart disease live full and active lives. Many prominent politicians, company executives, doctors, lawyers and people from many other professions have had

coronary heart problems - but you often do not know which ones.

How has this success come about? Some of it is due to better care by ambulance paramedics, clot-busting drugs, stenting or operating on heart arteries, better drug therapy, and a range of specific treatments. But a lot of it is due to patients leading healthier, and more active lives. This is what cardiac rehabilitation is all about.

The good thing about cardiac rehabilitation is that not only does it reduce complications, but you feel better during any rehabilitation activities and afterwards. It is fun to do and you live longer - that is difficult to beat.

Alan Mackintosh

Part 1: Your Recovery What is Cardiac Rehabilitation?

Cardiac rehabilitation provides people with information, support and advice to reduce and to cope with the causes of coronary heart disease (CHD). It aims to provide information to enable people to make choices and take control of their health. The cardiac rehabilitation team aims to respect the wishes of individuals and offer support in a non-judgemental way. It believes that individuals need to move at their own pace towards their own goals.

Research has shown that cardiac rehabilitation is an effective way for you to take control of your health and well-being. It is an ongoing part of your treatment, which your cardiology consultant strongly advises you to attend. Cardiac rehabilitation nurses provide support and individualised advice for patients and their families following discharge from hospital.

Cardiac rehabilitation provides health education and exercise programmes for patients with CHD. If you are unable to exercise, you can be followed up by your cardiac rehabilitation nurse who will either see you during your stay in hospital, or contact you following discharge from hospital.

Cardiac rehabilitation:

- Helps your heart recover through exercise programmes.
- Provides you with information about lifestyle changes that can result in a healthier heart.

This guide is meant to add to the individual advice you will be given by the cardiac rehabilitation team. You do not have to read it all at once. You can choose the parts that are most relevant to *your* recovery.

The Heart and Coronary Arteries

The heart is a pump which pumps blood around your body. It is able to do so because the heart walls are made of powerful muscle. This muscle needs a supply of nutrients (food) and oxygen in order to keep healthy and work properly. The heart pumps blood to itself through arteries (see Figure 1). The arteries that supply blood to the heart are called coronary arteries. There are two main coronary arteries; the left and the right. The left one divides into two main branches which then divide further. The right one also further divides, so that all of the heart has a blood supply.

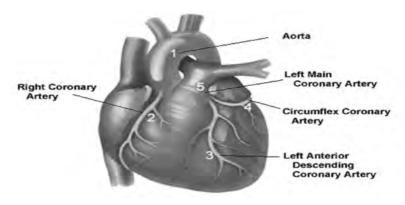


Figure 1: The Heart & Coronary Arteries

Coronary Heart Disease

The arteries supplying the heart can become diseased by a condition known as atherosclerosis (this is also known as hardening of the arteries, plaque build-up and furring up of the arteries - see Figure 2). Atherosclerosis is caused by the build up of fatty deposits inside the artery. These deposits narrow the artery, therefore not enough blood may reach the heart muscle, causing chest discomfort or pain and possible shortness of breath.

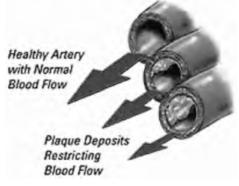


Figure 2: The Coronary Arteries

What is Angina?

The word 'angina' is the medical name for pain in your chest. A narrow coronary artery may get to the stage when it can not supply enough oxygen-rich blood to do what your heart wants. This is called 'ischaemia'.

Ischemia can happen when your heart needs more blood. This can occur when you are:

- Exerting yourself
- Eating
- Excited
- Exposed to cold

These are sometimes known as the 'four E's' CHD can reach a point where the blood supply to your heart muscle is not enough, even while you rest. Ischaemia can then occur while you are sitting in a chair or lying down.

By making some small lifestyle changes you can help to prevent or lower the risk of this happening.

Chest Pain Management

If you get pain or discomfort in your chest, follow the '15-minute rule'.

'The 15-Minute Rule'

- I. Sit down, rest and try to relax
- 2. If pain is present, take one spray of glyceryl trinitrate (GTN) under the tongue and wait 5 minutes
- If pain is still present, take another spray under your tongue and wait 5 minutes
- If pain is still present, take one more spray under your tongue and wait
 5 minutes

If pain is still present ring **999** for an ambulance.

This chest pain may not be from your heart. However, it is very important that you get it checked out by the hospital as soon as possible.



If the GTN relieves the pain, then wait until another time to finish what you were doing. If the same activity causes angina again, then try taking the GTN *before* starting the activity, to prevent the pain developing in the first place.

Let your GP or hospital doctor know how often you have angina and which activities bring it on. Even if the GTN spray gives complete relief, you should let your doctor know if your angina:

- Happens with little or no exertion
- Lasts longer each time
- Requires more GTN than you would normally use (you may want to keep a diary of this to show your doctor)

Something about your medication may need to be changed or altered.

Also let your doctor know if you have any of the following:

- Increased shortness of breath
- Unusual tiredness
- Swollen feet or ankles
- Fainting
- Palpitations

You may need some further investigations.

It is important that you carry your GTN spray with you all the time. You should check the expiry date on the spray and get a new one from your GP if your spray goes past the expiry date.

What is a Heart Attack?

Symptoms of a heart attack are similar to angina. However, a heart attack occurs when the blood supply to the heart muscle is blocked for a longer period of time (due to one or more blocked coronary arteries). The blockage is often caused by a blood clot. This results in permanent damage to the heart muscle beyond the area of blockage. Symptoms of a heart attack usually last longer than 30 minutes and are not relieved by rest or medication, such as GTN spray. A heart attack may be the first sign of CHD.

How the Heart Muscle Heals

The heart begins to heal during the first few weeks after a heart attack.

It heals in two ways:

- By forming scar tissue in time, scar tissue replaces the damaged heart cells, making the injured part of the heart muscle less elastic. From the date of the heart attack it will take approximately four weeks for a firm scar to form.
- 2. By expanding the smaller blood vessels within two to three hours, small arteries near the damaged area begin to expand. In three to four weeks, these arteries will be large enough to bring more blood to the surrounding tissue. It may take these vessels several months to bring enough blood to the tissues around the heart damage. This healing process varies between individuals.



Medicine Treatment for People with CHD



After your diagnosis of angina or heart attack, you will be asked to take several medicines. It is important to realise that some of these medicines will not make you feel any better but they can lower the chances of you having

another heart attack or symptoms of angina.

You will be asked to take aspirin, clopidogrel, a beta-blocker, a statin, and an ACE inhibitor, unless your doctor decides that they are not suitable for you.

Antiplatelets

How do aspirin and clopidogrel (Plavix®) work?

Whenever a blood vessel wall is damaged, 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 and clopidogrel help stop platelets sticking together, which prevents clots forming.

Why will I benefit from taking aspirin?

Aspirin and clopidogrel reduce the risk of dying after a heart attack, and of having a further heart attack. If you have a stent they will help prevent the stent from blocking.

When aspirin and clopidogrel are taken together, usually clopidogrel is taken for only one year and aspirin is continued alone thereafter.

If you are unable to take aspirin, your doctor may suggest that you take clopidogrel instead of aspirin. In situations like these clopidogrel is taken long term.

Unwanted effects

Aspirin and clopidogrel can cause indigestion and heartburn. To try and prevent this, you should always take them with food or just after a meal. If you do get indigestion with aspirin, you may find that the coated form of aspirin is better. If you have had a stomach or duodenal ulcer in the past, you should tell your doctor before you start taking aspirin or clopidogrel. In some people, aspirin can bring on an asthma attack. Please tell your doctor if you suffer from asthma.

For the full information about the side effects of aspirin and clopidogrel read the information leaflet that you get with your tablets. If you have any questions speak to your doctor, nurse, or pharmacist.

Beta-blockers

Atenolol (Tenormin[®]), bisoprolol (Cardicor[®], Monocor[®]), metoprolol (Betaloc[®], Lopresor[®]) carvedilol (Eucardiac[®]).

How do beta-blockers work?

Beta-blockers block the actions of hormones such as adrenaline that make the heart beat faster and stronger. They prevent the heart from beating as quickly and forcefully when you exercise or feel under stress. This reduces the work that the heart has to do.

Why will I benefit from taking beta-blockers?

If you have had a heart attack, beta-blockers will reduce the chance of you having another one.

Unwanted effects

Beta-blockers can narrow the air passages. For this reason you should not take them if you have asthma or wheezing. They may also narrow small blood vessels which can cause cold hands and feet. 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.

Beta-blockers should not be stopped suddenly as coming off them too quickly can make angina worse. You *must* see your doctor if you think you need to come off your beta-blocker.

For the full information about the side effects of beta-blockers read the information leaflet that you get with your tablets. If you have any questions speak to your doctor, nurse, or pharmacist.

Cholesterol (lipid)-lowering drugs ('Statins').

Atorvastatin (Lipitor[®]), fluvastatin (Lescol[®]), pravastatin (Lipostat[®]), rosuvastatin (Crestor[®]), simvastatin (Zocor[®]).

How do statins work?

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).

Why will I benefit from taking statins?

It is recommended that people who have had a heart attack take lipid-lowering drugs to reduce their blood cholesterol level. The main group of drugs used to reduce cholesterol are the statins. Even if your cholesterol is not high, reducing it will lessen the chance of you having another heart attack.

What time of day should I take statins?

Most statins should be taken at night because most cholesterol is produced by the liver at night. However, atorvastatin and rosuvastatin can be taken in the morning or evening.

