

You and Your Heart

Recovering from a Heart Attack/Myocardial Infarction

Please see below QR code which takes you to our website where if you scroll down the page you will find our information and videos.



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Introduction

This book has been written by the Cardiac Prevention and Rehabilitation Team at York and Scarborough Teaching Hospitals NHS Foundation Trust. We are a small team comprising of specialist nurses (based in the community) and a specialist cardiac physiotherapist who are here to help support you during your recovery following your heart attack.

Cardiac Rehabilitation gives you and your family the information support and advice you require:-

- To understand your condition
- To restore your confidence
- To return to as normal and active life as possible
- Encourage you to make lifestyle changes which will improve your long term well-being and reduces the risks of a further cardiac event.

Cardiac Rehabilitation is an intervention recommended by NICE which can save lives, improve quality of life and reduce hospital admissions. It is endorsed by the cardiology consultants at the hospital.

You may feel that there is a lot of new information and you may have lots of questions. You are encouraged to ask questions following your heart attack we are here to help. The Cardiac Prevention and Rehabilitation Team is available to help and support you during your recovery.

You can:-

- Telephone our helpline 08.00 to 16.00 Monday to Friday – if we are out of the office there is an answering machine – please leave a message and we will get back to you as soon as we can
- Email us at yhs-tr.crehab@nhs.net – emails are looked at each week day
- Visit the trust website for more information and to view our educational videos – www.yorkhospitals.nhs and search for cardiac rehab or scan the QR code on the front of this leaflet.

Please remember that the Cardiac Rehabilitation Helpline is not manned all the time and should not be used for medical emergencies.

If you are unwell, please decide whether to contact your doctor for non-urgent problems or phone 111 or 999 for an ambulance to bring you to hospital.



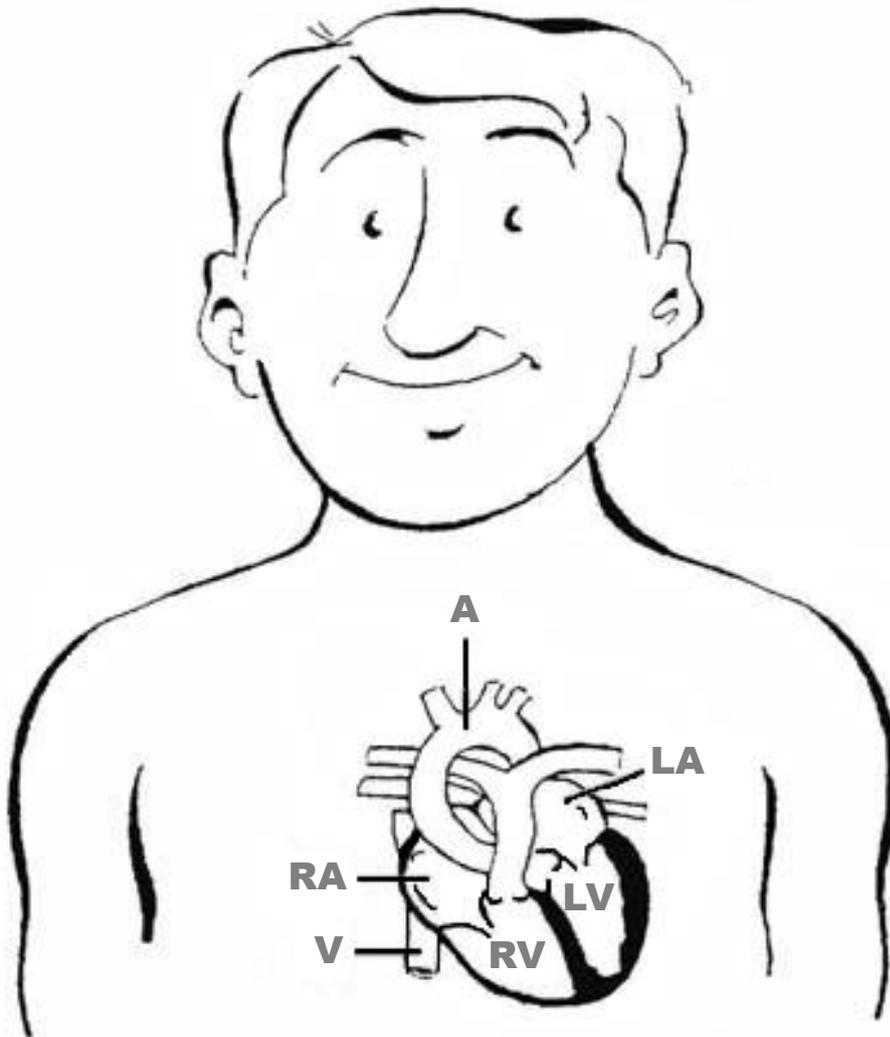
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The Heart

Your heart is positioned in the middle of your chest and is protected by the breast bone and ribs. The heart pumps blood around the body and is made of specialised muscle cells that are controlled by electrical impulses passing through it. Your heart has a right and left side each divided into two chambers, separated by a muscular wall called the septum. The upper two chambers are called the atria and the lower chambers are called ventricles. There are four valves in the heart to ensure blood flows in one direction.

Blood flow through the heart

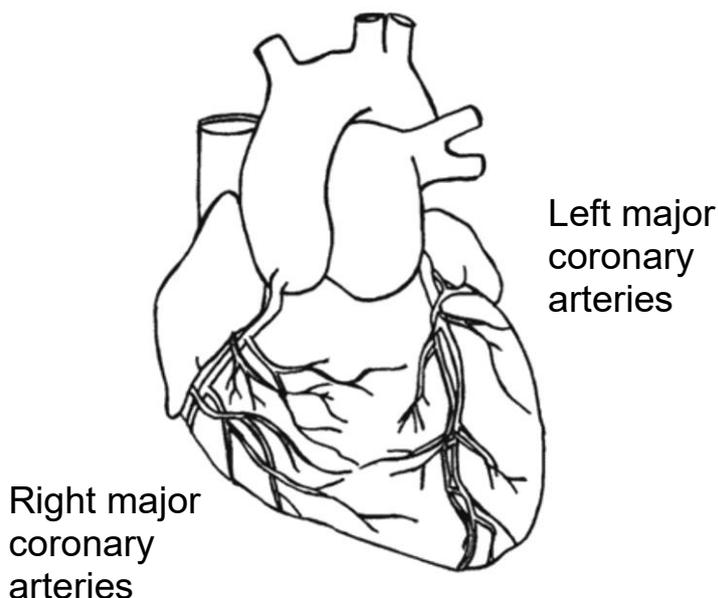
Blood returns from all parts of the body, emptying into the right upper chamber (right atrium) of the heart. It is pumped into the right lower chamber (ventricle), then towards the lungs, where it takes up oxygen. It returns from the lungs and enters the left atrium; it is then pumped into the left ventricle before being released into the largest artery, the aorta, then to the rest of the body.



