

# Physical activity and heart failure



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## What is heart failure?

Chronic Heart Failure is generally defined as the inability of the heart to supply enough blood flow to meet the needs of the body.

## What causes heart failure?

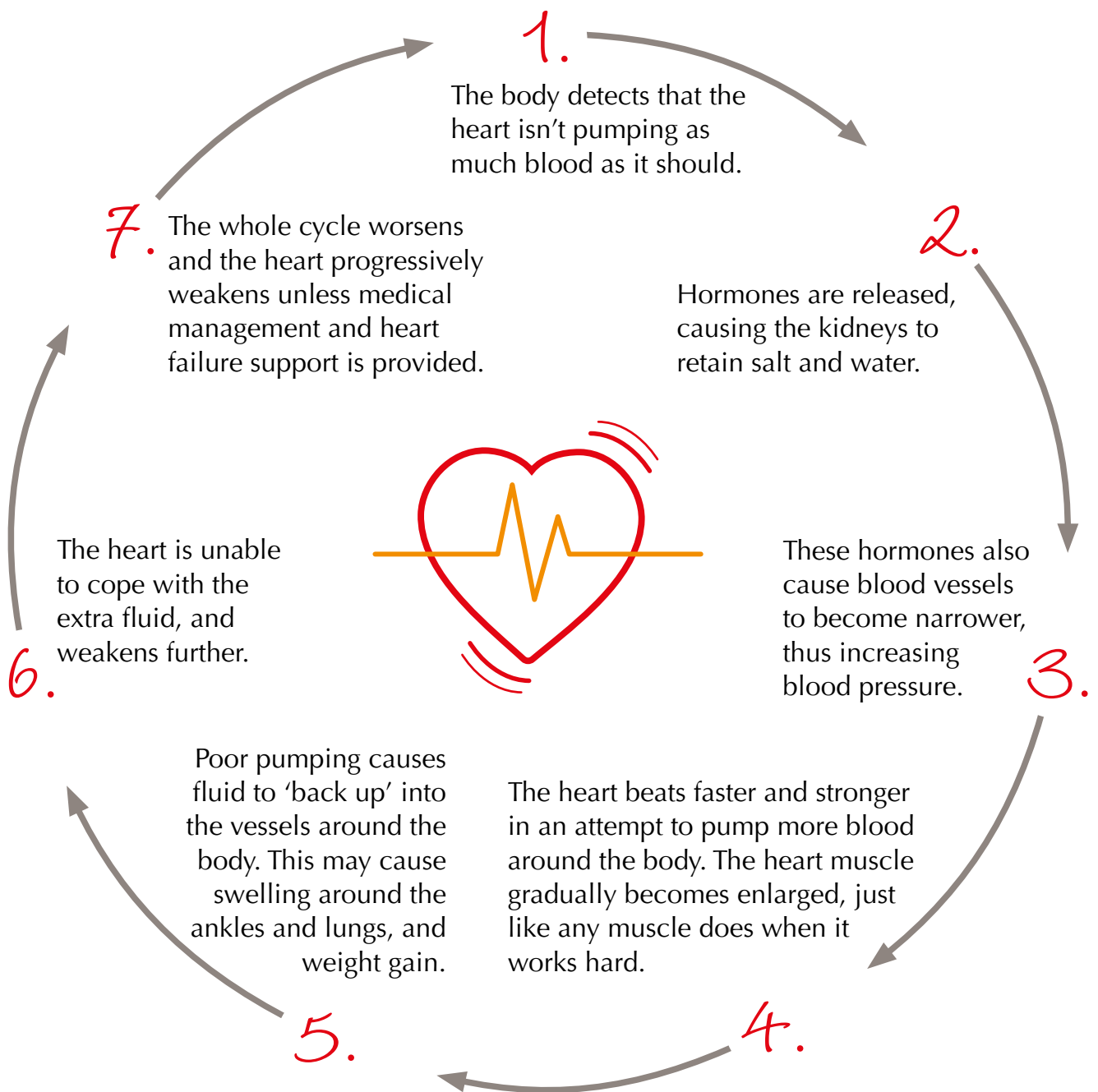
Common causes of heart failure:

- Heart attacks (from coronary artery disease 'blocked arteries')
- High blood pressure (hypertension)
- Abnormal heart rhythms (arrhythmias)
- Heart valve problems
- Heart abnormalities present at birth
- Diabetes
- Viral infections
- Medication side effects – e.g. chemotherapy
- Long term alcohol misuse
- Illicit drug use
- It runs in the family
- Idiopathic (unknown cause)



## The heart failure cycle

Following the initial 'trigger' for heart failure (e.g. heart attack), the heart has difficulty delivering sufficient blood throughout the body. The body's attempts to fix the problem ultimately become counter-productive. The diagram below illustrates the sequence of events and the vicious cycle that often occurs.



## Why does heart failure affect my ability to exercise?

Your ability to exercise is determined by how well your heart and lungs are able to supply blood and oxygen to the working organs and muscles. Unfortunately, in heart failure, your heart is unable to meet these demands. Heart failure may also impair your ability to perform daily activities such as household chores, showering or shopping. Listed below are examples of how heart failure can also lead to other problems throughout your body.

Heart function	<ul style="list-style-type: none"> <li>• Heart can't beat as strongly or as fast as it should during physical activity</li> </ul>
Circulation	<ul style="list-style-type: none"> <li>• Decreased blood flow to working muscles</li> <li>• Decreased number and size of small blood vessels</li> <li>• Blood vessels are unable to open easily to accept more blood</li> </ul>
Muscles	<ul style="list-style-type: none"> <li>• Muscles decrease in size and strength</li> <li>• Decreased ability of muscles to use oxygen</li> <li>• Muscles fatigue more quickly</li> </ul>
Lungs	<ul style="list-style-type: none"> <li>• Respiratory (breathing) muscle weakness</li> <li>• Decreased ability to breathe in more air and oxygen</li> <li>• Decreased ability to transport oxygen from the lungs to the blood</li> </ul>
Bones / joints	<ul style="list-style-type: none"> <li>• Decreased bone density and strength (may lead to osteoporosis)</li> <li>• Joints may stiffen / lose flexibility, due to inactivity</li> </ul>

## People with heart failure may experience the following symptoms:

- Breathlessness (especially with activity)
- Dizziness / light-headedness
- Fatigue / lack of energy
- Chest pain / angina (chest/neck/back/shoulder/arm)
- Palpitations / 'racing' irregular heart beat
- Muscle weakness
- Low mood / depression / anxiety
- Poor appetite

## Benefits of exercise for heart failure

Regular exercise has been shown to be very beneficial for people with heart failure when performed in the correct manner. The most significant benefits are:

- Fewer hospital admissions
- Increased muscle strength and endurance
- Improved blood pressure
- Increased ability to do more physical activity
- Improved mood and self esteem
- Improved symptoms
- Improved sleep quality
- Improved quality of life
- Greater social interaction
- Weight loss and weight control
- Better circulation
- Improved cholesterol levels

## If my heart is weak, wouldn't exercise put more stress on my heart?

Some people with heart failure worry about exercise causing harm, but the evidence is very clear – those who exercise regularly remain healthier than those who don't.

## Who can I talk to about starting an exercise program?

A physiotherapist or an accredited exercise physiologist with expertise in heart failure can help develop your exercise program. These two professions have specialised skills in prescribing exercise for heart failure and will work closely with your doctors and heart failure support team to ensure all exercises are appropriate. For the purposes of this booklet, physiotherapists and accredited exercise physiologists will be referred to as **Exercise Specialists**.

## Other conditions

Many people with heart failure also have other medical conditions such as diabetes, atrial fibrillation, COPD (chronic lung disease) and arthritis.

Discuss all your health conditions with your Exercise Specialist, to ensure you are exercising safely and appropriately.