Unwanted effects

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. If you have any concerns regarding statins and grapefruit then you should talk to your doctor, nurse or pharmacist.

For the full information about the side effects of statins read the information leaflet that you get with your tablets. If you have any questions speak to your doctor, nurse, or pharmacist.

ACE inhibitors

Captopril (Capoten[®]), enalapril (Innovace[®]), lisinopril (Zestril[®]), perindopril (Coversyl[®]), ramipril (Tritace[®]).

How do ACE inhibitors work?

ACE stands for 'angiotensin converting enzyme'. ACE is a substance in the body which makes angiotensin. Angiotensin is a chemical normally produced in the body which makes blood vessels narrower. ACE inhibitors stop ACE from making as much angiotensin. This causes the blood vessels to widen and improves blood supply to the heart muscle.

Why will I benefit from taking an ACE inhibitor?

After a heart attack, ACE inhibitors are used to prevent further heart attacks. They also help to reduce damage to the heart muscle which can cause heart failure.

Unwanted effects

Most people take ACE inhibitors without any problem. However some people get a persistent, dry, irritating cough. This is not serious but if you find it unbearable, speak to your doctor.

He or she may prescribe an alternative treatment for you.

ACE inhibitors sometimes affect how the kidneys work and lower blood pressure. When your doctor starts the treatment, he or she will take care to start you on a low dose and will

regularly check your blood pressure. They will check your kidneys are working well, at least once, by taking a blood test. If your blood pressure and kidneys are working well, your doctor may increase the dose.

If you cannot tolerate an ACE inhibitor your doctor may suggest that you take an alternative class of drugs called "Angiotensin II receptor antagenists" such as valsartan (Diovan[®]), losartan (Cozaar[®]), or candesartan (Amias[®]). This is a newer class of drug which is similar to ACE inhibitors and some patients tolerate them better.

For the full information about the side effects of ACE inhibitors read the information leaflet that you get with your tablets. If you have any questions speak to your doctor, nurse, or pharmacist.

All these medicines mentioned so far are to try to prevent further problems. You may also be prescribed medicines known as nitrates.

Nitrates

Isosorbide mononitrate (Imdur[®], Elantan[®], Monit[®]), isosorbide dinitrate (Isoket[®], Cedocard[®]), glyceryl trinitrate (GTN tablets or spray).

What are nitrates used for?

Nitrates dilate (widen) the blood vessels that supply blood to the heart muscle and improve the supply of oxygen and nutrients.

Why will I benefit from taking a nitrate?

Nitrates reduce the work of the heart and can increase the amount of oxygen getting to the heart which can prevent and relieve the symptoms of angina (chest pain).

What time of day should I take the nitrates?

If taking ordinary tablets, the final daily dose should be taken in the afternoon rather than at night. Slow release preparations (SR or MR) are usually taken once daily in the morning.

Unwanted effects

Nitrates can cause headaches, flushing, or dizziness. However, these problems will usually improve after a few days.

For the full information about the side effects of nitrates read the information leaflet that you get with your tablets. If you have any questions speak to your doctor, nurse, or pharmacist.

When should I take the GTN spray?

Take whenever you have angina, or before any activity or stressful situation you expect may cause angina. See page 7 for further information.

Commonly Asked Questions

What if I forget to take a dose?

If it is a once a day dose, take it as soon as you remember. If you do not remember until the next day, just wait until your next dose is due.

If it is a twice or three times a day dose, take it as soon as you remember. If it is nearly time for your next dose when you remember, just wait until your next dose is due.

Is it alright to drink alcohol while I am on these tablets?

Unless your doctor has told you otherwise, yes. Alcohol will not interfere with these tablets. Remember to stay within the recommended weekly amounts (see Page 33).

You may be on other tablets that are affected by alcohol. If you have any concerns, ask your doctor, nurse, or pharmacist.

How long will I be on these tablets?

You will be taking these tablets for the rest of your life unless there is a reason to stop taking them. You will need to make sure that these tablets are on your repeat prescription from your GP.

Will I be entitled to free prescriptions after my heart attack?

No, not unless you have another reason to get free prescriptions, for instance if you are over 60 years old or get income support.

You may be able to save money if you buy a prepaid certificate for three or 12 months. Ask your pharmacist for details.

I've been prescribed soluble aspirin. Do I have to dissolve them first?

No. If you prefer, you can swallow the tablets without dissolving them in water first. As with all tablets, swallow them with a drink of water.

Are these tablets safe to take with my other tablets?

If you also take other medication, ask your doctor or pharmacist to check that they are safe to take together.

If I am on holiday and forgot to pack my medicines, what should I do?

It is possible to buy some of these medicines from a pharmacy shop. Ask the pharmacist for advice. It is a good idea to carry a list of your medicines in your wallet or purse or carry your updated Personal Health Record with you.

If you have any further questions or concerns about your medicines, contact your doctor, nurse, or pharmacist.

Part 2: Risk Factors

Risk Factors for Heart Disease

The cause of CHD is unknown. However, there are a number of factors which can increase your risk of developing heart disease. These are known as risk factors.

Some risk factors cannot be changed. These are known as *unmodifiable risk factors* and include:

- Family history CHD can run in families
- **Age** The risk of developing heart disease increases with age
- **Gender** Men over 45 on average are more at risk. Women are protected by the hormone oestrogen until after the menopause, then women become as vulnerable to heart disease as men
- Ethnic origin People from the South Asian population are more at risk of developing heart disease

Fortunately, you can control many of the factors that contribute to the narrowing of the coronary arteries. These are known as *modifiable risk factors* as they can be changed. This will reduce the risk of further problems. Your cardiac rehabilitation nurse can help you set realistic, achievable goals to reduce the risk factors that apply to you.

Modifiable risk factors

These will be discussed in detail in the following pages. If you would like further information about risk factors, speak to your cardiac rehabilitation nurse or doctor. The modifiable risk factors for CHD include:

- Smoking
- High blood pressure
- Cholesterol
 - Diet & lifestyle
- Being overweight
- Alcohol
- Lack of exercise
- Diabetes

Smoking

Stopping smoking is the single most important thing you can do to improve your health.

How does smoking affect my health?

When you smoke, the chemicals released into your body



make your blood sticky. This causes fatty deposits called atheroma. Your heart then has to work harder to get the oxygen and nutrients it needs. When too many fatty deposits build up inside the artery, it can rupture which leads to a clot. The clot can then block the flow of blood to the heart.

Smoking tends to increase your blood cholesterol levels. It reduces the HDL (the good cholesterol), thereby increasing the LDL (bad cholesterol). See page 23.

When you smoke a cigarette, the burning process produces a gas called carbon monoxide. This gas is poisonous. In the body it sticks to the red protein of blood cells, making the blood less able to carry oxygen. This will starve the heart of vital oxygen and nutrients.

Nicotine, in cigarettes, stimulates the body to produce adrenaline. This makes the heart work harder and can raise blood pressure. The high nicotine levels in cigarettes are the addictive part of the cigarette. There is a close link between smoking and an increased risk of heart disease. From the moment you stop smoking the risk of having a heart attack starts to reduce.

After just 24 hours of stopping, carbon monoxide is eliminated from your body and after 48 hours there is no nicotine left. After one year of stopping, the risk of another heart attack is halved.

Other benefits from stoping smoking are:

- Reduced strain on the heart
- Improved breathing
- Reduction in blood pressure
- Improved circulation to hands and feet
- Improved smell and taste

Is there any support that can help me stop?

- Whilst in hospital you can ask any of the ward staff for advice or help or ask to see the hospital specialist advisor. You will be supported in your quit attempt and that support will continue when you get home.
- You could start your quit attempt once home. Leeds Smoking Services (LeSS) run quit groups all over Leeds or you can see if your GP practice can help. LeSS can also do home visits or arrange for one-to-one support.

To find out more, ask the ward staff, your cardiac rehabilitation nurse or phone Leeds Smoking Services on 0800 169 4219.

When you make the decision to stop smoking, you will be given advice on preparing to stop and how to cope once you have stopped. You will also be advised on drug treatments recommended to help you.

Nicotine Replacement Therapy (NRT) and Zyban[®] (Buproprion)

NRT replaces a small amount of the nicotine that you used to get from cigarettes. It is the addictive nature of nicotine that makes it hard for many people to quit. NRT provides you with some help with that addiction and allows you to deal with the habit side to smoking. NRT is well researched and if used correctly will double your chances of success. Remember, it is safer than smoking.

There are six types of NRT:

- Patch
- Gum
 - Lozenge

- Microtab
- Nasal Spray
- Inhalator

Your smoking cessation advisor can advise you on which types of NRT can be combined.

There is also a drug called Zyban[®]. However, it does not combine well with other medication and you will need to seek medical advice before starting this treatment.

NRT and Zyban[®] are available on prescription. NRT is also available to buy over the counter at pharmacies or larger supermarkets. However, it is recommended that you get support from a smoking cessation advisor as this will also improve your chances of success and staying quit for good.

High Blood Pressure

Blood pressure is the force that circulating blood puts on the artery walls. When blood pressure is high, there is more pressure on the artery wall than usual. Some people have high blood pressure and do not know they have it.

This extra pressure damages the smooth lining of the arteries and makes it easier for cholesterol and fat to build up along the artery walls. As the arteries become clogged with these fatty layers (atherosclerosis), less blood gets through. This causes the heart to beat harder as it tries to pump blood through narrowed arteries. If untreated, high blood pressure may in time damage the heart, brain and kidneys. It is a leading cause of heart attacks and strokes, heart or kidney failure.