- A** = aorta
- V** = main veins entering the heart
- LA** = left atrium
- LV** = left ventricle
- RA** = right atrium
- RV** = right ventricle

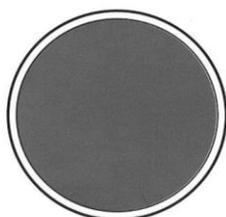
Coronary arteries

Although the heart pumps blood around the body, the heart muscle itself needs its own blood supply and this is delivered to the heart by a network of specialised blood vessels called coronary arteries. There are two main branches that lie on the surface of your heart and they are about three to four millimetres wide. These divide into smaller vessels forming the network that supplies the heart with oxygenated blood.

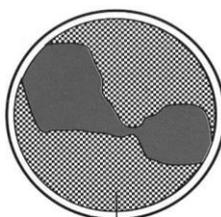


What is Coronary Artery Disease?

Coronary artery disease occurs when the coronary arteries become narrowed. This may be caused by fatty substances for example cholesterol, which builds up along the walls of the arteries. These are called 'fatty plaques' or atheromatous plaques, and can result in less blood and oxygen flowing to your heart muscle. The linings of the arteries are one cell thick and should be smooth.



Cross section through a healthy artery



Cross section through an artery showing cholesterol build up causing narrowing

Cholesterol

What is a Heart Attack / Myocardial Infarction (MI)?

A heart attack is the name used to describe the diagnosis, which is referred to in medical terms as a Myocardial Infarction or "MI". An MI happens when the lining of a coronary artery ruptures at the site of a fatty deposit (or plaque). Platelets, already circulating in your blood, stick together on this ruptured area to form a clot. The artery supplying oxygenated blood to part of your heart muscle becomes blocked due to the clot and blood cannot supply the muscle. The lack of blood and therefore oxygen to the heart muscle can cause chest pain or symptoms may be described as chest tightness, crushing, or pressure across the chest and sometimes heaviness or pins and needles in the arms and fingers these might vary in severity. Symptoms may also feel like indigestion and may include nausea, vomiting, feeling cold and sweaty, or being short of breath.

Recognising the symptoms of an MI and calling for early medical help is essential. The heart muscle usually heals leaving a fibrous scar where the muscle was short of blood.

If your MI is not treated urgently, more of the heart muscle may be affected. An MI is a medical emergency.

What is angina?

Angina is the word used to describe the symptoms that occur when an area of heart muscle is temporarily short of blood and therefore oxygen. This is usually due to one or more narrowed coronary arteries restricting blood flow to the heart muscle. During an episode of angina, the blood flow does not meet the requirements of the heart muscle it supplies. At rest, there are usually less symptoms because your heart muscle needs less blood. When your heart is working harder, for example during exercise or stress, more blood flow to the heart muscle is required. If this cannot occur due to a coronary artery narrowing restricting blood flow, symptoms of angina may occur. Angina symptoms can be different in different people and can range from chest pain, discomfort, heaviness, tightness, or feeling short of breath. Angina symptoms can be felt in the jaw, throat, shoulders, arms, and neck. It may be felt in one or more of these areas.

Angina is usually brought on when your heart is working harder for example during physical activity or anxiety. Angina can also occur due to stress, anger, excitement, sexual intercourse or extremes of hot and cold temperatures. Resting may help to relieve symptoms of angina.

Angina may be described as stable, when the symptoms are predictable, for example brought on by exertion or emotion, and relieved by rest or promptly with GTN spray. It is described as unstable if the pain/discomfort is prolonged or occurs repeatedly, on less effort or more frequently or if your angina wakes you from your sleep. A change in symptoms like this should not be ignored and should result in you seeking medical advice or help.

Use of GTN (Glyceryl Trinitrate) The '10 minute rule'

Your Cardiac Prevention and Rehabilitation Team or ward nurse will explain how to use the GTN spray that you will be given before you go home and give you a '**Heartsave**' card to carry, that will remind you how to use your GTN. This will fit easily in your wallet/purse. If you have angina symptoms whilst you are in hospital, tell the nurse caring for you **immediately**.

You should not need to use your GTN often, it should only be used if you have symptoms. Remember the '10' minute guide – symptoms after 10 minutes even if 'mild' require hospital treatment.

Once at home you should carry your GTN with you **at all times**. The expiry date is usually on the base or side of the container and usually lasts within date for two years. You will need to replace your GTN spray every two years if you have not used it. Please do not use the spray after expiry date as it will not be effective.

If you have cardiac symptoms once you are discharged home, you should use your GTN spray. You are advised to:

1. Sit down and rest, if you think your symptoms are from the heart take one to two puffs of GTN under your tongue and wait five minutes (occasionally some people can temporarily feel slightly lightheaded for a short time afterwards).
2. If pain is not relieved or is increasing, take GTN spray again one to two puffs under your tongue.
3. If the GTN spray does not clear your symptoms completely within 10 minutes, you should call 999 for an ambulance and go to the nearest Hospital Emergency Department.

GTN can temporarily lower your blood pressure, some people can feel dizzy, therefore it is very important to ensure you are sitting down when you take it.

Diagnosis of MI

There are three main indicators that will help the staff decide whether you have had a heart attack (MI). These include:

1. Signs and symptoms

You will have been asked about your symptoms by the medical team when you came into hospital. You may have experienced pain, nausea, vomiting, chest tightness, heaviness in your chest or felt cold and clammy. Not all people experience the same signs or symptoms and may feel generally unwell. A small percentage of people do not have obvious symptoms. Some people collapse with cardiac arrest.

2. Electrocardiogram (ECG)

You will have had heart tracings called ECGs taken when you first came into hospital. The ECG records the electrical activity of your heart and can show signs of a heart attack or lack of blood to an area of your heart muscle. The ECG may also indicate which artery has been involved in your heart attack and approximately when it happened. This test is painless and involves placing electrode stickers on your chest and limbs. The electrodes transmit an electrical waveform via cables to the ECG machine. This waveform is printed out on paper.

3. Cardiac Enzymes – Troponin Blood Test

If the heart muscle has not received an adequate blood/oxygen supply for long enough, the muscle cells release a chemical or 'enzyme' called troponin that is measured and is a marker for an MI. The troponin levels are normally increased following a heart attack (MI). Your blood test will be taken as soon as you come in to hospital and repeated approximately two hours later. This will help to define your diagnosis accurately; please remember that this will not be the only important test to determine your treatment. To diagnose an MI, your ECG, symptoms, and the blood test are considered together.

All of the signs and symptoms that you report are important and help the doctors and nurses make a firm diagnosis.

On the basis of the tests you have, doctors initially will divide those people with suspected MIs into two groups, depending on the result of your ECG. This is because the initial treatment is different: One type of MI, called an ST elevation MI (STEMI) is usually treated immediately with an angioplasty procedure called primary PCI (this is described later) to open the blocked coronary artery. In the second type, called a Non ST elevation MI (NSTEMI), the initial treatment is drug therapy, usually with angiography and further treatment later.

