York and Scarborough Teaching Hospitals
NHS Foundation Trust

You and Your Heart

Information following a Type 2 Myocardial Infarction (MI) / Heart Attack

Cardiac Prevention and Rehabilitation Team

ⓘ For more information, please see page 5

Contents **Page**

Introduction

This booklet has been written by the Cardiac Prevention and Rehabilitation Team at York and Scarborough Teaching Hospital NHS Foundation Trust. We are a small team comprising of specialist nurses (based in the hospital and 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
- to encourage you to make lifestyle changes which will improve your long term well-being and reduce the risks of a further cardiac event.

Cardiac rehabilitation is an intervention recommended by the National Institute for Health and Care Excellence (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 us anything about your heart attack; we are here to help and support you. You can contact the Cardiac Prevention and Rehabilitation team:

- Telephone our Non-urgent helpline 01904 725821 – 8am to 4pm 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 weekday.
- Visit our website yorkhospitals.nhs.uk for more information and to view our educational videos. Search in →Our services →A-Z of services →Cardiac rehabilitation or scan the QR code below.

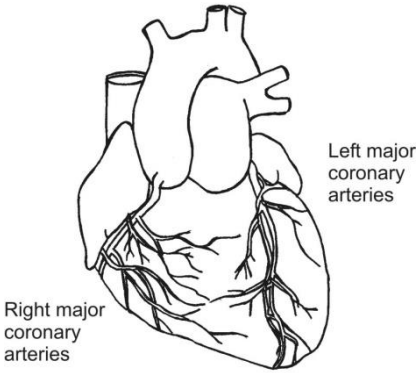
Please remember that the cardiac rehabilitation helpline is not staffed all the time and should not be used for medical emergencies. If you are unwell, please decide whether to contact your doctor for non-urgent problems or phone 111/999 for an assessment to see if you need an ambulance to bring you to hospital.

Anatomy of 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.

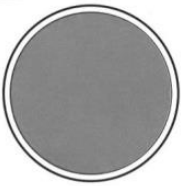
Coronary arteries

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.

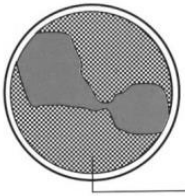


What is coronary artery disease?

Coronary artery disease occurs when the coronary arteries become narrowed. Narrowing may be caused by fatty substances for example cholesterol, which builds up along the walls of the arteries. These fatty deposits or atheromatous plaques 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?

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). Tiny blood cells that help your body form clots to stop bleeding (Platelets) are already circulating in your blood, and they stick together on this ruptured area to form a clot. This artery supplying oxygenated blood to part of your heart muscle becomes blocked due to the clot and cannot supply the muscle with oxygenated blood, so the muscle cells die.

Type 2 Myocardial Infarction (MI)

The term type 2 MI is used when the amount of oxygen reaching the heart muscle is reduced due to something other than a ruptured fatty deposit/blood clot.

The main cardiac causes of type 2 MI are:

1. Coronary Artery Spasm

The coronary arteries, like all arteries, have a muscular layer. This muscular layer can sometimes constrict or tighten causing a narrowing in the artery. This reduces the blood supply temporarily to the heart muscle. This can happen without clear cause or sometimes during or after very stressful events.

2. Arrhythmia

An arrhythmia is an abnormal heart rhythm. Your heart is controlled by a conduction system, this sends out electrical impulses which cause the heart to beat. Arrhythmias are caused by a problem in this conduction system which can make your heart beat too slowly, too quickly, or in an irregular way. This can result in a reduction in the blood flow to the coronary arteries. There are different types of arrhythmia, the most common are:

- Atrial fibrillation is the most common irregular, often fast heart rhythm.
- Supraventricular tachycardia (SVT) is a very fast heart rhythm. Most SVTs are due to one or more extra electrical pathways between the atria and the ventricles.
- Atrial flutter is usually a fast heart rhythm where the atria contract at a very fast rate compared to the ventricles. This can cause the atria to beat extremely fast, sometimes up to 300 beats per minute (bpm).
- Tachybrady syndrome (sick sinus syndrome) causes periods of very fast or slow heart beats.
- Heart blocks are caused by a delay or blockage in the conduction system between the top and bottom chambers of the heart which can cause a slow heart rate.

3. Valvular Disease

The heart has valves between the chambers to prevent the blood flowing the wrong way through the heart. If one or more of your heart valves becomes damaged or diseased, it can affect the flow of blood through your heart and the heart arteries. If this causes you problems, it may need treatment with medicines or surgery.