The exact cause of high blood pressure is not fully known for many people. High blood pressure can be treated and lowered with medication.

How do I control blood pressure?

- Get your blood pressure checked as often as your doctor suggests.
- Stop smoking.
- Take your medications regularly as prescribed.
- Reduce your salt intake and try to avoid processed, convenience and fast foods.
- Fruit and vegetables provide us with a good source of potassium which can help control your blood pressure. Aim for five portions a day.
- Reduce stress by learning ways to relax and by exercising.
- Lose weight if needed. The heart pumps harder to supply an overweight body with blood and oxygen.

- Reducing your salt intake can help control blood pressure
- The easiest way to do this is not to add salt at the table or in cooking

Cholesterol

Cholesterol and triglycerides are fatty chemicals in the blood. There are two main types of cholesterol; LDL 'bad cholesterol' which carries cholesterol from the liver to the rest of



the body, and HDL 'good cholesterol' which returns excess cholesterol to the liver.

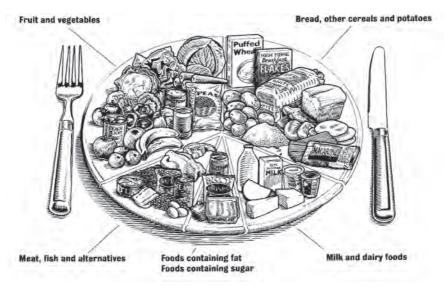
If you have high levels of cholesterol and triglycerides, your risk of CHD is greater. High levels of LDL cholesterol stick to the walls of your arteries and

make plaque. This plaque blocks the arteries, interfering with the blood flow which can make a heart attack more likely.

Many people with high blood cholesterol will only need advice about diet, a healthy lifestyle and possibly future blood cholesterol monitoring. The next section provides information about diet. For others, particularly those who have an inherited type of high blood cholesterol or other risk factors for CHD, different blood tests and simple medical investigations may be needed. If this applies to you, effective medications in the form of statins are available. The treatment for high cholesterol is now as routine as that of other common conditions. Treating raised blood cholesterol is a positive way you can do something to avoid future heart problems. The aim of cholesterol lowering medication is to reduce your cholesterol by 30%. It is recommended that once starting this medication, you have your cholesterol checked after three months and then at least yearly, unless advised otherwise. This can be carried out by your local practice nurse.

Diet: Getting The Balance Right

Overall dietary balance is important. No single food contains all the essential nutrients the body needs to be healthy and function efficiently. A balanced diet should include a variety of foods. The illustration below represents each of the five food groups and gives a guide to the proprtions of food we need to achieve a balanced diet.



Breads, other cereals and potatoes

Ideally, each meal should be based on starchy foods. Starchy foods are bulky, low in fat and often high in fibre. They provide us with energy and also provide some calcium, iron and B vitamins. This group also includes rice, pasta, noodles, beans and lentils.

Fruit and vegtables

Aim to eat five portions of fruit and vegetables each day. Choose a variety; fresh, frozen and tinned all count! These foods provide us with important antioxidant vitamins and minerals such as potassium and folic acid. They are also an excellent source of soluble fibre. Fruit and vegetables are low in fat and calories, so they make the ideal snack!

Milk and dairy products

Where possible try to choose low fat varieties. These foods provide us with a good source of protein, calcium and some fat soluble vitamins. This group includes milk, cheese, fromage frais and yoghurt.

Meat, fish and alternatives

This group provides us with a good source of protein, iron, B vitamins, zinc and magnesium. Try and choose lean cuts and low fat alternatives where possible. You can include your oily fish in this group, which is an excellent source of omega 3 fatty acids. This group includes eggs, nuts, textured vegetable protein, beans, lentils and tofu.

Fat and sugar rich foods

These foods should be eaten in small quantities. They provide excess calories and fat which can contribute to weight gain. Too much sugar, can raise your triglycerides (fatty chemicals in the blood). The group includes butter, fat spreads, biscuits, cakes, ice cream, sweets, chocolate and fizzy or sweetened drinks.

Diet and Lifestyle

There are lots of ways of making your diet healthier. However, when you have had a heart attack or angina, there are three main areas that are important. These are:

- I. Oily fish
- 2. Fruit and vegetables
- 3. Fat

Oily fish

Oily fish are rich in omega 3 oils. These can help to make your blood less sticky, reduce the risk of blood clots and help the blood to flow around the body more easily.

The most common oily fish are mackerel, pilchards, sardines, kippers and salmon. These can be fresh, frozen or tinned.

(Tinned tuna is not a good source of omega 3s due to processing which removes the omega 3s). A portion is approx 4oz (100g).



Ideas to get you started:

- Sardines/pilchards on toast
- Tinned salmon sandwiches
- Salmon steak with potatoes and vegetables

The healthiest choices of tinned oily fish are those in tomato sauce or spring water rather than those in oil or brine.

If you are unable to eat oily fish, or you do not like it, then choose other foods which contain omega 3s. These are rapeseed or linseed oil, pine nuts and dark green leafy vegetables. Look out also for food which has omega 3s added to them like certain types of eggs, margarine spreads or milk. Remember that your body uses fish sources of omega 3 more easily than plant sources. Alternatively you could try a fish body oil supplement (not cod liver oil as this is from the cod's liver and not from the flesh of the fish). These are widely available in supermarkets.

If you have had a heart attack then you should eat all kinds of fish but aim for **2-3 portions a week** of oily fish. If you have *not had* a heart attack you should aim for **I portion of oily fish a week** and I portion of another type of fish.

Fruit and vegetables

These are an important part of keeping healthy. Aim for five portions a day. This should be a variety of fruits and vegetables. Fruit and vegetables contain antioxidant vitamins, minerals and fibre that can help to keep your heart healthy.

A portion is:

- I x apple, banana or nectarine
- I x handful of grapes, strawberries or cherries
- I x slice pineapple, pawpaw, mango or melon
- 2 x plums, satsumas or kiwis
- 3 x dried apricots, prunes or figs
- 5-6 x passion fruits or lychees
- I small glass of fruit juice (150mls) this only counts once a day!

Or

• A small bowl of salad

Or

- One third of an aubergine or half a pepper
- 2 x florets broccoli
- 3 tablespoons of vegetables (these can be either fresh, frozen or tinned) like carrots, peas, sweetcorn, cabbage, beans

Fresh, frozen, tinned and dried fruit all count towards your 5 a day. (Potatoes are starchy and therefore do not count towards 5 a day).

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Five easy ways to 5 a day

Breakfast:	One glass of fresh fruit juice/vegetable juice One bowl of cereal with dried fruit	
Lunch:	Salad in a sandwich Add salad or vegetables to a hot meal Piece of fruit as dessert	
Evening meal:	Serve two types of vegetables with your main meal Tinned fruit in fruit juice and low fat yoghurt Stewed fruit	
Snacks:	Try raw vegetable sticks like celery, carrots and cherry tomatoes, fresh fruit or dried fruit	

Fat

Overall, you should be aiming to eat less fat which will reduce the amount of fat in your blood. There are two groups of fats: saturated and unsaturated. Try to replace saturated fat with monounsaturated fat where possible. However, remember to eat less fat overall.

Saturated Fats

Saturated fats usually come from animal products e.g. lard, dripping, ghee, cheese, cream, visible fats on meat and also coconuts. These fats tend to be solid at room temperature. Saturated fats can also be hidden in foods like pies, burgers, sausages, fried foods like samosas, cakes, biscuits and pastries. It is these fats which can be harmful because they raise your LDL or 'bad' cholesterol, so try to reduce the amount you eat.

Unsaturated Fats

Unsaturated fats in small amounts are thought to be better for us as they help to lower your LDL or 'bad' cholesterol. These usually come from vegetable sources. There are two types. One type is called **polyunsaturated**. These are found in sunflower, cornflower oil and margarines or spreads made from them. The other type is called **monounsaturated** and they can be found in olive, rapeseed, linseed and walnut oils. Polyunsaturated fats can lower your HDL or 'good' cholesterol as well as your LDL cholesterol when taken in large quantities, so always choose monounsaturated fats where possible.

Trans Fats

Trans fats are found in margarine, solid spreading fats and manufactured products that contain these, e.g. cakes, biscuits, etc. Trans fats are thought to behave in a similar way to saturated fats and are therefore harmful when taken in excess quantities. Try to avoid these when possible.

Ideas to help

- Use a monounsaturated spread instead of butter. Try olive oil based spreads, e.g. Utterly Butterly, St Ivel Gold, Bertolli or other olive oil type spreads.
- Oven bake or grill instead of frying.
- If frying then try to use olive, rapeseed or linseed oil instead.
- Buy leaner cuts of meats and remove the visible fat from meat before cooking.
- Skim excess fat off stews and casseroles.
- Remove skin from chicken and turkey.
- Choose low fat dairy products such as low fat cheese, low fat milk, low fat yoghurts.

How do I understand food labels?

Food labels can be confusing. Two ways to check if your food item is healthy are:

- By reading the ingredients list. The biggest ingredient is listed first, so if a fat or fatty food (e.g. cream, cheese, butter, margarine or oil) is listed in the top five ingredients, then it is likely to be high in fat.
- 2. By checking the quantity of fat in a product by looking at the amount of fat per100g. This can help you to compare two food items and choose the one that is the lowest in fat. As a rule, 3g (or 3ml) fat per 100g is low.