Treatments for MI

You may receive one of the following treatments

1. Primary Percutaneous Coronary Intervention (PPCI) for STEMI

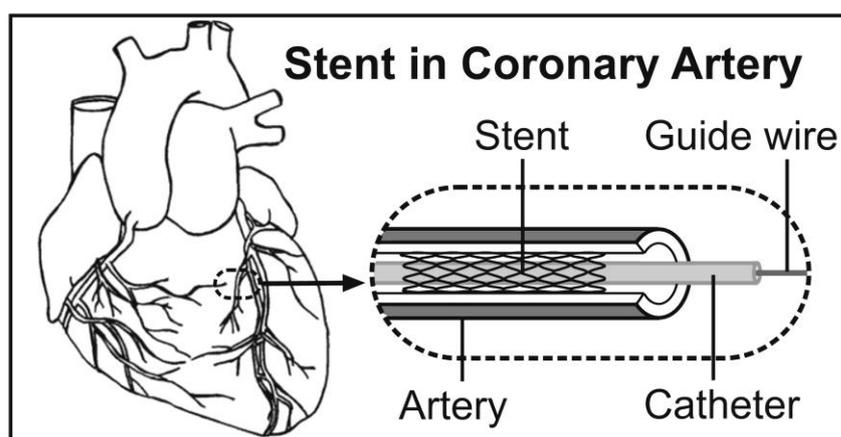
If you have had a heart attack there is an abrupt lack of blood flow to part of your heart muscle due to a blocked main coronary artery. Emergency treatment is needed as soon as possible to re-establish blood flow to the heart muscle and to limit the amount of permanent scarring to your heart muscle. This is done by urgently opening the artery with a balloon and almost always one/multiple stents. Stents are fine mesh tubes that hold the artery open. This procedure is called Primary Percutaneous Coronary Intervention or PPCI.

Only people with an ECG that shows specific abnormalities require a PPCI. This is because evidence has shown that this procedure will only be beneficial for this type of MI. This is called an 'ST elevation' Myocardial Infarction or 'STEMI' and it is due to a blocked main coronary artery.

If a main coronary artery is blocked, you will need to go to a centre where the artery can be re-opened urgently using PPCI, ideally within **90 minutes**. The aim is to re-establish the blood supply as soon as possible to the heart muscle.

Most patients in the York area will be taken immediately by ambulance to the Leeds General Infirmary or Castle Hill Hospital at Hull for this procedure. You will usually be transferred to York Hospital between six to 12 hours after your PPCI and stent/s until you are discharged home. You will be in hospital approximately three to five days and in some cases if further treatment is required, this may be longer.

Sometimes there may be other arteries that are narrowed that are not treated at the same time as your PPCI and these may need treatment at a later date. The doctor will discuss this with you during your admission. Sometimes an artery can be narrowed and does not always require angioplasty.



Artery with stent inserted during PPCI

2. Angioplasty with/without stents

Coronary angioplasty can improve the blood flow through a narrowed or blocked coronary artery. This technique is similar to a coronary angiogram and the difference is the use of a small balloon to 'squash' back the fatty tissue (atheroma) against the muscular wall of the narrowed artery and therefore allows an increase in blood to flow. A stent (a specialised mesh tube) is usually inserted where possible to keep the artery open. This can be done as a treatment planned in advance (elective) or as an emergency or urgent procedure for ongoing angina symptoms.

For unstable angina and the Non ST elevation MI (NSTEMI) following drug treatment you may undergo an urgent angiogram to find the coronary narrowing/s causing the reduced blood flow. If these are suitable for angioplasty and stenting (PCI) this is carried out during the same procedure. This is often called 'Angiogram query Proceed' because the cardiologist will 'proceed' to perform angioplasty and stenting during the same procedure if indicated. Sometimes the type of narrowing/s found may not require angioplasty, and can be managed by 'drug' treatment, this is known as 'medical management'. In some people, a coronary artery bypass operation will be needed. The cardiologist will discuss the results of your angiogram with you in hospital at the time of the procedure.

Common tests for your heart

Your doctor may request investigations to determine the best treatment for you. These could include some of the following:

- **Coronary Angiography (Cardiac Catheterisation)**

Coronary angiography involves passing a fine catheter or tube through an artery in your arm or groin to your heart using local anaesthetic. This is usually carried out in the Vascular Imaging Unit at York Hospital. A dye is injected into the blood stream and X-rays are taken of your coronary arteries from several angles. This diagnostic test is usually done to provide vital information regarding any narrowed coronary artery/arteries you may have. It can also help assess your heart by measuring pressure in the heart chambers and how well the valves are working. For more information regarding coronary angiography ask your Cardiac Prevention and Rehabilitation /ward nurse. You will be given a York and Scarborough Teaching Hospitals information leaflet regarding angiography.

- **Echocardiogram or 'Echo' – Cardiac Ultrasound**

An Echocardiogram is an ultrasound scan that produces a picture of your heart and can give accurate information about the pumping action, valves and the structure of your heart. Your Cardiologist may advise that you have an echo while you are in hospital or when you come back to clinic as an outpatient.

- You may not have all the above and there are various investigations that are not listed in this book. You can ask your Cardiac Prevention and Rehabilitation /ward nurse if you need any more information.

Recovery in hospital

For the first two to three days

If you have had a STEMI/Primary angioplasty you will be admitted to the Coronary Care Unit (CCU) for the first 12-24 hours after your admission to hospital. During this time, your heart activity will be monitored and you will be advised to rest. You may be admitted directly to a ward following a heart attack (NSTEMI). Your Cardiac Prevention and Rehabilitation Specialist Nurse will contact you as soon as possible after your event, usually within 48 hours of discharge. Your cardiac rehabilitation may be started by the nurse in the Coronary Care Unit. Cardiac rehabilitation is aimed to support and help you to return to as normal a life as possible following your MI and to prevent another event in the future. Cardiac rehabilitation can reduce the chance of having an MI again by as much as 27-30%. Cholesterol lowering medication called a statin and antiplatelet tablets are also key factors in reducing a second MI. This will be discussed later in the booklet.

Different people may feel differently following an MI. After 24-36 hours you will usually begin to mobilise if you do not have any further symptoms. After this time, you should be able to go for a shower and be walking around the CCU/ward. Each day you will then be able to walk a little further.

Until you are mobilising well in hospital you will be given an injection into the skin to prevent blood clots forming in your veins, this can happen following long periods of immobility and particularly after a few days of bed rest. Usually the injection will stop on the day before/day of discharge home.

You will be able to go home as soon as you are well and following the results of requested tests (if any have been requested) by your doctor. On average, this is between three to five days.

Cardiac Prevention and Rehabilitation Team support

The specialist nurses and cardiac rehabilitation specialist physiotherapist are based in the community in the York and Selby area. The aims of cardiac rehabilitation are to:

- Help you to recover physically and psychologically from your MI and to return to as normal a life as possible that you experienced prior to your event
- Support you in preventing a further heart attack in the future
- Continue your cardiac rehabilitation support when discharged from hospital and during your recovery

Recovery at home

It can take between three and six weeks to recover from a heart attack. Everyone is different and will recover at different times and may take longer depending on your health status before your event. You will usually be offered cardiac rehabilitation follow up after discharge from hospital.

Cardiac Prevention and Rehabilitation follow up

Your Cardiac Prevention and Rehabilitation Team will contact you 24-48 hours after discharge. They will talk through your diagnosis, medications and recovery and then they will arrange an appointment to meet you face to face to plan your individual recovery plan.

