

# Cardiomyopathy and exercise

## Balancing benefits and concerns around exercise

- Exercise has a number of health and wellbeing benefits.
- Many people with cardiomyopathy have concerns about the risks and benefits of exercise.
- Guidelines, and discussion with your GP or cardiologist, can help you make decisions about what exercise may be suitable for you.

This factsheet aims to help you understand the benefits and risks of exercise, and the effort involved in different types of exercise. It aims to help you balance the benefits and risks of exercise *for you* so that you can make informed decisions, alongside a discussion with your GP, cardiologist or nurse specialist, about what exercise is suitable for you.

### Why exercise?

Exercise has many benefits. It can improve overall health and fitness levels, control weight and be part of a healthy lifestyle. It can also prevent and improve many health conditions such as stroke and type 2 diabetes, and help to improve mental wellbeing by reducing stress and depression.

Aerobic exercise (which relies on the heart pumping oxygen to the muscles) can be beneficial for the heart. It improves blood circulation, strengthens the heart muscle, reduces risks of heart disease (by reducing abnormally high blood pressure) and can reduce some symptoms of heart failure. It can also help to build stamina so that you can do more activity without getting out of breath. Examples of aerobic exercise include walking, jogging, cycling, swimming and low-impact aerobics. To get the most benefit, doing 30 minutes of exercise, 4 to 5 times a week is suggested.

♥ *Find out more about the benefits of exercise at [www.nhs.uk/livewell/fitness](http://www.nhs.uk/livewell/fitness)*

### Exercise for people with cardiomyopathy

If you have cardiomyopathy you may have concerns about doing exercise, such as whether it might cause breathing problems, increase arrhythmias (abnormal heart rhythms that can be dangerous) or cause ICDs (implantable cardioverter defibrillators) to give a shock. You may also have questions about how much exercise is safe, good for your heart and for your particular condition.

Guidelines on exercise vary and it is difficult to give general recommendations as it depends on the type of cardiomyopathy you have, and how it affects you. As for anyone exercising, it is important to find something you enjoy doing, listen to your body, and know your own limits.

During exercise, our bodies need more oxygen to power our muscles, and the speed and depth of our breathing increases to meet these oxygen needs. As more blood needs to get to the muscles, our heart rate increases (number of beats per minute) and the amount of blood that is pumped through the heart with each heartbeat increases (called 'stroke volume'). All of this means extra work on the heart.

In cardiomyopathy the heart can be under increased pressure to meet the normal demands to pump blood and provide oxygen to the body. During exercise these demands are increased and, for a heart that may already be struggling, it can be harder to meet these demands. This can cause symptoms such as:

- chest pain or tightness;
- dizziness or light-headedness;
- fainting;
- breathlessness;
- arrhythmias; and
- palpitations (changes in your heart rate or rhythm that you can feel).

### Exercise and breathing difficulties

How much your condition affects your ability to do physical activity is sometimes classified by the 'New York Heart Association (NYHA) classification of heart failure'. This looks at difficulty in breathing during different levels of activity for people with heart failure (where the heart is unable to meet the normal demands of the body).

- Class I (unaffected): no limitations to activities, and ordinary activity doesn't cause symptoms.
- Class II (mildly affected): some limitation in activity. Moderately strenuous activity (such as walking up several flights of stairs) causes some symptoms such as tiredness, palpitations and breathlessness.
- Class III (moderately affected): more limited activity than class II. Symptoms happen at low levels of activity (such as walking on a flat surface).
- Class IV (severely affected): very limited activity as symptoms happen with all physical activity, and the person is breathless even when resting.



## Types of exercise tests and what they do

Most people with cardiomyopathy will have exercise tests as part of their diagnosis. These tests include:

- a walking test – walking for 6 minutes to see how far they can walk;
- an exercise ECG – having an ECG (electrocardiograph or heart monitor) while exercising on a treadmill or static bicycle. Some people may have this test while having their breathing monitored (cardiopulmonary exercise test); and
- an exercise echocardiogram – doing exercise while their heart is being imaged (an 'echo').

The aims of exercise tests are to:

- assess the function of the heart and how it copes with the exertion of exercise (when it has to work harder);
- understand whether exercise brings on symptoms such as chest pain, breathlessness and dizziness;
- check whether exercise brings on arrhythmias (abnormal heart rhythms) which may be a risk for cardiac arrest (where the abnormal heartbeats cause the flow of blood out of the heart to suddenly stop);
- guide certain treatments, such as whether an ICD is recommended; and
- make recommendations about what types of exercise are appropriate for each individual in their day-to-day life, by trying different types of exercise within the safe environment of the hospital.