You can use the table below to work out how much of each nutrient is in 100g of your foods.

A lot	A little
10g of sugars	2g of sugars
20g of fat	3g of fat
5g of saturates	lg of saturates
3g of fibre	0.5g of fibre
I.25g of salt	0.25g of salt
0.5g of sodium	0.1g of sodium

Remember 'reduced fat' products can still be high in fat. Below is a guide to some of the claims you may see on food packaging and what they mean.

Reduced fat - e.g. 25% less fat - the product contains 25% less fat than the original. Remember to consider how much fat was in the original product!

Low fat - the product contains less than 3g fat per 100g/100ml.

Fat free - the product contains less than 0.1g fat per 100g/100ml.

To make a healthy heart choice, remember the amount of fat and the type of fat are the most important to check in order to eat for a healthy heart.

The following section includes some information about how to lose weight.

Being Overweight

If you are overweight, then aiming to reduce your weight by 10% is beneficial. For example, if you are 18 stone, aim for 16 stone or if you are 14 stone aim for 13 stone. This will reduce the strain on your heart and will help lower your blood pressure. If you follow the dietary advice to reduce fat intake, your weight should come down.

Your weight in kilos 40 50 60 70 80 90 100 110 120 130 140 150 6'6 1.98 1.96 6'5 1.94 6'4 1.92 6'3 1.90 UNDERok OVER-FAT VERY 1.88 6'2 WEIGHT WEIGHT FAT 1.86

1.84

1.82

1.80 1.78

1.76

1.74

1.72

1.70 1.68

1.66

1.64

1.62

1.60 Your 1.58

1.54

1.50 1.48

r height 1.56

⊇. 1.52

1 meters

6'1

6'0

5'11

5'10

5'9

5'8

5'7

5'6

5'5

5'4

5'3

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5'1

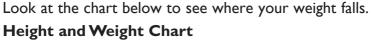
5'0

4'11

4'10 6 7 8

Your weight in stones

Your height in feet and inches



You can reduce your energy intake by changing the snacks you eat (e.g. crisps, cakes, biscuits) to the fruits and vegetables suggested. Do not forget that all alcoholic drinks contain calories.

9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

Be careful when choosing low fat foods as some can still be high in calories due to the amount of sugar in the food, e.g. fruit juices, reduced-calorie biscuits and low fat yoghurts.

You may notice that you tend to eat more when you are feeling worried, low in mood or bored. If this happens to you, try and find an activity or hobby that will take your mind off food or have a glass of water or no added sugar squash instead. Keeping a diary of what you eat and drink can also help you to find ways in which you can reduce the amount of energy you eat. The support of your friends and family is also important to help you to keep motivated.

See the following website for further details: www.bdaweightwise.com

Alcohol

Can I still drink alcohol?

It is thought that drinking alcohol in moderation can in fact protect your heart, especially in men over 40 and post menopausal women. Alcohol can raise the amount of good cholesterol in the blood, and make blood less sticky. However, alcohol intake which is above the recommended units can in fact be bad for the heart, causing certain heart conditions, high blood pressure and strokes.

What are the recommended units?

A unit of alcohol = half pint of (normal strength) beer, a pub measure of a spirit or a small glass of wine (125ml).

Remember that many glasses of wine are bigger than this, so take care to check.

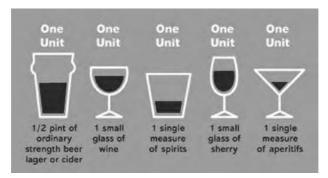


Figure 3: Units of Alcohol

The maximum recommended units are no more than two units per day for women with CHD (14 units a week) and three units per day for men with CHD (21 units a week). It is also advisable to have a couple of alcohol free days a week to give your liver time to recover and avoid binge drinking. Remember alcohol contains a lot of calories. High intakes of alcohol can lead to an increase in weight and in some instances, increased levels of triglycerides (fatty chemicals) in the blood.

Does it matter what type of alcohol I drink?

No, some studies have stated that red wine is best, but others have stated that it is the alcohol itself rather than beverage type that offers some protection. Compared with nondrinkers, people who drink light-moderate amounts of alcohol have lower death rates from CHD on average. However, remember that most beer nowadays is stronger than 'normal strength' which was usually about 3.5%. For example, a 440ml can of beer is often over two units. Check the strength on the label. People who are currently non-drinkers do not need to start drinking alcohol because of its reputed protective properties.

Physical Activity

This section will provide advice for you and your partner or carer about the importance of physical activity. It will also give guidance about how much activity and what type is recommended during the first few weeks at home after discharge from hospital.

The exercise and health education programme will be the next stage in your recovery. These programmes are based within the Leeds Teaching Hospitals or in your local community. Ask your cardiac rehabilitation nurse about this.

What are the benefits of physical activity?

Being physically active:

- Reduces the risk of stroke, coronary heart disease, diabetes, osteoporosis and some cancers.
- Improves the circulation to the heart and the major organs.
- Helps keep blood pressure within normal limits (lowers raised blood pressure).
- Helps improve your blood cholesterol levels.
- Tones and strengthens muscles and keeps joints flexible.
- Helps to prolong independence amongst older adults.
- Enables you to do more with less effort as fitness improves.
- Helps you to maintain or to reach a healthy weight.
- Helps in the prevention and management of depression and anxiety.
- Improves psychological well-being (increases self esteem).
- Helps to prevent blood clotting.
- Helps you to sleep better and gives you more energy.
- Helps you to relax.

What sort of physical activity can I do?

Walking will have formed an important part of your hospital recovery and needs to continue as part of your rehabilitation when you return home. It is important to gradually increase the time spent walking and then the speed.

The exercise and health education programme will provide supervision and advice on what exercises are best for you and how to increase your levels of physical activity and exercise.

How much should I do?

Your aim is to gradually increase your amount of physical activity. Try and progress towards doing some form of continuous activity where you are breathing harder, getting warmer and feeling your heart beat slightly faster, for 30 minutes, five times a week. You could break this down into 10 or 15 minute sessions at first. This can include activities such as climbing stairs, cleaning, gardening and walking.

You could try making a list of all the physical activity you do in your day, gradually working your way up to 30 minutes and increasing it by a little more each day.

In the first six weeks of your recovery, you should be aiming to increase your walking to 30 minutes continuously. We recommend you use the 'Walk-Talk Test' to ensure that you do not over do it. This simply means that you should be able to talk and be active at the same time. Everyone has a different level of fitness and it is important that you exercise at your own pace.

Everyday Activity

This section is designed to help you return to everyday life after you come home from hospital. It is a guide only and you must remember that everybody recovers at different rates and has different levels of fitness. As with everything, you should start gently and build up gradually.

How much you feel able or want to do will depend on your usual daily routine. You may find it useful to break down a task into more manageable chunks - giving yourself more time to rest. If you experience pain or discomfort, stop doing the task. Individual advice and guidance on work and leisure activities can be sought from the cardiac rehabilitation team. The following provides some general guidelines for you.

For the first few days at home, keep to the same routine as in hospital. Get dressed, potter around the house, climb stairs slowly and rest when you need to.

Friends and relatives may wish to visit at this time, which may be enjoyable but also very tiring. Ask them to stay for short periods and limit the number of visitors.

First week at home

- Take things slowly.
- Stay around your home and garden. Potter around the house and walk in the garden, weather permitting.
- Climb stairs slowly and rest if you need to.
- Return to gentle activities like sewing, reading and puzzles.
- Listen to music, watch TV.
- Make a light snack, do washing up.

Avoid

- Lifting, pulling, pushing anything heavy.
- Heavy housework e.g. cleaning, vacuuming or cooking a large meal.
- Eating large meals.

Week 2

- You may try walking outdoors. Walk everyday if possible. Avoid going out if you feel tired or unwell, or if it is very cold or windy. Take your GTN with you and a mobile phone if you have one. Start with five minutes once or twice daily and increase the time you spend walking by approximately five minutes at a time. Stop if you experience chest pains/discomfort and follow the 15 minute rule (see page 7).
- Light housework i.e. dusting, washing up, setting the table, preparing simple meals, tending indoor plants.

- Continue to rest if you need to.
- Enjoy visitors, but not for too long and not too many.
- Light shopping to local shops avoid the supermarket if possible.

Avoid

- Lifting, pushing, pulling heavy objects, heavy housework, cleaning and gardening.
- Walking the dog on a lead for the first six weeks.

Week 3

- Walking continue walking daily. By the end of this week you may be able to walk up to approximately half a mile.
- Begin light social activities visit friends, go out for a meal.
- Continue to rest when necessary.
- Shopping but avoid carrying heavy bags.
- Increase household tasks ironing (with ironing board set up), light hand washing or machine washing but gently.
- Light gardening, pruning and weeding, sitting if possible.
- Make beds but don't strip and change bedding yet.
- Making light meals.

Week 4

- Daily walking continue to build up gradually. By the end of the week you may be walking up to a mile per day.
- Housework e.g. vacuuming in stages one room a day, but don't carry the vacuum cleaner up and down stairs as you still need to avoid lifting heavy objects.
- Gardening keep it light.
- Light DIY.
- Access public transport.
- Supermarket shopping don't overload your bags.
- Social activities cinema, social events.

Weeks 5-6

You should be managing most of your normal daily activities at this stage.