You will be guided by the cardiac prevention and rehabilitation team in a recovery programme. This could be by telephone, home based programme (heart manual), video consultation or face to face consultation as available and appropriate.

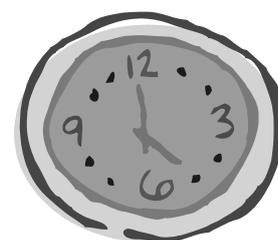
If you live out of the York area you will be referred to your local cardiac rehabilitation service. A member of the team will be in contact with you usually within one to two weeks of you being at home. If you have not heard from anyone within two weeks of discharge you are advised to call the York Hospital based team on **01904 725821** and we will chase up the referral.

Activity at home following your MI

The Cardiac Prevention and Rehabilitation Team will support you with increasing your level of activity gradually and safely, taking into account your previous levels of fitness before your MI. If you have any other health questions or those relating to exercise, you may wish to talk to the Cardiac Rehabilitation Team or Physiotherapist. When you arrive at home following your discharge from hospital, try walking the distance that you walked in hospital and gradually build up this distance.

Goal Setting and Pacing

Gradually increase your distance by a few minutes every two to three days. This level of activity should feel fairly easy. This is known as goal setting and pacing. If you feel tired after walking a certain distance then do not continue to increase it until you are able to walk it 'fairly easily'. If walking is a problem and is difficult due to other health problems, we may be able to offer advice and alternative forms of exercise to try.



Housework and Gardening

Start with activities that will not increase the demand on your heart. Tasks that can be undertaken include dusting, drying dishes, preparing light meals. Initially you should be lifting no more than a kettle half filled with water. Try to avoid lifting heavy shopping bags, pulling/pushing activity and allow people to help with tasks when offered. An example of a pulling/pushing activity is vacuum cleaning. Eventually over four to six weeks, you will be able to gradually increase your activity.

In the garden, you may want to do easy jobs at first, such as light weeding or hoeing. Remember to start with a small amount and build up gradually.

You may feel tired for the first couple of weeks, and may feel like taking an afternoon 'nap'. Try to avoid sleeping for long periods in the day as this can disrupt your normal night time sleep pattern. Learning to relax is beneficial, and may help you sleep at night. You can ask your Cardiac Prevention and Rehabilitation Team for a relaxation CD or web link to use to help you to relax - 70% of angina sufferers experience less angina when they practice regular relaxation techniques.

Activities you are advised to avoid

- Strong, sudden efforts such as heavy lifting, pulling or pushing.
- Heavy lawn mowing and sustained activities that involve raising both your arms above your head, for example, hedge clipping/cleaning windows for the first six weeks.

Driving

1. Car and Motorcycle Licence (Group 1 Licence)

Following your MI you will be excluded by the Driving Vehicle Licensing Agency (DVLA) from driving for **four weeks**. Though you may not drive, you do not need to inform the DVLA if the only reason for exclusion is your MI. In some circumstances and following specific advice, it is possible for some people to drive before four weeks. Specific guidance includes if you have had an ultrasound scan called an echocardiograph with normal results, and your cardiology consultant agrees to you driving before four weeks. Your Cardiac Prevention and Rehabilitation Nurse will discuss and clarify this with you.

2. You are advised to inform your motor vehicle insurance company that you have had an MI and failure to do so could invalidate your insurance. If you experience angina whilst driving, you should always stop as soon as possible and park your car in a safe place.

If you are not sure whether you should be driving following your MI, please discuss this with your doctor or the Cardiac Prevention and Rehabilitation Team or refrain for four weeks.

3. Long Vehicle License and Public Service License (Group 2 Licence)

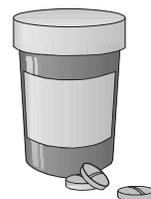
If you hold a long vehicle or public vehicle licence you are required to inform the DVLA that you have had a MI. You will not be able to start driving again for at least six weeks and until you have completed an exercise tolerance test and a report has been submitted to the DVLA by your Consultant. DVLA re-licensing is required and can take several weeks. Please talk to your Cardiac Prevention and Rehabilitation Nurse or doctor for further advice.

Returning to work

Eight out of ten people are able to return to work following their MI. This will depend on you as an individual and the job you do. You may consider talking to your employer about phased return to work. This involves gradually building up to your usual working hours/activities over a period of time. The usual time scale is approximately four to six weeks but it can be longer if you are waiting for further tests or treatments. Please discuss any queries you may have with the Cardiac Prevention and Rehabilitation Team. A sick note can be obtained from the hospital or your GP.

What medicines will I need to take?

Following your heart attack, you will be started on essential medication to reduce the chance of another event. You should read the leaflets provided with the medicine to help understand what they are for and familiarise yourself with any possible side effects.



If you are worried or experience any side effects, contact your GP for advice.

You should not stop any medication without consulting your doctor unless they advise you to do so.

It is a good idea to write down the drugs that you have been prescribed when you go home. There is a table ready for you to record your medicines at the back of this book. If a dose of your drug is changed for any reason, record when this happened.

Commonly used medication is described in the tables on the next few pages.

Flu Vaccine

You will be advised by your GP to have the flu vaccine every year following your heart attack. This is usually given in October and if you do have any concerns, please talk to your GP or Practice Nurse. If you have got a chest or lung condition, or you are aged 75 years or over, your GP may advise you to have the flu vaccine and usually a once only pneumonia vaccine.

Drug Group: Antiplatelet drugs

Examples: aspirin, clopidogrel, ticagrelor and prasugrel.

Antiplatelet drugs work by reducing the stickiness of blood cells called platelets. This helps to prevent the formation of blood clots in the blood vessels of your heart. Blood clots can block the blood flow to your heart muscle, causing a heart attack.

You are usually started on aspirin, long-term following your MI. A second antiplatelet (clopidogrel, ticagrelor or prasugrel) is also prescribed and is usually continued for 12 months.

Antiplatelet tablets must be taken with or after food.

Avoid any over the counter medicines such as ibuprofen and flu remedies which contain aspirin. If you need to take a painkiller, use paracetamol or co-codamol.

Monitor for any side effects related to bleeding.

The main side effects are:

- Stomach irritation leading to acid reflux or indigestion.
- Bruising or other signs of bleeding – these symptoms can become serious. If you notice bleeding from your back passage, pass black tar like stools, or have blood-stained vomit contact the emergency doctor or visit the A&E department.
- Shortness of breath.

Beta-blockers

Examples: bisoprolol, atenolol, metoprolol, carvedilol, sotalol and nebivolol.

Beta-blockers prevent your heart from beating too quickly and reduce the workload for your heart. Beta-blockers are very effective in preventing angina attacks, lower the blood pressure, and reduce the risk of a further MI for people who have already had one.

You will be prescribed a low dose to begin with which will be later increased to an optimal dose.

Monitor blood pressure and heart rate.

The main side effects are:

- Tiredness
- Cold hands and feet
- Skin rashes
- Erectile Dysfunction

ACE Inhibitors

Examples: ramipril, lisinopril, perindopril, captopril and enalapril.

ACE inhibitors are used after a heart attack to strengthen the heart muscle and allow the heart to pump more efficiently.

ACE inhibitors are started at a low dose to reduce side effects and should be increased until your blood pressure is within 'target', or optimised.

