Heart failure and the Cardiovascular, Renal, Metabolism (CVRM) cluster

Introduction

Heart failure, characterised by the heart's inability to adequately support the body, is a critical condition. However, with proper management, individuals can lead fulfilling lives. This ailment is closely associated with other cardiovascular disorders, kidney disease and diabetes, collectively termed the "CVRM" disease cluster. Discover the connections between these diseases and the optimal strategies to address them for improved overall health.

Contents:

What is CVRM?

Each organ of the body performs a specific task, but also depends on the other organs to function well. When one part isn’t working properly, it places stress on the others, negatively affecting your health as a whole.

An important example of this interconnection is how the heart, kidneys and pancreas affect one another, and the corresponding links between cardiovascular disease, chronic kidney disease and Type 2 diabetes.

These organ systems can be collectively termed “**CVRM**”:
CV: Cardiovascular - refers to the circulatory system - the heart and blood vessels.
R: Renal - refers to the kidneys, which can develop chronic kidney disease (CKD). With CKD, the kidneys can’t properly perform their function of removing waste and toxins from the blood.

M: Metabolism refers to the pancreas, which produces enzymes and hormones, notably insulin, that help break down food and control blood sugar levels. Type 2 diabetes is the most common associated condition.[1,2,3]

What is heart failure?

Heart failure is when the heart is not able to pump oxygen-rich blood around the body well enough to meet the needs of all the organs. This usually occurs because the heart muscle has become weak or stiff, and is unable to properly fill with blood. Blood can accumulate, resulting in fluid retention in the lungs, which may manifest as difficulty in breathing.

Heart failure is a serious condition, but it does not mean that the heart has stopped beating.[4,5,6]

Heart failure can be acute (onset is sudden and severe, requiring emergency care) or chronic (where the development is much slower and endures for a long time).

Heart failure tends to gradually worsen over time. However, symptoms can often be controlled for many years.

There are three main types of chronic heart failure, depending on the amount of blood pumped at each heartbeat from the left ventricle, the chamber of the heart from where blood travels to the body. This amount is called the **ejection fraction**:

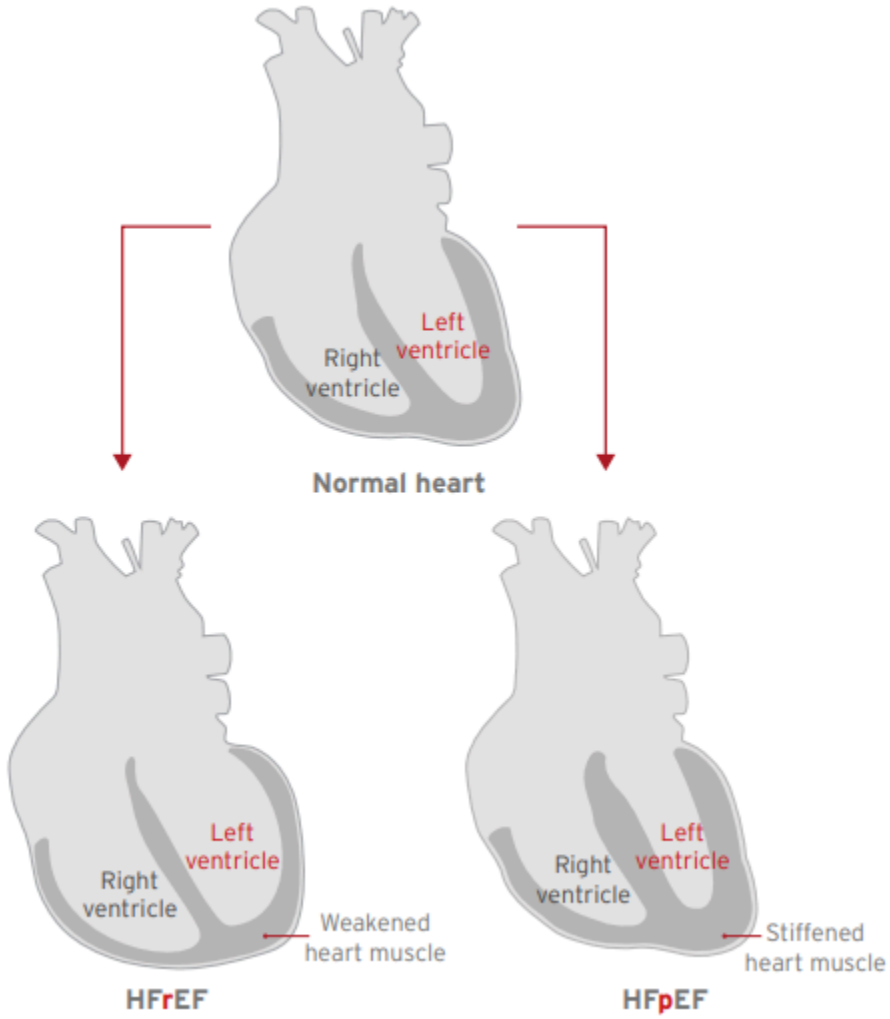
- Heart Failure with reduced Ejection Fraction (HFrEF)
- Heart Failure with mildly reduced Ejection Fraction (HFmrEF)
- Heart Failure with preserved Ejection Fraction (HFpEF).[5,7]