- Daily walking between one and two miles and gradually increasing the time you spend walking.
- Housework vacuuming, mopping floors, food shopping with trolley, cooking.
- Washing/polishing car with regular breaks.
- Gardening.
- Light DIY jobs but no overhead work e.g. painting the ceiling.
- Shopping.

Avoid

- Continue to avoid lifting anything heavier than 5-10 lb (2.3-4.5 kg) and remember this includes your children or grandchildren.
- Activities which require lifting your arms above your head for long periods e.g. decorating ceilings, leaning out to high cupboards, leaning above shoulder height.

Weeks 7-8

You may be back to your usual level of activity

- Brisk daily walks of up to two miles (40-60 minutes).
- Activities such as fishing, dancing, bowls, cycling, practising your golf swing.
- Shopping may start to lift slightly heavier weights if you need to.
- Can lift toddlers.
- Gardening light digging, hoeing and raking. Progress to mowing lawn and cutting hedges, use watering can.
- DIY with regular breaks.

8 weeks plus

Continue to increase the distance and speed of your walks.

You may be walking between three and four miles plus by now, spending an hour at a time walking.

By now you may have started or will have a starting date for a cardiac rehabilitation exercise and health education progamme.

What if I can't get out for a walk because the weather is bad, or I have to wait in for a delivery?

The following exercises are examples that you could try at home instead of going for a walk. Remember to start off slowly, gradually increasing your pace (see page 43 for further information).

Aim to begin with 30 seconds for exercises 1 to 4 and five 'sit to stands'.

When you can manage the exercises comfortably, gradually increase the time, e.g. from 30 to 40 seconds and five to seven 'sit to stands'.



I. Toe taps

Alternate stepping forwards, tapping your left and right toes.

2. Walk on the spot Swing your arms, step your feet.





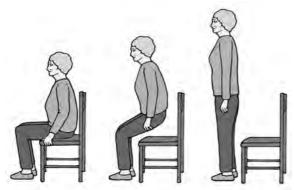
3. Heel digs

Alternate stepping forward with your right heel and left heel

4. Step ups

Hold onto a rail for support. Step up onto the step. Step back down. Repeat. Try holding on to the back of the chair or to the wall if you need a little more support with exercises 1 to 4.





5. Sit to stand Sitting on a dining/ kitchen chair. Feet on the floor, shoulder width apart. Arms folded across your chest. Stand up. Sit down slowly. Repeat.

Exercises too boring?

- Try walking on the spot whilst watching TV or making a phone call
- Put some of your favourite music on, or listen to the radio whilst carrying them out
- Try a step counter so you can see how much you are doing
- If the weather's bad, could you take a trip to an indoor shopping centre to do some walking?

Physical Activity Diary

You may find it useful to record your activities on a diary sheet. This will also be useful for the cardiac rehabilitation staff when you attend the exercise and education programme.

Diary	Sheet	example
-------	-------	---------

Day	Activity	Time	Comments/how it felt
Sat	Shopping	25 mins	Easy
Sun	Walk	20 mins	Bit puffed up the hill but could still talk
Mon	Gardening - pruning	15 mins am 10 mins pm	No Problems
Tues			
Weds			
Thurs			
Fri			

For your safety please avoid the following:

- Exercising during periods of illness, if you feel unwell, or have a temperature.
- Drinking alcohol and being physically active.
- Engaging in physical activities for at least an hour after eating.
- Having a very hot or a very cold bath or shower after activities.
- Being active in extremes of temperature, (e.g. in very cold weather, wrap up warmly and walk at a slower pace. This is because the heart has to work harder in these conditions.
- Sudden excessive physical activity.

Remember it is important to:

- Always warm up and cool down.
- Wear comfortable clothing and footwear with low heels.
- Reduce intensity of any physical activity following illness or a break.
- Gradually build up your activity levels.
- Increase your fluid intake on hot days.
- Make physical activity part of your daily routine.
- Find a long term physical activity you enjoy.
- Mention any concerns you have about sexual activities to your cardiac nurse or doctor.

During physical activity it is normal to:

- Feel yourself breathing harder than normal.
- Feel warmer during and after the exercise.
- Feel your heart beating slightly faster.

You should still be able to talk whilst exercising and feel that you could keep going at this level for some time. The key is to exercise without over exertion.

 If you feel well and pain-free following your exercises, do not be tempted to continue as prolonged exercising will not speed up your recovery.

- Do not exercise (or continue to exercise) if you are experiencing any of the following: chest, arm or jaw pain, nausea, excessive breathlessness, palpitations, excessive sweating, muscle cramps, feeling faint or dizzy.
- Should you experience difficulties with any aspects of the home programme do not hesitate to contact your cardiac rehabilitation team as alternative exercise programmes and physical activities can be discussed.

What is the cardiac rehabilitation exercise and health education programme?

Programmes are run in Leeds community leisure centres and within the Leeds Teaching Hospitals. Check with your cardiac rehabilitation nurse as to which will be the most suitable programme for you to attend. You can attend from about four weeks onwards after discharge from hospital.

What does it involve?

It involves a supervised exercise session once or twice a week for six to eight weeks depending on the programme. The exercise sessions take about an hour, followed by a talk and a chance to ask any questions. You will spend approximately two and a half hours at the programme each time.

The talks may include:

- How the heart works
- Medication
- Physical activity
- Psychology talk and questions
- Healthy eating

You will be invited for an introductory visit to meet the cardiac rehabilitation staff and for the Physiotherapist/exercise professional to design an individual exercise programme for you.

What should I do if I start to feel unwell?

During any activity, if you develop chest or arm discomfort similar to the heart pain you have had, or *abnormal* breathlessness, *stop immediately*, rest and follow the '15-minute rule' (see p.7). If the symptoms go, you can continue to exercise at a slower rate. If the symptoms return each time you exercise, then stop exercising altogether and seek medical advice. If you have any other physical or medical problems which may be affected by these activities, contact your cardiac rehabilitation team.

If you were not very active before your hospital stay or you suffer from a condition which restricts your level of activity, e.g. arthritis, you may need to progress at a slower pace.

When can I return to my sports and hobbies?

Everyone is different and therefore has different recovery rates, so please ask your doctor or cardiac rehabilitation nurse. Participating in the exercise and health education programmes will also give you the opportunity to seek advice from the team about this issue.

Exercise is for life!

Any extra physical activity you can add into your life above 30 minutes a day can significantly benefit your health.

Why not try..?

- Walking to work
- Parking your car further away from the shops
- Getting off the bus one or two stops earlier
- Using the stairs instead of the lift or escalators
- Using the television remote control less

If you alter your lifestyle in this way and then exercise regularly, you will notice how much more you can do with less effort. You will enjoy all the benefits of exercise and may meet new people. It is very important whilst choosing an exercise to find one you enjoy, so you are more likely to continue with it.

The exercise and health education programme will be able to encourage and help you with your future exercise levels, so until then try including more activity into your daily routine.

Diabetes

What is diabetes?

Diabetes is when either the body does not produce enough insulin, or the insulin that is made does not work properly. This means glucose (sugar) cannot get into your cells. Glucose stays in your blood, causing the level of glucose to be too high. Diabetes can develop later in life, usually after the age of 40.

This type of diabetes (Type 2) is strongly linked with being inactive, over-weight and where there is a family history of diabetes. In certain populations it occurs more often. This is particularly true of people of South Asian and African-Caribbean origin living in this country.

You can greatly reduce the risk of developing Type 2 diabetes by taking regular exercise and controlling your weight.

What effect does diabetes have on the heart?

Diabetes appears to affect the heart in different ways:

- High glucose levels in the blood affect the walls of the arteries, making them more likely to develop atheroma.
- Diabetes can affect the heart muscle itself, making it a less efficient pump.
- It increases the damage done by smoking, high blood pressure and high cholesterol.
- People with Type 2 diabetes often have high triglyceride levels and low levels of HDL cholesterol (the protective type of cholesterol).
- It can affect the nerves to the heart, so symptoms are not felt in the usual way (some patients with diabetes do not

feel any pain with a heart attack). This can lead to difficulty and delay in diagnosis of a heart attack if you have diabetes.

What can I do about it?

Diabetes cannot be cured, but it can be managed and controlled. There are two main aims of diabetes treatment. One is to resolve the symptoms of diabetes, and the other is to prevent the complications which diabetes can cause.

Diabetes can be controlled by one or more of the following: diet, physical activity, tablets and insulin.

If you have diabetes, you are more than twice as likely to have a heart attack or stroke as someone without diabetes. Your risk of a heart attack is the same as someone who has already had a heart attack.

People with diabetes have a higher chance of also developing high blood pressure, circulation problems, nerve damage, damage to the kidneys and the eyes. The risk is particularly high if you are also overweight, smoke and are not physically active.

You can greatly reduce your risk of developing any of these complications by controlling your blood glucose, blood pressure, eating a healthy diet and taking regular exercise. It is important to attend your regular check ups, where you will have blood glucose, blood pressure, kidney function, eyes and feet checked.

You will have had a routine blood test for glucose whilst in hospital.

Further information on diabetes is available on request.

Part 3: Everyday Life

Your Emotional Recovery

It is commonly believed that stress and worries can lead to a person having heart problems. However, there is actually little scientific evidence to support this. It is true that people who are under high levels of stress are likely to smoke or drink more, both of which contribute to risk, but stress itself is not believed to be problematic.