## Where do I begin?

It is never too late to start regular exercise. Speak to your doctor or Exercise Specialist about assessing the appropriate amount and types of exercise you can do. If you are already active, keep up the good work and perhaps add a new physical activity to your daily routine.

Always listen to your body and be aware of your symptoms, to avoid over-exercising. If you have stopped being active for some reason, an Exercise Specialist can help you to get started again and keep going.

Importantly, no matter what level you are at, **start slowly and build up gradually**.

## How do I design my exercise program?

*Always begin with a warm-up, and finish with a cool-down*

An adequate warm-up prepares the heart and body for exercise and may reduce the likelihood of developing or worsening an irregular heart rhythm or other injuries. Cool-downs help return the body to its resting state and reduce the risk of muscle soreness, dizziness and light-headedness after exercise.

Both warm-ups and cool-downs should last at least 5-10 minutes. Warm up by walking slowly or performing other simple exercises and **gradually increase** the speed or effort involved until you are ready to start your exercise session. Cool down in the opposite way by **gradually decreasing** your effort until you stop completely.

You may also perform some light stretches for your major muscles. Move your joints and muscles through their full range of motion, to maintain your flexibility. Simple stretching exercises performed a few times each week help reduce muscle tightness and fatigue, and improve your balance.

Exercise programs are often described using the **FITT** principle.

**F**requency – the number of times exercise is performed per week

**I**ntensity – how hard/intense the exercise is

**T**ime – the total duration of your exercise session

**T**ype – the type of exercise you perform

For people with heart failure, the recommended FITT guidelines are:

### Frequency

Start slowly and build up gradually as things become easier. How often you exercise will be guided by how well you are and the nature of your condition; however, aim to do some exercise on **most days of the week**. Consistency is the most important part of your exercise program. This booklet includes some tips to help you set goals and stay motivated.



## Intensity

**Light to moderate** activity is recommended for people with heart failure. Anything too hard or vigorous may place extra stress on your heart and can be harmful. However, too light or no exercise at all may not be enough to maintain your heart strength. Know how best to monitor your exercise intensity and to recognise the signs of working too hard.

### Talk Test

A good way to judge the intensity of your exercise or physical activity is the talk test.

You should be able to speak in full sentences and maintain a conversation comfortably without having to stop mid-sentence to catch your breath.

## What if my doctor has prescribed medications that affect my heart rate?

Most people with heart failure take medications that improve the function of their heart by slowing down how fast it beats. The large increase in heart rate that normally occurs with exercise is reduced to only a small increase. This should not stop you from exercising, but it does impact on how hard you should exercise. One of the best ways to determine how hard to exercise is to use an 'effort scale' such as the Rating of Perceived Exertion (RPE) (see table overleaf).

This scale asks the question "*How much effort am I using to perform the exercise or activity?*" Score your answer by choosing the appropriate word (e.g. "light" or "somewhat hard") or number (e.g. 11 or 13). Ideally, your exercise efforts should fall between 'very light' and 'somewhat hard' (i.e. 9-13) on the RPE scale.

## Rating of Perceived Exertion (RPE) Scale

Rating Score	How much effort am I using to perform the activity or exercise?
6	
7	Very, very light
8	
9	Very light
10	
11	Light
12	
13	Somewhat hard
14	
15	Hard
16	
17	Very hard
18	
19	Very, very hard
20	

Exercise within this zone (9 – 13)

### **13 = Short of breath, but still able to talk in full sentences**

Some modified versions of this RPE scale use a 0-10 scale. If you are using those, your effort scores should be 3-4, indicating light to moderate intensity. Your Exercise Specialist will decide which scale is most appropriate for your individual circumstances.



## Time (duration)

Aim for 30 minutes or more of exercise on most, if not all, days of the week. This is activity over and above activities performed in the course of your normal day. Some people are able to achieve 30 minutes quite quickly, but others may take weeks or months, and some may never be able to achieve this goal.

Start slowly, remembering that even a little exercise is better than none at all. If you find long periods of continuous exercise difficult, break the exercise into short intervals: 5-10 minute blocks spread across the day, or even shorter intervals if your symptoms require it.