Monitoring: Blood test to check kidney function seven to 10 days after each dose change and at least annually thereafter and blood pressure.

The main side effects are:

- Dizziness and lightheaded – see your GP if this happens as it could be a sign of low BP
- Skin rash
- Dry cough – lasting for longer than two weeks, often at night

Sick day rule – if you experience diarrhoea, vomiting, fever or sweats please stop taking your ACE inhibitor and do not restart until the illness has resolved and inform your GP.

Angiotensin Receptor Blockers (ARBs)

Examples: candesartan, losartan, irbesartan and valsartan.

These act in a similar way to the ACE inhibitors, as outlined above, and are used as an alternative to ACE inhibitors, for example, due to side effects. They are less likely to cause the side effect of dry cough so are useful in these patients.

Monitoring: Blood test to check kidney function seven to 10 days after each dose change and at least annually thereafter and blood pressure.

The main side effects are:

- Dizziness and lightheaded – see your GP if this happens as it could be a sign of low BP

Sick day rule – if you experience diarrhoea, vomiting, fever or sweats please stop taking your ARB and do not restart until the illness has resolved and inform your GP.

Statins

Examples: atorvastatin, simvastatin, pravastatin, and rosuvastatin.

Statins work on the liver to reduce your cholesterol and the aim is to reduce the non-HDL cholesterol by more than 40%.

Monitoring: Blood test to check your cholesterol and liver function two to three months after starting your statin. These are checked again after 12 months.

The main side effects are:

- Muscle weakness or pain – if this happens, inform your GP.

You are advised to avoid grapefruit juice as this can increase your risk of side effects.

Other cholesterol lowering drugs

Examples: ezetimibe

Ezetimibe is sometimes used in patients who cannot tolerate statins or in combination with a statin as it works differently by not working directly on the liver. It works by reducing bad cholesterol (LDL) and fatty substances called triglycerides. It also increases good cholesterol (HDL).

Monitoring: Blood test to check your cholesterol.

The main side effects are:

- Diarrhoea, abdominal pain, or flatulence.
- Muscle weakness or pain – if this happens, inform your GP.

Aldosterone antagonists

Examples: eplerenone and spironolactone

Aldosterone antagonists are prescribed for some patients following an MI to improve heart muscle function and slow the progression of heart disease. They are also a type of diuretic (water tablet) and can help remove fluid around the heart.

Monitoring: Blood test to check kidney function seven to 10 days after each dose change and at least annually thereafter and blood pressure.

The main side effects are:

- Spironolactone can cause enlarged breasts in men (gynaecomastia) and breast tenderness and increased hair growth in women.
- Eplerenone can cause sleeping difficulties, dizziness and headaches.

Sick day rule – if you experience diarrhoea, vomiting, fever or sweats please stop taking your Aldosterone antagonist and do not restart until the illness has resolved and inform your GP.

Sodium-glucose co-transporter-2 inhibitors (SGLT2 inhibitors)

Examples: dapagliflozin and empagliflozin

SGLT2 inhibitors has been used to treat diabetes. It has also been shown to be effective in certain types of heart failure where the left main pumping chamber was found to be weak, irrespective of whether you have diabetes.

Monitoring: Blood test to check kidney function seven to 10 days after initiation and at three months, annually thereafter and blood pressure.

The main side effects are:

- Urine infections -
As this tablet causes more sugar to be passed in your urine, there is a higher risk of getting urine infections

Emotions and how you feel

Anxiety following your MI.

Anxiety or 'worry' is the third most common risk factor for cardiovascular disease after high cholesterol and smoking. It is most often an 'unwanted' emotion and is fear of something that may happen in the future.

Following an MI, it is normal to feel a mixture of different emotions, or feel 'emotional'. Some people describe feeling down in the dumps, tearful, worried, or anxious 'on and off'. These feelings are very normal following an MI. Sometimes if you feel anxious, it can be difficult to discuss.

Your Cardiac Prevention and Rehabilitation Nurse is trained to discuss how you are feeling. It is important to recognise anxiety that you may be feeling in hospital following your event. It is also important to try to talk to your family and carers about your emotions. You are encouraged to talk to your Cardiac Prevention and Rehabilitation Nurse or doctor if you are feeling low in mood. This is usually only temporary and should not continue following recovery unless you are going through other 'stressful' events.

Your Heart and Relationships

Resuming Relationships and sexual Activity

Resuming relationships can be an important factor during your recovery. You or your partner may feel anxious about resuming sexual activity - this is a common worry for many couples, especially partners of people who have had the heart event. As a guide for most people, full sexual activity can be resumed between two to four weeks following a heart attack and you are advised to build up gradually as you would for other physical activities.



Sex should be resumed when you feel ready and can begin at first by resuming closeness, with kisses and cuddles. After two weeks, your physical activity will have gradually increased and partners could be encouraged to engage in the most physical part of sexual intercourse. Remember, different people will feel ready to resume sexual relations at different times.

Over the weeks, your physical ability should increase. Some men may experience erection problems that can be due to certain cardiac medication such as beta blockers. Women may experience loss of libido. Please try not to feel embarrassed or ashamed. If this occurs, you are advised to talk to your GP. If you have any concerns relating to resuming sexual activity, your Cardiac Prevention and Rehabilitation Nurse, doctor or GP should be available for advice.

General Guidance:

- Sex has an effect on increasing your heart rate (workload of the heart) and requires as much energy as climbing two flights of stairs or a brisk walk. When you have increased your exercise levels during your recovery, you should be able to engage in full sexual intercourse. This will take approximately three to four weeks depending on your recovery.
- Work towards intercourse gradually; spend more time caressing, kissing, hugging, and foreplay in order to allow a gradual increase in your heart rate prior to intercourse. Try not to aim for intercourse and orgasm straight away, take time to build up to previous levels of sexual activity. Extra marital relationships and relationships with new partners can be more stressful to your heart.
- You may find that you enjoy a less energetic position, perhaps lying side by side.
- Try to avoid sex after large/heavy meals as blood is diverted to the stomach after meals.

- If you do experience chest pain or shortness of breath, stop and take your GTN spray (see page 8 for GTN advice).
- You should not take GTN if you are taking drugs for erectile dysfunction such as Viagra as the combination can cause a sudden drop in blood pressure. Please discuss this with your doctor or Cardiac Prevention and Rehabilitation Nurse.

It is important to remember that your aim should be to re-establish your own previous level of sexual activity in a time frame that suits you and your partner.

Erectile dysfunction (Impotence)

Erectile dysfunction or impotence is the persistent or recurrent inability to have or maintain an erection. Medical conditions such as Heart Disease and Diabetes can contribute. Other causes of this can be related to side effects from prescribed medication such as beta-blockers as can lifestyle, for example, stress, smoking and high levels of alcohol. How you feel may be a cause, this is known as 'psychological' and includes anxiety, depression or marital conflict.

Erectile dysfunction is a very common problem and affects at least one in 10 men. If you need to discuss these issues in confidence please speak to your GP or Cardiac Prevention and Rehabilitation Nurse for further advice. Please be aware that there have been major advances in the treatment of erectile dysfunction.