For most people, having a heart attack or bad angina attack comes as quite a shock and most people experience a variety of feelings and emotions. It is also normal to become more aware of your heartbeat (palpitations) or to feel twinges in your chest. It can take time to come to terms with what has happened. It is important to remember that there is no right or wrong way to feel. You might find that talking things over with family or friends can help. The following section will look at some of the feelings and worries it is common to have.

Anxious feelings

Some people feel very anxious or nervous after having heart problems. This can result in you feeling tearful and a bit down, or getting more angry or irritated with things you had been able to cope with before. These feelings are all perfectly normal and usually pass with time.

It is also common for partners and family members to try to over-protect people who have had heart problems. It is natural for those who are close to you to feel worried and want to help, but it is easy to become over-protective and try to wrap someone in cotton wool.

Relaxation

It is common to have difficulties sleeping after heart problems and to feel more tired than normal. This usually improves over time, but relaxation can be of help. Relaxation tapes designed specifically for people with heart problems are available. Ask your cardiac rehabilitation nurse.

Pacing yourself

As part of your recovery, it is important to get back to doing things that you enjoyed before. The rate at which different people are able to do this will vary, and you should follow the advice of your cardiac rehabilitation nurse, doctor, physiotherapist or fitness instructor, as to how much you should be doing and how soon you should be doing it.

For some people, the worry caused by having heart problems stops them from activities they previously enjoyed, even after they have been told that they can do them. If you find yourself doing this, here is some advice you might find useful.

- Set yourself a target. For example, some people want to get back to doing the gardening or jobs around the house. Break the target down into smaller chunks; you may decide that weeding a whole flowerbed would be too much. Think about how much you might be able to do without becoming tired. If this is five minutes of light weeding, have a go. Be prepared to stop if it gets too much. If you found it easy, think about doing a bit more next time, e.g. 10 minutes. However, make sure you do not do more than you had planned to do on one day as rushing into things can make you feel more tired.
- You may be worried about going out alone straight away. Try going somewhere nearby with someone else the first time. When you feel okay about doing this, go some of the way on your own, then gradually do more to build up your confidence.

How about the future?

For some people, recovering from heart problems can be the start of some positive changes. Many people become a lot fitter and may take up new activities such as swimming or walking, which they had not thought of before. Others realise the importance that some things - and some people - have to them and are determined to make time for themselves to do things they enjoy. Worrying will not bring on heart problems, but people often realise that they would like to be less stressed and do something about it. Many people get a real sense of achievement from giving up smoking or doing something else to feel healthier.

How can the cardiac rehabilitation team help me?

After having experienced heart problems, it is important you feel supported in regaining your confidence.

There may be a lot of information to remember when you first come out of hospital. This might include

advice about stopping smoking, changing your diet and becoming more active. Your cardiac rehabilitation nurse can help you in all these areas, so please talk to them if you have any worries.

If you have been invited to attend an exercise and health education programme, you will



receive further support and advice from the members of the team. The talk by clinical health psychology or occupational therapy covers the emotional side of heart problems in more detail. If you do find that your worries are getting in the way of your recovery, your nurse may talk with you about whether you would like to see one of our clinical health psychologists or liaison psychiatric nurses.

Is it common to become breathless when walking or doing tasks?

It is quite normal to breathe a bit harder than normal when you are physically active. If you get breathless when physically active, pacing your activities or resting usually helps. Sometimes people find they get very worried about breathing a bit harder than usual. This worry can lead to the body becoming tenser which may make relaxed breathing more difficult. Recognising when breathing harder is normal and learning how to relax can both be of help if you think this applies to you.

How do I know when I should ask for help?

Everyone gets a bit breathless at times if they have to do something they're not used to and find it a bit of a challenge. However, if you find that you are experiencing any of the following, please seek help:

- The breathlessness comes on suddenly
- Is different from normal
- Does not go with rest
- Comes on when you are not active
- Or, if you find that you are gradually getting more breathless over a few days

Driving

Here are some common questions and answers about driving after a heart attack or angina. This is only a guide and assumes no other disqualifying conditions. For more detailed information, please ask your cardiac rehabilitation nurse.

I have had a heart attack.Will I be allowed to drive and do I need to inform the DVLA?

The driving and vehicle licensing agency (DVLA) is the Government department responsible for deciding whether a licence holder may drive a motor vehicle. Many conditions may



stop a person from driving either permanently or temporarily.

Usually, you should be able to drive a private car four weeks after having a heart attack, unless you have any other disqualifying condition. *You do not need to inform the DVLA*. You should however inform your insurance company. If you do not, your insurance may not be valid. It is also a good idea to have someone with you (who is insured to drive your car) the first time you drive and to go on a short journey. It is also important to remember you are not exempt from wearing a seat belt because you have had a heart attack.

I have been told I have angina. Can I still drive?

You may recommence driving when your symptoms are under control. That is, you can predict when you are likely to have an angina attack and they are infrequent.

What about the driving I do for my job?

If you are a HGV (heavy goods vehicle) or PSV (public service vehicle) driver, there are special requirements for getting re-licensed. You can get details of these from the DVLA. Before you can drive again, you need to wait at least six weeks and have an exercise ECG (see p. 65). It may take some time before you are seen for the ECG. It is important that the results of the ECG show that you had no chest pain during the test, that there were no significant changes to your heart rhythm and that your blood pressure did not drop after the test.

If you have angina, you can be re-licensed once you have had at least six weeks with no pain, providing you have had a successful exercise ECG and you have no other disqualifying conditions.

I have had an angioplasty and stent insertion. When can I drive again?

It depends on the reason for your angioplasty and stent. If it was for angina, then you will be allowed to drive again after one week. If your procedure was carried out straight after a heart attack, then it will be four weeks before you can drive again.

For further information please contact:

Drivers Medical Group DVLA Swansea SA99 ITU Tel: 0870 600 0301 www.dvla.gov.uk/

Flying Advice

When can I fly after a heart attack?

Most airlines will not allow flying in the first week after your heart attack.

Flying should normally be delayed for **six weeks**, for short distance flights, after which the risks of problems related to the heart attack are lower. This delay period may need to be extended if you had any complications after your heart attack.



If you are planning a holiday, it is advised that it may be better to wait for **12 weeks**, especially if you are going on a long distance flight.

If you have a holiday planned, please discuss this with your doctor. It may also be helpful to consider where you are going, the length of time you will be travelling and the provision of medical services once you arrive at your destination.

Can I fly if I have angina?

Flying should not be a problem as long as your condition is 'stable', and attacks are infrequent. However, if you find it difficult to predict when you will have an angina attack, you should seek the advice of your GP. Generally, if you can climb a flight of stairs whilst holding a conversation and without stopping and you do not have significant symptoms, you should be fit enough to fly.

If you have frequent angina, or your symptoms are 'unstable' (pain at rest), it is recommended that you do not fly. You should avoid holidays at high altitudes, especially if your angina is brought on easily, or if you suffer from breathlessness.

When can I fly after an angiogram?

You can fly after three to five days, once your groin has healed. This should be discussed with your doctor on an individual basis, as it depends on the results of your angiogram.

When can I fly after an angioplasty?

Ideally this should be discussed with your doctor on an individual basis. If you have had a 'planned' angioplasty/stent insertion (as an outpatient), you can fly after one week. This allows your groin time to heal. If you have had an 'acute' angioplasty/stent insertion (as an inpatient), it is recommended that you do not fly for four weeks.

Your doctor may make further restrictions if you are going to a remote location, or not in easy reach of medical care.

What if I am waiting for an angioplasty/stent insertion?

Flying may not be advisable while waiting for your angioplasty. Please discuss this with your doctor.

Is there anything I should do during the flight?

If you have a long flight (over two hours), it is best to walk in the aisle at regular intervals so that you reduce the risk of a venous thrombosis (blood clot) in the legs. If it is difficult to walk in the aisle, you could move your feet for several minutes every half an hour to prevent a sluggish circulation in the legs. It is best to avoid alcohol and limit drinks containing caffeine (tea, coffee and cola). Drink plenty of water to avoid dehydration, which is especially common during night flights.

What about insurance cover?

The NHS does not pay for treatment whilst you are out of the UK. In some countries within the European Union, part or most of your treatment will be free if you have a certificate of

entitlement. This is called a European Health Insurance Card (EHIC) and it has replaced the old EIII form. You can get this through your Post Office, or by applying online at: www.ehic.org.uk/ or by telephoning 0845 606 2030.

In countries that do not have a special arrangement with the UK, you will need private health insurance. You can arrange this through your travel agent or insurance broker.

Travelling abroad without insurance cover is unwise and potentially hazardous. Insurance cover should not be a problem with stable conditions, although an increased premium is possible. You will need to shop around for the best deal. Make sure you read the small print to ensure your condition is covered. Please ask your cardiac rehabilitation nurse if you require a list of sympathetic insurance companies.

Handy hints when flying

- Organise your journey carefully and allow plenty of time
- Avoid rushing and carrying heavy pieces of luggage
- Take a rest in the airport lounge, so you are less likely to get angina as you walk to the departure gate
- If you think your angina may be brought on by the hectic activity at the airport, ask the airline of your travel agent for a standard medical questionnaire (MEDIF form) to ask the airline for extra help, such as early boarding or a wheelchair
- Keep plenty of your usual medication with you, including your GTN spray or tablets in your hand luggage. It is also wise to take a prescription (for the customs officer), and a medical report
- Dosing frequency of tablets should be maintained across the time zones
- It is safe to use your GTN spray during a flight

Returning to Work

Many people have questions about going back to work. The following gives some general advice.



I had a heart attack. How soon can I return to work?