The three main types of chronic heart failure

Type of chronic heart failure	**HFrEF**	**HFmrEF**	**HFpEF**
Left ventricular ejection fraction	<40%	≥40 to <50%	≥50%
Changes in heart structure	heart is usually enlarged; pumping weakly	between HFrEF and HFpEF	heart is less enlarged than in HFrEF; left ventricle is smaller

			compared with HFrEF heart and stiffened
Changes in heart function	Left ventricle fills with higher pressure than is normal. Higher pressure in lungs, veins, liver can cause breathlessness and/or oedema.		

The three main types of chronic heart failure[7]



9

Changes associated with each type of chronic heart failure[7]

Causes and risk factors

Heart failure is often the result of several cardiovascular conditions, such as:

- **Coronary artery (heart) disease** – arteries supplying blood to the heart itself are narrowed or blocked
- **Hypertension (high blood pressure)** – puts extra strain on the heart
- **Cardiomyopathy** – conditions affecting the heart muscle.
- **Arrhythmia** – heart rhythm problems, such as atrial fibrillation
- When the **heart valves**, which control blood flow between the chambers, are damaged or dysfunctional.
- **Congenital heart disease** – birth defects affecting normal heart function.
- **Diabetes.**

Obesity, anaemia (insufficient red blood cells), excessive alcohol intake, overactive thyroid, pulmonary hypertension (high blood pressure in the lungs), smoking, unhealthy diet and a sedentary lifestyle are also risk factors.

Heart failure becomes more common with age, affecting around 1 in 7 people over age 85.[5,8]

Symptoms

Common symptoms of heart failure may include:

- Breathlessness, which may be worse when lying down
- Swelling (oedema) in feet, legs or stomach
- Fatigue
- Dizziness or fainting.

Less common symptoms: persistent cough or wheeze; rapid heart rate, weight changes; rapid or fluttering heart beat; confusion.

Get emergency medical assistance if symptoms are sudden or severe. South Africa emergency numbers: 10177; 112 (cell phone).

Tell your doctor if you experience ongoing or gradually worsening symptoms.[5]

Diagnosis

Early diagnosis and treatment improve the outlook for a better quality and length of life.

Diagnostic tests may include:

- **Blood tests** – indicate whether symptoms are caused by heart failure or another condition
- **Breathing test** – shows if a lung condition is contributing to symptoms e.g. breathlessness
- **ECG (electrocardiogram) test** – measures the heart's electrical activity
- **Echocardiogram** – uses ultrasound to view the heart.[8]

These tests will help identify the type of heart failure you have (HFrEF, HFmrEF or HFpEF) and inform appropriate treatment.[7,8]

Treatment

Treatment depends on underlying causes, but generally aims to control symptoms, slow progression of heart failure and improve your quality of life**.** Treatments may include:

- Medication e.g.
    - Angiotensin inhibitors to relax the blood vessels and reduce strain on the heart
    - Beta-blockers to slow the heart so it doesn't need to work as hard
    - Mineralocorticoid receptor antagonists - regulate fluid and sodium levels, reducing scarring of heart muscle
    - Sodium-glucose co-transporter-2 (SGLT2) inhibitors - help remove fluid and sodium, protecting heart and kidneys.
    - Diuretics - also reduce excess fluid and sodium and reduce pressure in the heart.
- Surgery e.g. angioplasty, coronary artery bypass, heart valve repair; heart transplant.
- Implanted devices such as pacemakers and defibrillators to help control heart rhythm.
- Healthy lifestyle changes.[7,9]

Links between heart failure and kidney disease

Cardiovascular disease - including heart failure - and kidney damage are closely related. With heart failure, the kidneys often don't work properly, which in turn increases stress on the heart.

The kidneys remove waste and excess water from the blood, which the heart pumps throughout the body, including back to the kidneys. When the kidneys aren't working well, composition and volume of the blood changes, making the heart work harder to move it around the body, and putting stress on the blood vessels (hypertension). In turn, increased pressure on blood vessels can damage the kidneys, limiting their blood-filtering ability.

Around one in three people with heart failure has chronic kidney disease.[3,10]

Links between heart failure and diabetes

Type 2 diabetes increases risk for cardiovascular disease, including heart failure. High blood sugar associated with poorly controlled diabetes can damage the blood vessels, and ineffective utilisation of nutrients in diabetes can damage heart muscle.

People with type 2 diabetes are also more likely to have other conditions, such as hypertension and high cholesterol, which further raise risk for heart failure

Around one in three people with heart failure has type 2 diabetes.[3,10]

Take charge of your health

Taking your doctor's advice about treatment and lifestyle seriously will help manage heart failure symptoms, slow the disease's progression, and improve everyday quality of life. Take it one step at a time:[11,12]

- **Take medications exactly as prescribed**. Don't take any other drugs or remedies without first asking your doctor.
- **Check in regularly with your doctor** for monitoring and advice.
- **Follow a healthy diet** rich in fruits and vegetables, whole grains, low-fat dairy, poultry, fish, nuts and legumes. Avoid saturated and trans fats, cholesterol, red meat, sugar and sodium

(salt). Sodium causes fluid retention, which can lead to hypertension, oedema and breathing difficulties. Swap salt for herbs, citrus and salt-free seasoning.

- **Maintain a healthy weight.** Sudden weight gain or loss may mean heart failure is progressing: tell your doctor if this occurs.
- **Watch fluid intake.** With heart failure, the body tends to retain fluid. Your doctor may recommend limiting daily fluid intake.
- **Stop smoking.** Each puff of nicotine temporarily raises heart rate and blood pressure, and lowers oxygen content of blood reaching the cells.
- **Avoid alcohol.** Excessive amounts increase risk for various health problems, including hypertension.
- **Get regular exercise** for multiple health benefits, including lowering cholesterol and blood pressure, and weight management. Your doctor will help you plan a safe exercise routine. If moderate exercise isn't possible for you, consider participating in a rehabilitation programme.
- **Get enough sleep.** Blood pressure drops during sleep, giving your cardiovascular system a rest.
- **Protect your mental health.** Living with heart failure can be challenging, and you may sometimes feel depressed or anxious. Find a therapist, talk to friends and family, and try meditation or other activities you find calming. Remember you're not alone: around 70 million people worldwide are living with heart failure, so reach out to others on a similar journey. Consider joining a patient support organisation near you or online. For information contact: Heart and Stroke Foundation https://www.heartfoundation.co.za/ or the Heart Failure Society of South Africa (HeFSSA) https://www.hefssa.org/

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Source Texts
Relevant sections highlighted

1.Centers for Disease Control, 2024. Chronic Kidney Disease, Diabetes, and Heart Disease. Available at: https://www.cdc.gov/kidneydisease/publications-resources/link-between-ckd-diabetes-heart-disease.html [Accessed 24 June 2024]

Chronic Kidney Disease, Diabetes, and Heart Disease
KEY POINTS
Chronic kidney disease (CKD), diabetes, and heart disease are connected.
Find out why and how you can prevent or manage all three.
About CKD, diabetes, and heart disease
The relationship between CKD, diabetes, and heart disease is one example of the ways our organs are connected. When one organ isn't working properly, it can put stress on other organs, causing them to stop working properly as well.