Loss of Libido

Libido is the term used to describe your 'sex drive', or the frequency a person may wish to engage in sexual activity. Following a heart event such as an MI or major illness, your libido levels or desire for sex may be reduced. This can affect both men and women and can be related to some cardiac drugs such as beta-blockers or psychological reasons such as anxiety and depression. Please do seek advice from your doctor or Cardiac Prevention and Rehabilitation Nurse if you have any concerns relating to loss of libido.

What Factors Increase the Risk of Coronary Artery Disease, Myocardial Infarction and Angina?

Some people have a higher risk of developing coronary artery disease (CAD) than others. There is not always a single cause, but it is known that some factors will put you more at risk. Evidence shows that the following risk factors are related to developing coronary artery disease.

Please look at the following tick which ones apply to you:

- High blood fats (cholesterol) particularly familial high cholesterol
- Tobacco use, cigarettes, cigars, pipe or roll-ups
- Anxiety and Stress
- Depression
- Overweight
- Diabetes
- High blood pressure (Hypertension)
- Diet high in processed foods, salt and saturated fats
- Heart disease or stroke in your family
- Lack of regular exercise and sedentary lifestyle
- High alcohol intake
(Both men and women should not drink more than 14 units per week)

Most risk factors are related to behaviour. Therefore there may be quite a significant amount that you can do to lower your risk.

High cholesterol

Cholesterol is an essential type of natural fat made in the liver. Cholesterol circulates in your blood and is needed by your body for cell development. In almost all people in the UK today there is a higher level of cholesterol than is needed by the body. High cholesterol can also be inherited and as many as one in 250 people may have a genetic disorder that results in very high cholesterol levels. This condition is known as Familial Hypercholesterolaemia (FH). FH is suspected when your total cholesterol level is greater than 7.5mmols/L and there is a personal or family history of early coronary heart disease. If your cardiologist thinks you could have FH, you may be referred for genetic testing.



Higher cholesterol levels increase the risk of developing CAD and heart attacks and this risk is particularly high in those with undiagnosed and untreated FH. Evidence shows that after a heart attack, the lower the cholesterol the less likely you will be to have another heart attack. Your cholesterol will usually be treated using medication called statins. Different types of cholesterol will be measured while you are in hospital, including total cholesterol (TC), high density lipoprotein cholesterol (HDL-C) and non-high density lipoprotein cholesterol (non-HDL-C). The aim, after three months of statin treatment, is to lower your level of non-high density lipoprotein cholesterol (non-HDL-C) by almost half.

You should have your blood tested for cholesterol levels at two to three months post discharge following your MI.

Making changes to your diet to reduce the amount of saturated animal fat you eat can help to lower your cholesterol by as much as 10 to 12% and drug treatment will also be strongly recommended.

Non-HDL-C – The sum of your bad cholesterol

TC – Total Cholesterol

HDL – Good Cholesterol

LDL – Bad Cholesterol

Trig – Triglycerides

See our information video on Cholesterol on the Trust website – www.yorkhospitals.nhs.uk and search for cardiac rehabilitation.

Smoking

If you smoke, it is essential to stop as soon as possible. We acknowledge that it can be difficult but we are here to support you. Continuing to smoke doubles your risk of having another heart attack within one year and is the second most common single risk factor after cholesterol. Please ask your ward nurse or Cardiac Prevention and Rehabilitation Team for advice if you wish to stop smoking.



You will be offered support, advice and offered nicotine replacement therapy whilst you are in hospital and when you go home.

If you live in a house where you breathe in 'second hand' smoke (from people who smoke), your risk is as great as a smoker.

See our information video on Smoking on the Trust website – www.yorkhospitals.nhs.uk and search for cardiac rehabilitation

Stress and Anxiety

There is a relationship between undetected anxiety and the development of depression.

Stress can mean different things to different people. Uncontrolled, long-term negative stress has been identified as one of the risk factors for coronary artery disease. Stress can increase your blood pressure, blood 'stickiness', heart rate, cholesterol and can lead to high levels of anxiety. Learning to relax may help to reduce your stress.

If you feel that stress is preventing you from recovering from your heart attack, please discuss this with the Cardiac Prevention and Rehabilitation Team.

See our information video on Stress and Relaxation on the Trust website – www.yorkhospitals.nhs.uk and search for cardiac rehabilitation.

Healthy Eating

The Cardio Protective Diet also known as Healthy Heart Diet

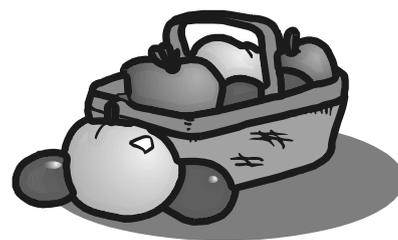
Following a cardio-protective diet can help to reduce the risk of developing or further progressing heart disease and can help towards maintaining a healthy weight. Your usual family routine can easily be adapted to include heart healthy changes. You and your family can promote a heart healthy lifestyle by including the following:

i) Wholegrains

A diet that contains limited amounts of processed foods is associated with the lowest cardiovascular risk. Reducing the amount of refined carbohydrates, such as white bread, and processed cereals is an important part of a healthy heart diet. Try to base your meals on starchy foods (bread, potatoes, cereals, rice, and pasta) and aim to include more wholegrain varieties of these foods as part of a healthy heart eating pattern e.g. brown rice, wholemeal pasta and bread or wholegrain breakfast cereals.

ii) A total of five portions of fruit and vegetables per day

Try to include at least five portions of different fruits and vegetables every day. Tinned, frozen or dried fruit or vegetables also count. A portion is 80g in weight or 30g of dried fruit. One portion of fruit is equal to a medium sized apple, orange or banana. One 150ml glass of pure fruit juice counts as one portion of fruit per day (it is not recommended to exceed 150mls due to high sugar content). A small bowl of salad or three tablespoons of vegetables count as one portion.



iii) Fat

Try to reduce the total amount of fat in your diet, but especially saturated and trans fats. Saturated fats are found in meat and animal products (e.g. burgers, sausages), butter, cheese, cakes, biscuits, chocolate, pastries and also coconut oil. Using lower fat spreads, as opposed to butter is a good way to reduce your saturated fat intake and using olive oil or rapeseed oil in cooking. Semi-skimmed or skimmed milk is recommended rather than full-fat milk. Foods should be grilled, steamed, or poached wherever possible with the visible fat on meat removed.

iv) Salt

If you suffer from raised blood pressure, a reduction in salt in your diet may help to lower it and may therefore reduce one of your risks for coronary artery disease. It is recommended to cut your salt intake to a maximum of 6g/day (approximately one teaspoon). You can do this by not adding salt to cooking or at the table. 75% of the salt we eat is already in everyday foods such as bread, breakfast cereals and readymade meals therefore it is useful to use food labels to choose lower salt varieties of packaged foods.

v) Fish and other lean proteins

As meat can be high in saturated fat, choosing lean alternatives such as fish and vegetarian sources of protein helps to promote heart health. It is recommended to include two 140g portions of fish per week, one of which should be oily. Oily fish includes tinned, fresh or frozen varieties of sardines, mackerel, kippers, salmon, herring, trout and pilchards. Vegetarian sources of protein include beans, pulses, and lentils. These foods are high in fibre, vitamins, and minerals and low in saturated fat. A portion of these would be considered as one of your daily portions of vegetables.