4. Acute Heart Failure

Heart failure is the term used to describe a collection of symptoms caused by the heart being unable to fill or empty effectively. When you have heart failure there is a build-up of fluid in the body and the lungs. If this happens very quickly extra strain is put on the heart which can cause a heart attack.

5. Stress (Takotsubo)

Cardiomyopathy causes the left ventricle of your heart to change shape weakens the heart muscle meaning it doesn't pump blood as well as it should. The word ‘Takotsubo’ originates from the name for a Japanese octopus trap, as the left ventricle of the heart changes into a similar shape as the trap - developing a narrow neck and a round bottom. It can develop at any age, but typically affects more women than men. It is also called acute stress-induced cardiomyopathy, Takotsubo syndrome, apical ballooning syndrome or just Takotsubo for short.

6. Spontaneous Coronary Artery Dissection (SCAD)

Coronary arteries are made up of three layers.
SCAD happens when one or more of the inner layers of a coronary artery tears away from the outer layer. Blood is able to flow into the space between the layers and a blood clot forms, reducing the flow of blood through the artery. This can lead to a heart attack, as the blood supply to your heart has been blocked. SCAD is a rare heart condition that occurs suddenly with no apparent warning. It is most common in women under the age of 50. The condition can't currently be predicted or prevented.

7. Hypertrophic Cardiomyopathy

Hypertrophic cardiomyopathy (HCM) is an inherited disease of your heart muscle, where the muscle wall of your heart becomes thickened. If you have HCM, the muscular wall of your heart, the myocardium, becomes thickened which can make the heart muscle stiff. This can make it harder for your heart to pump blood out of your heart and around your body. How thick your heart muscle is and how much of your muscle is affected depends on the person. The left ventricle (the heart's main pumping chamber) is almost always affected. The septum (the muscle wall between the left and right sides of the heart) can also be affected.

8. **MI with Non Obstructed Coronary Arteries (MINOCA)**

There is evidence of the cardiac enzyme Troponin, which is released when the heart muscle is damaged – but on the angiography there is no evidence of obstructed coronary arteries. There is usually no clear evidence of any of the processes listed already.

Non cardiac causes of type 2 MI are:

1. **Non cardiac surgery**

The physical stress of surgery can cause a reduction in the blood flow in the coronary arteries.

2. **Hyper/ Hypotension (high/low blood pressure)**

If your blood pressure becomes abnormally high or abnormally low, this can cause damage to your heart or other vital organs.

3. **Sepsis or severe infection**

Severe infection can put extra strain on your heart and may cause damage to your heart and other vital organs.

4. **Anaemia**

This can be due to bleeding, iron deficiency or other causes. If severe this can reduce the oxygen carrying capacity of the blood. It can sometimes therefore result in an MI.

5. Shock

Loss of blood or body fluids may prevent your heart from pumping enough blood through your coronary arteries and to other vital organs.

Treatment of Type 2 MI

Treatment will vary depending on the cause of your MI. Your consultant should discuss your treatment with you. Your consultant cardiologist may advise that you have further investigations for your diagnosis and may include a heart scan or angiogram. The ward nurse or cardiac prevention and rehabilitation specialist nurse will give you any relevant written information regarding your specific Type 2 MI.

Medications

Depending on the cause of your Type 2 MI, your cardiologist may decide that regular medication is advised. The pharmacist or ward nurse will discuss your medicines with you before you go home. If you have any questions about your medications these can be answered by the cardiac prevention and rehabilitation nurse specialist after discharge.

Cardiac prevention and rehabilitation follow up

Since the onset of coronavirus the way that we offer cardiac rehabilitation has changed significantly and what we can offer will continue to change. Your Cardiac Prevention and Rehabilitation team will discuss with you what is most appropriate for you. We can consult with you at home by telephone, see you in a clinic, offer you advice by video consultation as well as by email and virtual education. There are also booklets and other information regarding topics covered in this leaflet which we can supply.

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.

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.

Recovery at home

It can take between three and six weeks to recover from a heart attack. How long it takes to recover may depend on your state of health before the event. You will usually be offered cardiac rehabilitation follow up after discharge from hospital.
If you have questions when you get home, rather than feeling anxious, please telephone the Cardiac Prevention and Rehabilitation Non-urgent helpline for advice on 01904 725821 or email yhs-tr.crehab@nhs.net.

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 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 and 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.

Activities you are advised to avoid for first six weeks

- 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.

Resuming Relationships and sexual Activity

Resuming relationships can be an important factor during your recovery. 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.

Driving

Following a Type 2 heart attack there is a Driver Vehicle Licensing Agency (DVLA) driving restriction of four weeks. You must tell your car insurance company that you have had a type 2 heart attack before you resume driving.