Your body uses a hormone called insulin that moves sugars from the blood and into your body's cells for energy. If someone has diabetes, they either don't make enough insulin or can't use the insulin well.

If someone has CKD, their kidneys don't filter out toxins and waste from their blood as well as they should.

Heart disease refers to several types of heart conditions. The most common condition, coronary artery disease, leads to changes in blood flow to the heart. This can cause a heart attack.

Make the connection
So how are these three conditions connected? Risk factors for each condition are similar and include:

High blood sugar.
High blood pressure.
Family history.
Obesity.
Unhealthy diet.
Physical inactivity.
High blood sugar can slowly damage the kidneys. Over time, they may stop filtering blood as well as they should, leading to CKD. Approximately 1 in 3 U.S. adults with diabetes has CKD.

When the kidneys don't work well, it puts stress on the heart. When someone has CKD, their heart needs to pump harder to get blood to the kidneys. This can lead to heart disease, the leading cause of death in the United States. Change in blood pressure is also a CKD complication that can lead to heart disease.

Tips to prevent or manage all three

The good news is that you can manage or prevent CKD, diabetes, and heart disease all at once. These five tips can help you get started:

Get active

Being active can help prevent or manage CKD, diabetes, and heart disease. Find an activity you like, start small, and get moving!

Choose healthy foods and drinks

This is an important way to give your body the fuel it needs to function properly. Adding more fruits and veggies to your plate can also help you keep a healthy weight. This is a great way to prevent or manage CKD, diabetes and heart disease.

Quit smoking

Quitting is one of the best things you can do for your health. It'll help you prevent CKD, type 2 diabetes, and heart disease. It also helps to improve any of these conditions if you have them. You don't have to do it alone! For support, visit I'm Ready To Quit.

Find out your risk for prediabetes

Know where you stand by taking this 1-minute prediabetes risk test. If your risk is high, talk to your doctor about taking action to prevent or delay type 2 diabetes. The lifestyle change program through CDC's National Diabetes Prevention Program can help you build the healthy habits you need to succeed.

Get your annual flu shot

People with chronic diseases are more likely to have health complications if they catch the flu. These complications can worsen an existing condition and can even be fatal.

Protect your heart if you have CKD

Over time, CKD often gets worse and can lead to kidney failure. People with kidney failure will need regular dialysis (a treatment that filters the blood) or a kidney transplant to survive.

Heart disease is the most common cause of death for someone on dialysis. When your kidneys don't function properly, the heart has to work harder to circulate blood. This may lead to high blood pressure and possibly heart disease.

Tips to help protect your heart and kidneys:
Choose foods that are healthiest for your heart and your kidneys. Ask your doctor for a referral to a dietitian to understand which foods and drinks are best for you. Learn more about dialysis and a healthy diet.

Get regular physical activity to help lower your blood pressure and improve your heart health. And remember that moving more doesn't have to be strenuous. Some great ways to get active are gardening, yoga, or brisk walking around the block. Ask your doctor about which activities are best for you and if there are any you should avoid.

Manage your weight and blood sugar by changing your diet and activity routine. For extra help, you can work with a dietitian to create an eating plan that works for you and your kidneys.

2.American Heart Association, 2024. What is cardiovascular disease? [online] Available at: https://www.heart.org/en/health-topics/consumer-healthcare/what-is-cardiovascular-disease [Accessed 24 June 2024].

What is Cardiovascular Disease?
Cardiovascular disease can refer to a number of conditions:

Heart disease
Heart and blood vessel disease, also called heart disease, includes numerous problems, many of which are related to atherosclerosis.

Atherosclerosis is a condition that develops when a substance called plaque builds up in the walls of the arteries. This buildup narrows the arteries, making it harder for blood to flow through. If a blood clot forms, it can block the blood flow. This can cause a heart attack or stroke.

Heart attack
A heart attack occurs when the blood flow to a part of the heart is blocked by a blood clot. If this clot cuts off the blood flow completely, the part of the heart muscle supplied by that artery begins to die.