Additional health benefits may be gained from exercising for longer durations if you are fit and healthy.

## Type

The main types of exercise are summarised in the table below. All are suitable for people with heart failure, and your Exercise Specialist will guide the most appropriate combination for you.

Aerobic	Resistance	Flexibility	Balance
<ul style="list-style-type: none"> <li>• Lower intensity/effort to improve endurance and heart health</li> </ul>	<ul style="list-style-type: none"> <li>• Use weights or resistance to improve strength and muscle endurance</li> </ul>	<ul style="list-style-type: none"> <li>• Use stretches to maintain/increase your range of motion</li> </ul>	<ul style="list-style-type: none"> <li>• Use tasks that challenge your balance and reduce your risk of falls</li> </ul>
<ul style="list-style-type: none"> <li>• Walking</li> <li>• Cycling</li> <li>• Dancing</li> <li>• Light aerobics, exercise groups</li> <li>• Rowing</li> <li>• Swimming, (speak to Exercise Specialist first)</li> </ul>	<ul style="list-style-type: none"> <li>• Light weights</li> <li>• Dumbbells</li> <li>• Resistance bands</li> <li>• Body weight exercises</li> </ul>	<ul style="list-style-type: none"> <li>• Stretches</li> <li>• Range-of-movement exercises</li> </ul>	<ul style="list-style-type: none"> <li>• Catching and kicking exercises</li> <li>• Standing on one leg +/- eyes closed</li> <li>• Tai Chi and Yoga</li> </ul>

Aerobic	Resistance	Flexibility	Balance
<ul style="list-style-type: none"> <li>• Start slowly and gradually build up the time or distance</li> </ul>	<ul style="list-style-type: none"> <li>• Aim for 3-4 sets of 10-15 repetitions for each exercise</li> </ul>	<ul style="list-style-type: none"> <li>• Aim for 2-3 repetitions of each stretch</li> </ul>	<ul style="list-style-type: none"> <li>• Aim to complete each task 2-3 times for 30-60sec without losing balance</li> </ul>
<ul style="list-style-type: none"> <li>• Avoid hard/fast bursts of activity unless advised by your Exercise Specialist</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid holding your breath during these exercises</li> </ul>	<ul style="list-style-type: none"> <li>• Gently hold each stretch (15-20sec) and avoid "bouncing"</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure you have a stable support or person nearby in case you lose your balance</li> </ul>

**Repetition** = one movement of the exercise

**Set** = one block of repetitions



## Progression

It is important to gently progress (increase) your exercise program as your symptoms allow. This will ensure your heart and body become stronger as you are able to do more daily activity and exercise. Consider progressing when your current exercise program feels easy or light (6-11 on RPE scale) for three or four sessions.

**Start by increasing frequency:**  
e.g. increase from two 5-minute walks per day to three per day.

**Then increase total time:**  
e.g. increase from 3 x 5 minutes (15 minutes total) to 2 x 10 minutes (20 minutes total).

**With resistance training,**  
increase repetitions and sets before increasing the weight you are lifting.

## What effect does my pacemaker/defibrillator have on my exercise?

Having a pacemaker or defibrillator does not significantly impact upon your exercise. The device is programmed to function normally during exercise and will react to abnormal heart rhythms. Your Exercise Specialist will consider your device when prescribing your exercise program.

## What if I have been unwell or in hospital?

If you have been unwell, return to exercise at a lower level and gently build yourself back up. If you have been hospitalised, discuss your exercise program with your doctor or Exercise Specialist before restarting.

## Incidental exercise

The benefits gained through regular exercise are quickly lost if you stop, so find other activities to stay motivated. Use 'incidental' exercise to add up small amounts of activity throughout the day. This refers to exercise that occurs during ordinary daily activities, for example, you could:



When checking the mail box, do a lap of the garden or walk to the end of the street and back.



Use stairs instead of lifts or escalators.



Help with household chores such as cleaning or gardening.



Walk to the shops instead of driving, or walk a little around the shopping centre further inside before starting your shopping.