If you hold a group 2 driving licence (Long vehicle or Public Service licence) you must not drive under this licence until you are re tested and deemed fit to do so. You are required to inform DVLA that you have had a type 2 MI. Re-testing is organised through the DVLA and your consultant.

Healthy heart tips

There are some recommended lifestyle tips to help to keep your heart healthy and reduce the risk of coronary artery disease (CAD).

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. Higher cholesterol levels increase the risk of developing CAD and heart attacks. Evidence shows that after a heart attack, the lower the cholesterol the less likely you will be to have another heart attack.
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.
If you are prescribed lipid lowering medications (statins) you should continue to take these and have your cholesterol levels checked regularly (once a year).

Smoking

Smoking is the second most common cause of cardiovascular disease. The best choice you can make to keep your heart and blood vessels healthy is to stop. Your cardiac prevention and rehabilitation nurse can offer you support if you want to stop.

Healthy eating and your heart

Healthy eating for your heart is called the cardio-protective diet (also known as the Mediterranean diet). Following a cardio protective diet can help reduce the risk of developing cardiovascular disease.
The following food groups should be included in your diet:

- **Starchy foods**

Base your meals on wholegrain or higher fibre versions of cereal, bread, rice and pasta. Have less processed foods and refined carbohydrates.

- **Five a day**

Try to include at least five portions of fruit and vegetables every day. A portion size is equal to a medium size apple, orange or banana, a small bowl of salad or two tablespoons of vegetables. If you are taking a statin to lower your cholesterol you should avoid grapefruit/grapefruit juice.

- **Fat**

Try to reduce the total amount of fat in your diet especially animal or saturated fats. These should be replaced with small amounts of unsaturated fats such as vegetable olive or rapeseed oil. Semi-skimmed milk is recommended rather than full-fat milk. Food should be grilled wherever possible and visible fat on meat removed. Reduce intake of biscuits, cakes, crisps.

- **Salt**

Try to reduce salt in your diet especially if you have high blood pressure. Salt substitutes are not recommended.

- **Fish**

Fish is recommended twice a week, ideally one portion should be oily, e.g. salmon, sardines, mackerel, and pilchards and the other portion should be white fish.

- **Nuts, seeds and legumes** (beans, peas and lentils)

Try to include a small handful of nuts (raw or unsalted), seeds and legumes four to five times per week as these are associated with lower total cholesterol.

- **Sugar**

Avoid sugar sweetened drinks. Soft fizzy drinks can be high in sugar and contain few nutrients. Try replacing with low sugar drinks. A high intake of sugar has been linked to heart disease therefore reducing sugar in your diet is recommended.

- **Alcohol**

The recommended intake for alcohol is now 14 units for both males and females per week spread over at least three days. Too much alcohol can damage heart muscle, increase your cholesterol and can increase blood pressure and heart rate. If you are taking warfarin you should not exceed one unit per day.

Exercise and your heart

There are two ways you can easily help to improve your future health. Once you have recovered from your MI (between four to six weeks), you should aim for the following as when you are able:

1. Become more physically active throughout the day

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

2. Exercising regularly during the week

Choose light activities at first that you enjoy doing, and that you can achieve, such as walking. 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.

Exercise is a form of physical activity that is structured, sustained and targeted at improving physical fitness.

Regular physical exercise:

- Improves circulation
- Improves stamina

- Can help to lower cholesterol and blood pressure
- Can help to control weight gain
- Promotes the feel-good factor
- Can reduce the risk of further cardiovascular events.

Evidence suggests that the risk of future coronary artery disease decreases for people who are regularly active at or above moderate intensity. Ask your cardiac prevention and rehabilitation team about this.

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
- Avoid exercising in extremes of heat or cold, and be aware of very strong winds, as they can ‘catch’ your breath
- Try to avoid swimming in very cold water.

Useful contacts

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

[Websites accessed August 2022]

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:
Vicki Cass
Community cardiology team leader
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Cherry Street, York YO23 1AP
Or 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 pals@york.nhs.uk.

An answer phone is available out of hours.

Leaflets in alternative languages or formats

Please telephone or email if you require this information in a different language or format, for example Braille, large print or audio.

如果你要求本資 不同的 或 式提供 ，電 或發電

Jeżeli niniejsze informacje potrzebne są w innym języku lub formacie, należy zadzwonić lub wysłać wiadomość e-mail

Bu bilgileri değişik bir lisanda ya da formatta istiyorsanız lütfen telefon ediniz ya da e-posta gönderiniz

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