Most people survive their first heart attack and return to their normal lives, enjoying many more productive years. But having a heart attack does mean that you need to make some changes.

The medications and lifestyle changes that your health care professional recommends may vary according to how badly your heart was damaged, and to what degree of heart disease caused the heart attack.

Learn more about heart attack.

Stroke

An ischemic stroke, which is the most common type of stroke, occurs when a blood vessel that feeds the brain gets blocked, usually from a blood clot.

When the blood supply to a part of the brain is cut off, some brain cells will begin to die. This can result in the loss of functions controlled by that part of the brain, such as walking or talking.

A hemorrhagic stroke occurs when a blood vessel within the brain bursts. This is most often caused by uncontrolled high blood pressure.

Some effects of stroke are permanent if too many brain cells die after being starved of oxygen. These cells are never replaced.

The good news is that sometimes brain cells don't die during stroke — instead, the damage is temporary. Over time, as injured cells repair themselves, previously impaired function improves. In other cases, undamaged brain cells nearby may take over for the areas of the brain that were injured.

Either way, strength may return, speech may get better and memory may improve. This recovery process is what stroke rehabilitation is all about.

Learn more about stroke.

Heart failure

Heart failure, sometimes called congestive heart failure, means the heart isn't pumping blood as well as it should. Heart failure does not mean that the heart stops beating — that's a common misperception. Instead, the heart keeps working, but the body's need for blood and oxygen isn't being met.

Heart failure can get worse if left untreated. If your loved one has heart failure, it's very important to follow their health care professional's treatment plan.

Learn more about heart failure.

Arrhythmia

Arrhythmia refers to an abnormal heart rhythm. There are various types of arrhythmias. The heart can beat too slow, too fast or irregularly.

Bradycardia, or a heart rate that's too slow, is when the heart rate is less than 60 beats per minute. Tachycardia, or a heart rate that's too fast, refers to a heart rate of more than 100 beats per minute.

An arrhythmia can affect how well your heart works. With an irregular heartbeat, your heart may not be able to pump enough blood to meet your body's needs.

Learn more about arrhythmia.

Heart valve problems

When heart valves don't open enough to allow the blood to flow through as it should, a condition called stenosis results. When the heart valves don't close properly and thus allow blood to leak through, it's called regurgitation. If the valve leaflets bulge or prolapse back into the upper chamber, it's a condition called prolapse. Discover more about the roles your heart valves play in healthy circulation.

Learn more about heart valve disease.

Common treatments

Here are some common treatments for different types of cardiovascular disease:

Heart valve problems
Medications
Heart valve surgery
Arrhythmia
Medications
Pacemaker
Electric cardioversion
Catheter ablation
Lifestyle changes
Heart attack

Medications
Coronary angioplasty
Coronary artery bypass graft surgery
Heart transplant or other heart surgery
Radiofrequency ablation
Stent procedure
Transmyocardial revascularization
Lifestyle changes
Stroke
Medications
Carotid endarterectomy (PDF)(link opens in new window)
Thrombectomy
Aneurysm clipping
Coil embolization
Blood transfusion
Lifestyle changes
Diagnostic tests, surgical procedures and medications
In the hospital and during the first few weeks at home, your health care professional may perform several tests and procedures. These tests help them determine what caused the stroke or heart attack, and how much damage was done. Some tests monitor your progress to see if the treatment is working.

Learn more about diagnostic tests and procedures.

Learn more about surgical procedures that may have been performed at the hospital.

Cardiac medications
The medications prescribed after a cardiovascular event can aid in recovery and help prevent another heart attack or stroke.

If you're a caregiver, make sure your loved one takes their medications as directed and on time. Learn about the medications that your loved takes. Know what those medicines do, and what their goal is.

It's important to follow your health care professional's directions closely, so ask questions and take notes.

It’s important to follow your doctor’s directions closely, so ask questions and take notes. Learn more about cardiac medications.

Written by American Heart Association editorial staff and reviewed by science and medicine advisors.
See our editorial policies and staff.