vi) Nuts, Seeds and Legumes

Regularly including nuts, seeds, and legumes (beans, peas, and lentils) in your diet is associated with lower total cholesterol and lower LDL (bad) cholesterol in the blood. Choose nuts and seeds that are raw and unsalted, and avoid those that are roasted or covered in salt or sugar. Nuts and seeds are low in saturated fat, but high in unsaturated fats and calories so stick to a 30g portion. Nuts and seeds can count as one of your portions of protein, a 30g portion added to stir-fries or in a nut loaf can be included in a heart healthy diet. Aim to have three to four portions per week.

vii) Avoid sugar sweetened drinks

Soft and fizzy drinks can be very high in sugar and contain few nutrients. Drinking them every day can result in a high intake of sugar, which has been linked to an increased risk of heart disease. Squash and cordials can contain up to five teaspoons of sugar in one glass of diluted drink. Lemonade and cola can have up to eight teaspoons of sugar per 330ml can. Try introducing low sugar and sugar free drinks for your whole family. Reducing our sugar intake can also help to maintain a healthy weight.

viii) Alcohol

Too much alcohol can damage the heart muscle, increase blood pressure, and lead to an increase in weight and cholesterol. Both men and women should avoid drinking more than 14 units a week.

What is a unit of alcohol?

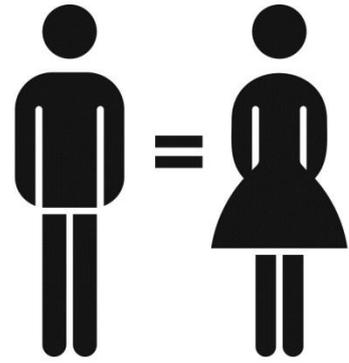
Units are measurements of expressing the quantity of pure alcohol in a drink. One unit is equal to 10mls or 8g of pure alcohol. It is best to spread this evenly over three days or more. Try to have several alcohol free days per week.

One unit of alcohol = single pub measure (25mls) spirits (ABV 40%),
One half pint (about 300ml) of normal strength lager, cider or beer (3.5% ABV),
One small glass (100mls) of wine (10% ABV),
One glass (50mls) of liquor, sherry, or other fortified wine (ABV 20%).



New Government Alcohol Guidelines for Men and Women

You should not regularly drink more than **14 units a week**



This means you **should not drink more than this amount of wine...**

175ml
glasses of
13% wine



...or this amount of lager or ale

568ml
pints of 4%
lager or ale



...or this amount of cider

568ml
pints of
4.5% cider



...or this amount of spirits

25ml
glasses of
40% spirits



If you are taking warfarin tablets, you should not drink more than one unit of alcohol a day. This is because alcohol and warfarin can thin the blood too much when taken together.

High blood pressure (Hypertension)

Blood pressure is the pressure of your blood in your arteries; these are the blood vessels that take blood away from your heart to the rest of your body. High blood pressure develops if the walls of the larger arteries lose their natural elasticity and become rigid, and the smaller arteries or blood vessels become narrow or constricted.

A blood pressure recording gives two numbers. The first number is called the **systolic pressure**, this is the pressure within the arteries when the heart contracts and pushes blood around the body. The **diastolic pressure** is the lower number, and relates to the pressure that occurs when your heart is in the resting phase.

Your recommended blood pressure following an MI or if you have Heart Disease or Diabetes is ideally 140 systolic and 90 mmHg diastolic or below. Usually you may be taking one or more medicines that will control your blood pressure, such as beta-blockers, ACE inhibitors, calcium channel blockers or diuretics (water tablets) that also reduce the risk of damage to your arteries. Sometimes the dose of your medication will be changed to achieve optimum blood pressure control.

What can cause high blood pressure?

- Smoking
- Anxiety
- Excess salt in the diet
- Excess alcohol
- Long-term stress
- Lack of exercise and sedentary lifestyle
- Unhealthy diet and being overweight

To help maintain a healthy body weight please read through the Healthy Eating and Exercise sections of this book.

See our information video on blood pressure on the Trust website – www.yorkhospitals.nhs.uk and search for cardiac rehabilitation

Exercise and your Heart

There are two ways you can easily help to improve your future health;

1. Spending less time sedentary and become more physically active throughout the day as well as
2. Exercising regularly during the week.

Physical activity means any body movement that uses the muscles and requires a noticeable increase in energy, for example, walking, gardening and housework.



Exercise is also a form of physical activity but it is structured, sustained and targeted at improving physical fitness. You cannot store fitness, and therefore you are recommended to take part in regular physical exercise when you have made a full recovery ideally, for a total of 150 minutes per week. For example, five episodes x 30 minutes duration plus a couple of resistance activities to improve your upper and lower limb muscles. A 30 minute exercise session can be made up of two x 15 minutes or three x 10 minute sessions plus warm up and cool down if it is easier to fit into your day.

Regular physical exercise:

- Reduces the risk of a further cardiovascular events
- Improves circulation
- Improves stamina
- Can help to lower cholesterol and blood pressure
- Can help to control a healthy weight
- Helps to maintain efficiency of the heart muscle and
- Promotes the feel good factor and reduces stress



Evidence suggests that the risk of future coronary artery disease decreases for people who are regularly active and exercise at moderate intensity. Ask your Cardiac Prevention and Rehabilitation Team about this.

As a guide, you will need to build up to 30 minutes over a four to six week period. Choose activities that you enjoy doing and that you can achieve. During exercise, it is normal to feel warm and to breathe harder. You should be able to talk at least in broken sentences during exercise. This is called the walk and talk test. You should never exercise through angina symptoms such as chest pain/discomfort or if you become unduly short of breath.

Helpful hints for exercise

- ❖ Always warm up before exercise and cool down afterwards
- ❖ Do not exercise if you are unwell, for example have a cold or flu, if you have a temperature, a temporary infection or angina
- ❖ Hydrate regularly throughout exercise by sipping water
- ❖ Avoid exercising in extremes of heat or cold, and be aware of very strong windy weather when walking
- ❖ Try to avoid swimming in very hot/cold water, i.e. extremes of temperature

See our information video on exercise on the Trust website – www.yorkhospitals.nhs.uk and search for cardiac rehabilitation

Holidays

You should be safe to go on a holiday following your recovery period and when you are able to cope with the travelling involved. It is advisable to check with your doctor before you go home if you have any holidays planned soon after discharge.

Useful guidelines:

- Try to plan your journey and allow plenty of time to avoid rushing
- Make sure that you take enough medication with you, even if you are travelling in the United Kingdom – take your paper prescription with you or hospital discharge letter
- Use luggage trolleys/ask for help carrying luggage
- Buy full cover travel insurance when you are travelling abroad and ensure you have your travel documents with you
- Always declare on insurance forms all your medical conditions
- Protect your skin in the sun by using high factor sunscreen and avoid direct sun exposure for longer than 30 minutes at a time
- Avoid extreme hot or cold temperatures – drink plenty of water to stay hydrated

Air Travel – Flying

Most people with heart disease can travel safely by air without risking their health. It is advisable to get expert individual advice, usually from your Hospital consultant Cardiologist especially if you are wishing to travel soon after your cardiac event.