Going back to work is often a major concern if you are recovering from a heart attack or an acute cardiac illness. Between 62% and 92% of people who worked before their heart attack are likely to return to work. You are likely to be fit for light work in about four to six

weeks. If your job is more physically demanding, you may need about twelve weeks. If you have had a heart attack and are looking for a new job, your cardiologist may be able to give you a fitness report that you can use to reassure prospective employers of your ability to work.

Will I be able to do as much as before?

You might be able to discuss with your employer ways in which you can modify your work to avoid the heaviest jobs. If your organisation has an occupational health service, you will be able to talk to someone about your heart attack and your return to work. They might be able to suggest ways of modifying your role while you recover, like returning to work in phases.

Exercise and health education programmes have increased the number of people successfully returning to work. Many people find that full recovery from a heart attack makes them more conscientious in their work than before. But even if you have fully recovered, you might be at the age where early retirement is an option.

How do I get a sick note?

Please ask your ward nurse about a sick note before leaving hospital.

I had an angioplasty. How soon can I return to work?

You can return to light work as soon as you feel able after having an angioplasty. If you do heavy work you may need to rest for at least a week and you might need to have an exercise ECG (see p.65) before returning to work.

Does cardiac illness affect my status as an employee? You might be worried that your job will be downgraded or that your promotion prospects will be affected by your illness. The Disability Discrimination Act makes it unlawful for employers to discriminate against employees on the grounds of a declared disability, unless they can show it would be unreasonable to make the necessary modifications to allow you to return to work.

For further information on your rights or if you feel you are being discriminated against, contact the:

Disability Rights Commission

Free helpline: 08457 622633 www.drc-gb.org www.direct.gov.uk/DisabledPeople/fs/en

Resuming Sexual Activities

Many people who have had a heart attack or angina fear it will put a stop to their sex lives. This need not be the case. Most people who have had a heart attack or angina are able to resume normal sexual activity with no problems. After you have been discharged from hospital, you are advised to gradually increase your daily exercise as you gain strength and confidence, pacing yourself, as you feel most comfortable. This applies to all your activities, including sexual intercourse.

Many people have concerns about having sex after a heart attack. Some frequently asked questions include the following:

I don't feel like having sex. Is this normal?

It is very common for people who have heart problems to experience a temporary loss of sex drive. This is normal and will return, given time. Many people and their partners feel anxious and frightened about having sex after heart problems. If, after reading this booklet, you are still experiencing anxieties and concerns, then contact your cardiac rehabilitation nurse for further advice and support.

How demanding is sex on the heart?

Having sex can increase the heart rate and blood pressure. The maximum heart rate with sexual activity is approximately I 20 beats per minute. This is similar to climbing two flights of stairs or walking about 300 yards on the level, comfortably, without getting chest pains or becoming breathless. If sex does bring on angina, taking a GTN spray or tablet, beforehand, will usually prevent chest pain or discomfort.

When can I resume sexual intercourse?

Sexual activity can begin once modest levels of activity become part of your normal lifestyle. This may be within days rather than weeks, unless your doctor has told you otherwise. The risk of you having another heart attack is very small, but is slightly higher than for someone who has never had a heart problem. If you are physically active, the chance of sex bringing on another heart attack is only 2.5 in a million.

I am unable to maintain an erection. Why?

Erection problems were once thought to be caused most commonly by psychological or emotional reasons, such as the breakdown of a relationship, worries about work or just general stress. We now recognise that physical ailments, many of those linked to growing older, such as heart disease, high blood pressure or diabetes, can also cause erection problems. Men with heart disease, high blood pressure or narrowed arteries may notice a slow but continuing change in being able to achieve or maintain an erection. The same process, which can cause heart disease and linked conditions, also affects the penis. When arteries in the general circulation become blocked, blood flow, which is necessary for an erection, is restricted to the penis as well.

Common causes of erection problems linked to the heart:

- Coronary heart disease
- High blood pressure (treated and untreated)
- Diabetes
- Side effects of medication

I am being treated for heart disease, and have erection problems. Is my medication to blame?

You may have noticed erection problems starting around the same time as your doctor prescribed treatment for a heart condition or high blood pressure. Certain medication can affect the ability to get or keep an erection (see the section on Medicine Treatment for more information). Your doctor can review whether there is a strong link between medication for your heart condition and erection problems. Usually, changing your regular medication will not be the answer to improving your erections. Only your doctor can advise you on this. It is critical that you do not stop taking or change your medication without your doctor's advice.

Is it still safe to take medications for erection problems along with the other medications?

You may have been prescribed sildenafil (Viagra[®]), vardenafil (Levitra[®]) or tadalafil (Cialis[®]) for erection problems. Do not take these within six weeks of your heart attack. These are *not* safe to take if you have been prescribed nitrates (e.g. GTN spray or isosorbide mononitrate), nicorandil, nebivolol or doxazosin. Before taking Viagra[®] following a heart attack, consult your doctor to make sure it is still safe to do so. Always see your doctor rather than self-prescribing or obtaining them from another source.

Are there times to avoid sex?

Sex is best avoided in the following situations:

- When it is very hot or cold the heart has to work harder to maintain body temperature.
- Immediately after eating a heavy meal the digestive system uses a big blood supply to digest food. It is advisable to wait at least three hours after eating a heavy meal.
- After drinking excessive alcohol this reduces the heart's circulation and may cause erection difficulties.
- Casual sex, or sex with a new partner in unfamiliar surroundings, can increase the incidence of sudden heart attacks. It is thought that this is due to the increased excitement, and possible feelings of guilt.

Useful Addresses:

British Association for Sexual and Relationship Therapy (BASRT)

PO Box 13686 London SW20 9ZH Phone: 020 8543 2707* www.basrt.org.uk *For information only: this is not a helpline

Relate

The Gallery Oxford Chambers Oxford Place Leeds LSI 3AX Phone: 0113 245 2595 www.relate.org.uk/

Information for Spouses, Partners and Family

If someone close to you has had a heart attack, or angina you may find that it affects you in certain ways. This is entirely normal and reading through this booklet may be helpful as it will give you more information about what to expect.

You may find yourself doing a lot of worring, particularly when the person you are caring for first comes

out of hospital. This is quite normal and usually improves with time. It might be tempting to want to do everything for them. This is generally unhelpful, as it can lead to both of you feeling stressed. It is important that the person you are caring for



gradually begins doing things they have been told are appropriate, in order to build up their strength again.

You can play an important role in the person's recovery, but it can be very tiring looking after someone who has been in hospital and it can make you feel run down. It is therefore important that you also take time to look after yourself. Try to take a rest when you can and try to get a good night's sleep. Carers often say they feel more worried at night time and wake frequently. Again, this usually eases with time, but it may help to talk about these worries with someone such as a close friend, doctor or member of the cardiac rehabilitation team. You and the person you are caring for might also find it tiring to have lots of visitors. It can therefore be helpful to limit the length of time they stay for, and the times at which they visit. Sometimes relationships become more difficult and resentment can build up. This could be because things have changed since the heart problem, or things may have been difficult for some time. Often, talking things through when you are both feeling calm can help and by accepting that it is rarely one person who is at fault. If things have got beyond this, it may be worth considering seeing a relationship counsellor e.g. Relate. It is important to remember that many relationships are strengthened after someone has been diagnosed with a heart problem. Many couples report that this helped them to realise they were not spending as much time together as they wanted, or that it had reminded them how much they care.

Part 4: Additional Information

Further Investigations

During your hospital stay, your doctor may suggest you have some tests or investigations. These investigations may occur during your stay in hospital or be carried out as an outpatient. These tests are very useful for helping to diagnose heart disease and assessing the condition of your heart. The following is a list of common investigations.

Exercise ECG (also known as an exercise stress/treadmill test)

This is a test that involves walking on a treadmill whilst wired up to an ECG (electrocardiogram) machine. The test takes approximately 15 minutes and during the test the speed and slope of the treadmill will be increased to make you work a

little harder. An ECG machine prints off recordings of your heart's activity (called heart tracings) while you are exercising and your blood pressure and heart rhythm are monitored.

The test helps your doctor to understand how your heart works during exercise by comparing heart tracings



at rest to those during exercise. This can then help the doctors plan your treatment.

Exercise treadmill tests are useful for:

- Diagnosing if chest pain is due to narrowing of the heart arteries (angina).
- Helping to find out possible causes for breathlessness and palpitations.
- Assessing the need for further investigations.

• Checking the effectiveness of procedures such as angioplasty/stent or heart bypass operations.

Echocardiogram (Echo)

This is an ultrasound scan of the heart used to look at how the heart is pumping, the thickness of the heart muscle and the heart valves. It uses harmless high frequency sound waves to generate detailed pictures of the heart. A probe is coated in gel and then is placed on your chest. The test can take from 20 - 45 minutes and is pain free.

Coronary Angiogram

This is a test done under local anaesthetic using dye to show up the coronary arteries and highlighting any narrowing. It also provides information about the function of the pumping chambers of the heart.

The test usually takes 30 - 45 minutes. It involves inserting a tiny flexible tube (catheter) into the artery in your groin. Through X-ray guidance, this is passed up to your heart. X-ray pictures are taken as the dye goes through your coronary arteries. You should be able to see this on a screen. You should not feel any pain as there are no nerve endings in the coronary arteries, but you may feel a few palpitations (missed beats). The dye can make you feel quite hot and flushed but this should pass in a few seconds.