Last Reviewed: Jan 10, 2024

3.Organs Talk, 2021. About the connectivity of organ systems. [online] Available at: https://www.organs-talk.com/ [Accessed 24 June 2024].

About the connectivity of organ systems
What is the link between type 2 diabetes, the heart and the kidneys, and how does it affect the body?
Type 2 diabetes, the heart and the kidneys have an important connection as they have the potential to both positively and negatively impact each other.1 They are linked to one another through blood flow, hormones and the central nervous system.

The pancreas produces enzymes and hormones which help break down the food we eat and regulate blood sugar levels. Type 2 diabetes, which is mainly caused by pancreatic dysfunction and insulin resistance, affects how the kidneys filter blood and blood pressure, and therefore the health of the cardiovascular system.2
The heart pumps blood throughout the body to all organs, including the pancreas and kidneys. If the flow of blood to the organs is reduced, they will not be able to function as they should.3
The kidneys filter the blood and remove any waste or toxins that may be present. If they are unable to do this correctly, blood pressure in the body can increase, impacting the health of the other organs.4,5

The interconnectivity between these organs means that when a person experiences disease in one of these areas, it increases the chances of one or all the other systems being affected. This can result in worsening of the disease overall.4,6

This also means that when improvements are made in one area through lifestyle changes and appropriate care, positive improvements are likely to be seen in other organs and systems.4,6

By taking actions such as healthy eating, moving more, taking medication and not smoking, it is possible to reduce the risk of further damage and to prevent or delay organs from getting worse.7,8,9

Interconnectivity
Did you know?
T2D
At least one in three people with heart failure have type 2 diabetes10
CVD
At least one in three people with chronic kidney disease have cardiovascular disease11
CKD
At least one in three people with heart failure have chronic kidney disease12
What can be done about it?
When addressing the challenges that link diabetes and conditions of the heart and kidneys, achieving balanced health across all is key. Looking at the bigger picture of how each system interconnects is fundamental to treatment.

Life shouldn't be put on hold. Through careful management and lifestyle changes, such as diet and exercise, it can be possible to lead a normal and happy life. By taking care of yourself and improving lifestyle through diet and exercise, you can reduce complications and improve your overall wellbeing.

Appropriate steps include:

Understanding your disease/s and how to manage them, considering treatment as well as lifestyle.

Having informed conversations with your doctor(s) about the care that is most appropriate for you.

Making
changes to your lifestyle (e.g., more activity or a healthier diet), which could make significant improvements to your overall health.

Where can I find support to help me stay on track?
It is important to acknowledge that there may be some mental and emotional health challenges following diagnosis of conditions of the heart and kidneys or a diabetes diagnosis.13 Therefore, it is important to reach out for support if you need it. There are various support groups and

online communities that can help to support you, both physically and mentally. Speak to your doctor or healthcare team about what resources are available to you.

You might also find it helpful to speak to close friends or loved ones to help you to wrap your head around things. At the very least, sharing with someone close to you can help lighten the load.

Talking to your doctor and healthcare team regularly is vital to managing your condition and supporting your overall health. Your doctor may suggest simple changes to lifestyle, such as healthier eating and doing more regular exercise, to help improve your health and reduce your risk of further complications.

4.Centers for Disease Control, 2024. About heart failure. [online] Available at: https://www.cdc.gov/heart-disease/about/heart-failure.html [Accessed 24 June 2024].

About Heart Failure
KEY POINTS
Heart failure happens when the heart cannot pump enough blood and oxygen to support other organs in your body.
Certain medical conditions can increase your risk for heart failure.
Overview
Heart failure happens when the heart cannot pump enough blood and oxygen to support other organs in your body. Heart failure is a serious condition, but it does not mean that the heart has stopped beating.

Facts about heart failure in the United States
About 6.2 million adults in the United States have heart failure.1
In 2018, heart failure was mentioned on 379,800 death certificates (13.4%).1
Heart failure cost the nation an estimated $30.7 billion in 2012.2 This total includes the cost of health care services, medicines to treat heart failure, and missed days of work.
Deaths from heart failure vary by geography
Heart failure is more common in some areas of the United States than in others. Below is a map showing the rate of death from heart failure by county.