While watching TV, walk on the spot, ride an exercise bike or use the ad breaks as an opportunity to move around.



Don't just find a comfortable position and stay in it; move your legs, circle your feet or move your arms and hands. Remember, every little bit helps



Instead of circling the car park looking for that perfect park, park further away from the shops and walk the extra distance. This also saves time and frustration!

## General advice and precautions

- Wear loose, comfortable clothing and supportive flat shoes
- Carry angina tablets or spray with you, if prescribed
- Avoid exercise if you are unwell or recovering from a recent illness/hospitalisation
- Do not exercise immediately after eating a large meal
- Avoid exercising in extreme hot or cold temperatures as this will add extra stress on your heart
- Consult your doctor or Exercise Specialist before considering swimming
- Stop exercise that causes you pain

**If your symptoms persist, seek medical advice. If you have any doubts about the amount of exercise safe for you, ask your Exercise Specialist for guidance.**

## When should I stop exercise?

**If you experience any of the following symptoms, STOP the activity and rest.**

- Excessive tiredness or unexpected fatigue
- Shortness of breath that is severe or persistent (more than normal for you)
- Angina: pain, pressure or tightness in your chest, neck, shoulder, jaw, throat, back or arm. If you have these symptoms, stop immediately and seek assistance. Take your angina tablets or spray, if prescribed.
- Irregular heart beat, palpitations or a heart flutter sensation
- Dizziness or light-headedness
- Nausea or feeling sick in your stomach
- Excessive sweating
- Cold and clammy sweating
- Muscle cramps
- Severe pain in legs - joints, feet, ankles

## Water exercise and swimming

While many people enjoy exercising in water, always seek advice from your Exercise Specialist or treating doctor before undertaking this form of exercise. This is because the heart has to work harder when you stand or lie in a pool due to the pressure that the water exerts on your body.

For many people, water exercise is a safe activity. However, because the work on the heart increases as the depth of water increases, it is recommended that you don't go beyond waist deep. Exercise in warm water and always have someone close by.

Unfortunately there is currently very little research specific to swimming, so no clear recommendations exist. Anyone considering swimming should always discuss this plan with their cardiologist or Exercise Specialist. **ALWAYS** avoid exercise in water if you have had a recent hospital admission or worsening of symptoms.





## How do I stay motivated with my exercise program?

Many people find it challenging to stay on track with their regular exercise. Set short and long-term goals, and reward yourself when you reach them.

You could use the '**SMART**' method to set goals:

**S**pecific – what exactly do you want to achieve?

**M**easurable – how many minutes, and how many times per week?

**A**chievable – is your body capable of achieving your goal?

**R**ealistic – does your goal realistically fit into your lifestyle?

**T**ime frame – over what time period do you want to achieve your goal?

## Sample exercise diary

Completing a weekly exercise diary is a great way to monitor your progress as well as helping you to stay motivated. Exercise diaries may be as simple as the one shown below.

		Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Walking	30 mins	✓	✓		✓	✓	✓	
Hand weights	3 x 10 2kg		✓			✓		
Step ups	3 x 10		✓		✓			
Stretches	10 mins						✓	

## Rehabilitation programs and community exercise options

Exercise rehabilitation programs are excellent opportunities to optimise your health and wellbeing, and to learn about the management of your condition. They usually run for 8-12 weeks, as a series of supervised exercise sessions and educational talks presented by various members of the health care team.

Rehabilitation programs specific to heart failure provide regular follow up and monitoring to assist you to manage your condition with confidence.

People who complete heart failure rehabilitation programs report fewer symptoms and have fewer hospital admissions. So please ask your doctor or Exercise Specialist about local rehabilitation programs specific to your heart condition.

Additionally, community-based exercise programs are highly recommended, particularly after you have completed a specific program. Your exercise specialist will be able to provide you with advice about options in your local area.

Copies of this booklet can be downloaded from the following website:  
[www.heartonline.org.au/resources](http://www.heartonline.org.au/resources)

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