- Walk up and down the aisles in the airplane every hour or when it is safe to do so, especially during long-haul flights
- Do some simple exercises in your seat, like stretching your legs and circling your ankles
- Keep hydrated – drink plenty of water
- Avoid drinking alcohol and caffeine during the flight.

For advice regarding flying with a heart condition you can contact the following organisations:

British Heart Foundation
www.bhf.org.uk

Civil Aviation Authority
www.caa.co.uk
Guidance on fitness to fly, required vaccines

Holiday Leisure Activities

Start at a low level and gradually increase. Try to avoid being competitive – just enjoy the activity. Please be aware that for most holiday insurance policies, you will need to declare any water/dangerous sports.

Suitable activities: Walking
 Cycling
 Swimming
 Golf
 Tennis
 Badminton
 Dancing

Avoid: Heavy Weight training
 Squash
 Aggressive/competitive sports
 Contact sports if you have an AICD/Pacemaker
 Rock climbing

Please discuss any concerns regarding physical activity/sports with your Cardiac Rehabilitation Physiotherapist/Nurse.

Hospital Appointments

Your consultant will decide whether you need an outpatient appointment following your discharge. If you do, this may be face to face or by telephone. At this appointment your treatment, medications and blood results will be reviewed. If you are asked to have blood tests prior to this appointment please make sure you have these about one week prior your appointment.

Blood Tests

You will need blood tests that will be organised by your GP to check:

- **Your cholesterol level and liver function should be checked three months** following discharge home. You will be given a blood form to request your repeat cholesterol test and it is essential that it is completed before your follow up appointment so they can be checked prior to your consultation. Your cholesterol level should ideally be as low as possible with the aim of a greater than 40% reduction in the non-HDL cholesterol. Your cholesterol would normally be checked again by your GP at 12 months.
- **Kidney function and electrolytes:** If you have been started on ACE inhibitors, ARB drugs, or aldosterone inhibitors, or had the doses of these drugs increased in hospital you will need to have a blood test for checking kidney function and electrolytes after discharge from hospital. This should usually be done at your GP surgery or by the practice nurse at seven to ten days after discharge. Once your drug doses are optimised, your kidney function and electrolyte blood test should be repeated at least once each year by your GP.

Going Home

Before you go home, you will be invited to ask any questions about any worries you may have. If you have questions when you get home, rather than feeling anxious, please telephone the Cardiac Prevention and Rehabilitation helpline for advice on **01904 725821**.

Do not call this number if you are unwell or have ongoing angina symptoms that will need medical assessment.

There should be someone to take your calls between 8am and 4pm, Monday to Friday and we are not available on weekends or public holidays. There is an answer phone facility for those times when we are unable to answer the phone, please leave a message and we will answer your question as soon as possible. It is important to leave your name and telephone number.

Please remember that the Cardiac Rehabilitation Helpline is not manned all the time and should not be used for medical emergencies.

If you are unwell, please decide whether to contact your doctor for non-urgent problems or phone 999 for an ambulance to bring you to hospital.

Please ask your Cardiac Prevention and Rehabilitation Nurse if you would like any further information or booklets regarding any of the topics covered in this leaflet.

York Coronary Support Group Trust

The York Coronary Support Group Trust is a registered charity, and is a non-professional support group. The members are people who have all had heart events. They are valuable people to talk to if you need to talk to someone other than hospital staff about general or heart related topics.

Please ask your Cardiac Prevention and Rehabilitation Specialist Nurse if you would like further information or leaflets regarding how to join or contact the support group.

Useful Contacts

Cardiac Prevention and Rehabilitation Team, York and Scarborough Teaching Hospitals NHS Foundation Trust - www.yorkhospitals.nhs.uk – search for cardiac rehab

Cardiac Rehabilitation Help Line and answer phone available between 08.00 to 16.00 on telephone number: 01904 725821

Email – yhs-tr.crehab@nhs.net – emails are screened every weekday.

York Coronary Support Group Trust (YCSGT)

Our local charitable non-professional group offers social events and long-term exercise classes including swimming following your recovery

Website: www.ycsgt.org.uk

British Heart Foundation – useful resources and information

Heart helpline – 0300 330 3311 – Mon to Fri 09.00 to 17.00 and Sat 10.00 to 16.00

General enquiries – 0300 330 3322

Website: www.bhf.org.uk

H.E.A.R.T. UK Hyperlipidaemia Education and Research Trust

Specialises in information regarding Cholesterol and familial high cholesterol.

General email – hello@heartuk.org.uk

Cholesterol helpline – 0345 450 5988

Email – ask@heartuk.org.uk

Website: www.heartuk.org.uk

Driving Vehicle Licensing Agency (DVLA)

Telephone number: 0870 600 0301

Website: www.dvla.gov.uk

Acknowledgements

Alcohol guidelines on page 29 adapted from an infographic published by Drinkaware. Used with kind permission from The Drinkaware Trust.

Owner: Cardiac Prevention and Rehabilitation Team – York and Scarborough Teaching Hospitals NHS Foundation Trust.

With contributions from: Cardiac Prevention and Rehabilitation; Dr Simon Megarry, Consultant Cardiologist; Specialist Physiotherapist Nicola Cockerill; Stephanie Tay, Senior Pharmacist; Fiona Maccallion, Dietitian; Claire Tuson, FH specialist nurse and literature from the British Heart Foundation.

Tell us what you think of this leaflet

We hope that you found this leaflet helpful. If you would like to tell us what you think, please contact: The Cardiac Prevention and Rehabilitation Team at York Hospital, Wigginton Road, York, YO31 8HE, telephone 01904 725821 or email us at yhs-tr.crehab@nhs.net.

Teaching, Training and Research

Our Trust is committed to teaching, training and research to support the development of health and healthcare in our community. Healthcare students may observe consultations for this purpose. You can opt out if you do not want students to observe. We may also ask you if you would like to be involved in our research.

Patient Advice and Liaison Service (PALS)

PALS offers impartial advice and assistance to patients, their relatives, friends and carers. We can listen to feedback (positive or negative), answer questions and help resolve any concerns about Trust services.

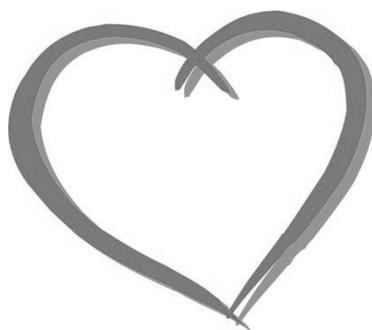
PALS can be contacted on 01904 726262, or email yhs-tr.patientexperienceteam@nhs.net

An answer phone is available out of hours.

Leaflets in alternative languages or formats

If you would like this information in a different format, including braille or easy read, or translated into a different language, please speak to a member of staff in the ward or department providing your care.

Patient Information Leaflets can be accessed via the Trust's Patient Information Leaflet website: www.yorkhospitals.nhs.uk/your-visit/patient-information-leaflets/



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