After the test a doctor will remove the tube in your groin and press on the puncture site for 15 minutes to reduce the risk of bleeding. On return to the ward you will have to lay flat for about two hours. You will have frequent checks of your puncture site, blood pressure and pulse by the nurses. It is common to have some bruising at the puncture site. This may take up to a week to go.

The results of the angiogram will help the doctors decide

on your treatment which *may* include medication, angioplasty/stenting, or an operation.

Angioplasty and Stenting

This is a procedure that involves widening narrowed coronary arteries with either a balloon or more commonly by inserting a metal mesh tube (stent) into the artery which acts like scaffolding and keeps the artery open.

It is a very similar procedure to having an angiogram except it takes a little longer, around 60 - 90 minutes. You may have an anti-platelet drip before, during and after the procedure. This reduces the risk of clots forming around the stent. You will have to stay in hospital at least overnight. The procedure involves inserting a tiny flexible tube (catheter) with a small inflatable balloon at its tip into your groin. Under X-ray guidance, this is moved up to where the narrowing is in your coronary artery. This balloon is then inflated, which squashes the fatty tissue responsible for the narrowing. This tube also contains the stent and as the balloon is inflated the stent expands so it holds open the affected artery. The balloon and tube are then removed leaving the stent in place. During the procedure you may experience some chest discomfort. If you do, please let a member of staff know. After the test, a doctor or nurse will remove the tube in your groin and press on the puncture site for 20 minutes to reduce the risk of bleeding. You will have to lay flat for at least two hours after this and you will have regular checks of your puncture site, blood pressure and pulse.

Occasionally there may be problems with bleeding at the puncture site and heavy bruising.

For more detailed information please see the British Heart Foundation booklets on the ward.

Glossary of Terms

Angina

Medical name for pain in your chest. It might include feelings of chest heaviness or tightness that may spread to the arms, neck, jaw, face, back or stomach. Caused when the coronary arteries are narrowed.

Angiogram

An X-ray picture of the arteries that shows up any narrowing.

Angioplasty

A treatment to widen the narrowed arteries and therefore improve blood supply, to the heart.

Atheroma

Fatty deposits inside the arteries.

CHD

Coronary Heart Disease.

Cholesterol

A fatty chemical in the blood which includes LDL (Low Density Lipoprotein), the 'bad' cholesterol and HDL (High Density Lipoprotein), the 'good' cholesterol.

Coronary Ischaemic Heart Disease

When the artery walls are narrowed by a gradual build-up of fatty deposits.

Electrocardiogram (ECG)

A test that records the rhythms and electrical activity of the heart.

Heart attack (Myocardial infarction)

When blood supply to the heart is blocked by a blood clot. The symptoms usually last for more than 30 minutes and may last for many hours.

Heart failure

A condition where the heart muscle is weakened, therefore not pumping blood around the body as well as it could. This can lead to symptoms of breathlessness, swelling of the feet and ankles.

Pacemaker

A small electrical device that is surgically implanted to regulate an abnormal heart rhythm.

Stable angina

Angina that comes on with a particular amount of exercise or stress.

Stent

A small wire mesh tube inserted into a coronary artery during angioplasty to keep the artery wall open.

Unstable angina

Angina that comes on with less and less activity, or even while resting.

Further Contacts

ADVICE

Citizens Advice Bureau City Centre CAB, 31 New York St, Leeds, LS2 7DT 0870 120 2450

ALCOHOL/DRUG MISUSE

AlAnon

National 24hr helpline & local meetings in Leeds for friends/families of problem drinkers. 0207 403 0888

Alcoholics Anonymous

C/o Oxford Place Centre, LSI 3AX Daily meetings in Leeds area for men & women who have experienced problems with alcohol & want to stop drinking. Helpline: 0113 245 4567

Leeds Alcohol & Drugs Services

60 Upper Basinghall Street, LSI 5HR Advice, information & counselling for problem drinkers, drug users, their families & friends. 0113 247 0111

BEREAVEMENT

CRUSE Bereavement Care

Bereavement support, information & advice for any bereaved person, regardless of age, nationality or belief. Please phone for more details. 0113 234 4150

CARERS

Leeds Carers Centre

First Floor Leeming House, Vicar Lane, Leeds LS2 7JF Advice, information, financial help, social events, courses & support from other carers 0113 246 8338

DISABILITY

DIAL: Disablement Information & Advice Line

The Mary Thornton Suite, Armley Grange Drive. Leeds LS12 3QH Information & advice line covering most aspects of disability including: benefits, access, education & employment, holidays & leisure. Enquiries by phone or letter. 0113 214 3630

0113 214 3627 (Minicom)

EXERCISE

Website: www.whi.org.uk

A website full of ideas from the walking the way to health initiative.

LEAFLETS

Website: www.patient.co.uk/ A website for further useful information leaflets

LISTENING

Samaritans

Confidential 24-hour listening service. 0113 245 6789

OLDER PEOPLE

Age Concern, Leeds

188a Woodhouse Lane, Leeds, LS2 9DX Provides range of services for older people from Leeds including meals on wheels, hospital aftercare, educational & social courses, insurance & advocacy.

0113 245 8579

Leeds Neighbourhood Network Solutions

Leeds Older People's Forum, 60 Upper Basinghall Street, Leeds LSI 5HR

Provides a range of activities that promote the health, well-being and independence of their members. It includes advice and information services, help around the home, healthy living activities and opportunities for recreation. 0113 380 4911

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'The 15-Minute Rule'

- I. Sit down, rest and try to relax
- 2. If pain is present, take one spray of glyceryl trinitrate (GTN) under the tongue and wait 5 minutes
- If pain is still present, take another spray under your tongue and wait 5 minutes
- If pain is still present, take one more spray under your tongue and wait 5 minutes

If pain is still present ring 999 for an ambulance.

Please refer to page 7 for further information.

Membership Application

Membership of Take Heart is open to anyone for a once only fee of \$1.50. In return you will receive a regular newsletter and the opportunity to participate in the club's activities.

Title:Surnames(s):
First Names: Member 1:
Member 2:
Address:
Postcode:
Telephone:
An attractive club badge is available at £1.00. Please indicate the quantity required in the box shown and add the cost to the Membership fee.
No of Badges required:
I enclose a cheque/postal order for £ payable to TAKE HEART
Donation Form
Donations should be sent to: The Secretary, Take Heart, The Yorkshire Heart Centre, 'F' Floor, Jubilee Wing, The General Infirmary at Leeds, Leeds LS1 3EX.
I would like to make a donation of & to TAKE HEART
Name:
Address:
Postcode:
If you are a UK taxpayer, the Charity can benefit further from your donation.
If you would like further details, please tick this box:
PLEASE MAKE ALL CHEQUES PAYABLE TO TAKE HEART

Donations are always welcome and will be acknowledged, and published in our newsletter

Please send completed Membership/Donation Forms to: The Secretary, Take Heart, The Yorkshire Heart Centre, 'F' Floor, Jubilee Wing, The General Infirmary at Leeds, LS1 3EX. Tel: 0113 392 2888. Fax: 0113 392 5222.



We Are Take Heart

Take Heart is a small, but professional charity, run on a completely voluntary basis, raising funds exclusively for the Yorkshire Heart Centre at Leeds General Infirmary, St James's hospital and its units within The Leeds Teaching Hospitals NHS Trust. We were founded in 1989 by a small number of heart patients wishing to return something for the excellent care received.

From a small beginning, we have raised over three million pounds and this has been used to provide comfort and enhance the surroundings for the many thousands who visit the centre every year. We have also made significant progress in supporting staff in their work and improve their working environment.

Some of the major achievements of the charity are the provision of a suite of relatives rooms available free of charge when required, a roof garden providing a peaceful area for patients and relatives, and an internal garden. We provide free bedside television, free telephone calls and free internet for all patients on the heart wards and we have recently provided changing rooms for an additional MRI scanner. Take Heart have refurbished most waiting areas and made sure that patients enjoy comfort of the highest standard. We also fund information booklets (such as the one you are now reading) which are available in all the Heart Centre wards.

Look around and you will see that all the bedside furniture in the heart wards was provided by Take Heart. We also provide equipment to help bring the latest technology into the centre which, in some cases, helps to reduce waiting times. Our latest major projects include two new portable echo machines and an Intracoronary Optical Coherence Tomography Scanner, (catheter-based invasive imaging systems using light rather than ultrasound for detailed examination of stents), costing in excess of £165,000 and complete refurbishment of the Roof Garden and spent some $\pounds 60,000$ on a major refurbishment of Ward L16.

Take Heart funds are raised in many ways - through donations - events - sponsorship, and bequests, mainly through its thousands of members and supporters.

We would love you to become a member of Take Heart. As a member, you will receive our newsletter about five times a year and if you wish to take part in anything, this is absolutely at your choice. Please note that you will never be bombarded with follow-up mail. You can join by going to our web site **www.takeheart.net** or picking up a form from any ward reception area.

Use your SmartPhone to visit our website > > >

Colin Pullan, MBE Chairman, Take Heart.



For more information contact: Take Heart, 'F' Floor, Jubilee Building, Leeds General Infirmary, Leeds LST 3EX. Tel: 0113 392 2888. Fax: 0113 392 5222 **Email: admin@takeheart.net Web: www.takeheart.net**



Registered Charity No. 1002063

Raising funds exclusively for the

Yorkshire Heart Centre

at Leeds General Infirmary,

St James's Hospital

and its units within the

Leeds Teaching Hospitals NHS Trust

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