In addition to these tests, some people may have an MRI to check whether there are any problems with the flow of blood leaving the heart (called left ventricular outflow tract obstruction) which can be caused by some types of cardiomyopathy, and which may affect someone's ability to exercise.

## Exercise and the Borg scale

One way of deciding what amount and type of exercise is recommended is to look at the effort (or 'exertion') needed to do different types of exercise. One scale to measure this is the Borg scale.

These explanations apply to the general population and not specifically to people with cardiomyopathy.

- Green: no exertion to extremely light exertion. You can sing without getting out of breath.
- Yellow: very light to light exertion. You can't hear your breathing and you can talk easily. For example, you are walking or jogging but you can still hold a conversation.
- Orange: somewhat hard to hard exertion. You feel tired but can carry on, it is harder to talk and you start to hear your breathing while doing it.
- Red: very hard to extremely hard exertion. You are very tired and breathing is challenging.

## The Borg scale

Green	easy ▶ minimal effort
Yellow	very light ▶ light
Orange	somewhat hard ▶ hard
Red	very hard ▶ extremely hard

In the general population, the level of exercise shown to have most health benefits is within the green and yellow zones (light exercise).

Although there is very little evidence to say what the appropriate level of exertion for people with cardiomyopathy is, it is suggested that most people with the condition exercise within the green or yellow zones. Intense exercise (orange or red) is not recommended for people with cardiomyopathy because it places too much exertion on the heart.

## What is my 'resting' and 'maximum' heart rate?

The normal 'resting' heart rate (while you are resting and not being active) is 60 - 100 beats per minute.

You can find your heart rate by putting the tips of your first two fingers over the pulse point on your wrist and counting the number of beats in 10 seconds.

Multiply this number by 6 to give you beats per minute.



Your 'maximum heart rate' is the highest rate (fastest beats per minute) that your heart can cope with during physical activity. This rate depends on your age, as is calculated as: 220 minus your age. So for a 20 year old this is 200 beats per minute, and for a 60 year old it is 160.

- For people without a health condition, doing exercise that increases their heart rate up to their 'maximum heart rate' is usually safe, although up to 85% is usually more beneficial.
- For people with cardiomyopathy the 'safe' heart rate will be individual, and depends on how their condition affects them and how well their heart copes with exercise.

## What exercise is recommended?

Advice about exercise is complex. This is because every individual is different in how their condition and exercise affects them, there is little scientific research into the role of exercise in cardiomyopathy and so no definitive advice can be given, and there are legal implications of giving advice.



General recommendations for exercise for people with cardiomyopathy are:

- to participate in 'recreational' (for fun) exercise;
- to avoid moderate, intensive or competitive sports; and
- to avoid exercise that involves sudden bursts of exertion (such as weight lifting or sprinting).

International guidelines classify sports and activities by how much exertion they need, based on their 'static' (non-moving) and 'dynamic' (active) components. See table below for more information.

Suitable types of exercise include walking, jogging, easy cycling, swimming, skipping, golf, non-strenuous hiking, tennis, bowling and low-impact aerobics.

### Exercise and different types of cardiomyopathy

Intensive or competitive exercise is not recommended for anyone with cardiomyopathy.

**Arrhythmic cardiomyopathy** (or arrhythmogenic right ventricular cardiomyopathy or ARVC) – some types of exercise make this condition worse, and can increase arrhythmias and symptoms of heart failure in some people. Exercise for people with this condition needs to be considered carefully and specifically individualised, as it can be dangerous in people whose condition is unstable.

**Dilated cardiomyopathy** (DCM) – for people who are on medication, with stable symptoms and who do not have heart failure or arrhythmias, exercise can be important. It can help to improve symptoms and is not likely to affect the underlying condition. How much exercise to do depends on the person's symptoms.

**Hypertrophic cardiomyopathy** (HCM) – it is not clear whether it can increase the thickening of the heart, and in some people it can cause arrhythmias. If an arrhythmia is picked up during an exercise test during diagnosis, the person may be considered for an ICD (to control any future arrhythmias).

Some people with HCM have an obstruction in how the blood flows out of the heart (called left ventricular outflow tract obstruction or LVOTO). This obstruction might affect them all of the time, or only when they exercise (when the heart is working harder). This can cause breathlessness, chest pain and tiredness. Exercise may not be appropriate for people with HCM with obstruction.

### I have an ICD (implantable cardioverter defibrillator). Can I exercise?

Some people are concerned that a change in their heart rate due to exercise could cause their ICD to give them a shock. Generally, people with an ICD can exercise, and an ICD is no more likely to give a shock during exercise than at any other time.

ICDs should give a shock when they detect abnormal, dangerous, heart rhythms (arrhythmias). These arrhythmias are usually faster (higher heart rate) than what happens during normal exercise. An exercise test may be helpful to programme the ICD to check that it recognises the person's normal heart rate and only gives a shock at the appropriate time.

ICDs are made up of a generator (which generates the shock if it is needed), a battery (to power the device) and leads (wires that connect the ICD to the heart). For many people, after they have recovered from having it implanted, their ICD does not limit their physical movement. However, for some, over-stretching the arm and shoulder could affect the leads. This may limit their movement and affect what exercise is suitable. This is something that they can discuss with their doctor.

For some people, doing regular exercise might help to reduce the risk of arrhythmias. For anyone with an ICD, it is a good idea to warm up before, and to cool down after exercise. This helps to ensure that their heart rate increases and decreases gradually. This also reduces the risk of arrhythmias.

### Some examples of sports and activities, classified by their level of exertion

	Low dynamic	Moderate dynamic	High dynamic
Low static	bowling, cricket, golf	tennis, table tennis, volleyball	badminton, running (marathons), squash
Moderate static	diving, karate/judo, sailing	running (sprints), figure skating, lacrosse	basketball, hockey, rugby, soccer (football)
High static	rock climbing, water-skiing, windsurfing	body building, downhill skiing, snow boarding	boxing, cycling, rowing

♥ This information is adapted from the research paper 'Recommendations for competitive sports participation in athletes with cardiovascular disease' by A Pelliccia and others. See our website for a link to this paper.



## Is there a link between exercise and sudden cardiac death?

Sudden cardiac death happens when someone dies suddenly due to a cardiac – or heart-related – cause. This may happen when someone has a life-threatening arrhythmia, which can happen in some types of cardiomyopathy.

Although sudden cardiac death can happen during exercise, it is very rare. For this reason, people with a history of arrhythmias may be advised to avoid strenuous and competitive sports. In addition, having an exercise test during diagnosis helps to identify the risk of arrhythmias (and is a reason why having an ICD fitted is sometimes recommended). ICDs remove the risk of sudden death caused by arrhythmias (as they detect and correct the heart rhythm).

## What symptoms should I look out for when I exercise?

When anyone exercises their heart rate increases to supply the muscles with extra oxygen, and they may become breathless. But how do you know what effects are normal, and what to look out for?

If you have any of the following symptoms when exercising it is important to stop and seek advice from your GP or cardiologist.

- You feel chest pain or tightness.
- You feel dizzy or light-headed.
- You faint.
- You are breathless or severely short of breath.
- You have sudden palpitations (you are aware of a change in your heart rate or rhythm).
- It takes longer for you to recover from exercise than you think is normal.
- You are worried or anxious about how exercise might be affecting you.
- If any of the symptoms you normally experience become worse when you exercise.

## Everyone is different. You can talk to your doctor if you have any symptoms that are worrying you.

Some people feel more comfortable exercising when there is someone else around, in case they need assistance.

## What is cardiac rehabilitation and can it help me?

Cardiac rehabilitation is a programme of information and exercise, alongside looking at risk factors which may affect your health and wellbeing. It is often offered to people who have had a heart surgery or a heart attack to help them recover and improve their heart health. It might also be offered to people with heart failure, and with ICDs.

Cardiac rehabilitation may also be helpful for people with cardiomyopathy, as it involves doing exercise tests to see how their heart copes with different types of exercise. As it is done in the safe environment of a hospital, it can help to see how their condition impacts on their ability to exercise, and decide what exercise is suitable, while increasing their confidence about exercising.

If you think this might help you, you could ask your doctor whether there is a programme you can be referred to, or any exercise programmes run by physiotherapists or specialist classes at your local gym.

This information is general guidance only, and aims to outline some of the risks and benefits of exercise. This is not advice, and we recommend that you discuss your individual circumstances with your cardiologist.

## We're here for you

At Cardiomyopathy UK we offer help and support for you and your family. We have information about each type of cardiomyopathy as well as diagnosis, treatment and lifestyle issues. Look on our website or call us for more information. Call our helpline to talk to our cardiomyopathy support nurses. We can put you in contact with other people affected by cardiomyopathy through our support groups, peer support volunteers and social media. Contact us for more about our services, or look online.

**Cardiomyopathy**<sup>UK</sup>  
the heart muscle charity

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**a:** Unit 10, Chiltern Court, Asheridge Road, Chesham, Bucks HP5 2PX  
**t:** 01494 791 224

**helpline:** 0800 018 1024

**live chat:** [www.cardiomyopathy.org](http://www.cardiomyopathy.org)

**w:** [cardiomyopathy.org](http://cardiomyopathy.org)

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