View Larger
Heart Failure Death Rates for 2018 through 2020 for Adults Aged 35 Years and Older by County. The map shows that concentrations of counties with the highest heart disease death rates - meaning the top quintile - are located primarily in Mississippi, Louisiana, Arkansas, Oklahoma, Texas, Kentucky, Tennessee, Indiana, Illinois, and Wisconsin. Pockets of high-rate counties also were found in Oregon, Utah, Montana, South Dakota, and Nebraska.
The map shows that concentrations of counties with the highest heart disease death rates are located primarily in Mississippi, Louisiana, Ar...

Show More
Symptoms
Common symptoms of heart failure include:

Shortness of breath during daily activities.
Trouble breathing when lying down.
Weight gain with swelling in the feet, legs, ankles, or stomach.
Generally feeling tired or weak.
Risk factors
Certain medical conditions can increase your risk for heart failure, including:

Coronary artery disease (CAD) (the most common type of heart disease) and heart attacks.
Diabetes
High blood pressure
Obesity
Other conditions related to heart disease
Valvular heart disease
Unhealthy behaviors can also increase your risk for heart failure, especially for people who have one of the conditions listed above. Unhealthy behaviors include:

Smoking tobacco.
Eating foods high in fat, cholesterol, and sodium (salt).
Not getting enough physical activity.
Excessive alcohol intake.
Treatment and recovery
Early diagnosis and treatment can improve quality and length of life for people who have heart failure. Treatment usually involves the following:

Taking medicines.
Reducing sodium in the diet.
Drinking less liquids.
Using devices that remove excess salt and water from the blood.
Having heart transplant and other surgeries.
Getting daily physical activity.
People with heart failure also track their symptoms each day so that they can discuss these symptoms with their health care team.

5.Mayo Clinic, 2023. Heart failure. [online] Available at: https://www.mayoclinic.org/diseases-conditions/heart-failure/symptoms-causes/syc-20373142 [Accessed 24 June 2024].

Heart failure

Heart failure means that the heart is unable to pump blood around the body properly. It usually happens because the heart has become too weak or stiff.

It's sometimes called congestive heart failure, although this name is not widely used now.

Heart failure does not mean your heart has stopped working. It means it needs some support to help it work better.

It can occur at any age, but is most common in older people.

Heart failure is a long-term condition that tends to get gradually worse over time.

It cannot usually be cured, but the symptoms can often be controlled for many years.

Symptoms of heart failure

The main symptoms of heart failure are:

- breathlessness after activity or at rest
- feeling tired most of the time and finding exercise exhausting
- feeling lightheaded or fainting
- swollen ankles and legs

Some people also experience other symptoms, such as a persistent cough, a fast heart rate and dizziness.

Symptoms can develop quickly (acute heart failure) or gradually over weeks or months (chronic heart failure).

When to get medical advice

See a GP if you experience persistent or gradually worsening symptoms of heart failure.

Call 999 for an ambulance or go to your nearest A&E department as soon as possible if you have sudden or very severe symptoms.

A number of tests can be used to help check how well your heart is working, including blood tests, an ECG and an echocardiogram.

Find out more about how heart failure is diagnosed

Causes of heart failure

Heart failure is often the result of a number of problems affecting the heart at the same time.

Conditions that can lead to heart failure include:

coronary heart disease – where the arteries that supply blood to the heart become clogged up with fatty substances (atherosclerosis), which may cause angina or a heart attack
high blood pressure – this can put extra strain on the heart, which over time can lead to heart failure
conditions affecting the heart muscle (cardiomyopathy)
heart rhythm problems (arrhythmias), such as atrial fibrillation
damage or other problems with the heart valves
congenital heart disease – birth defects that affect the normal workings of the heart
Sometimes obesity, anaemia, drinking too much alcohol, an overactive thyroid or high pressure in the lungs (pulmonary hypertension) can also lead to heart failure.

Treatments for heart failure
Treatment for heart failure usually aims to control the symptoms for as long as possible and slow down the progression of the condition.

How you're treated will depend on what is causing your heart failure.

Common treatments include:

lifestyle changes – including eating a healthy diet, exercising regularly and stopping smoking
medicine – a range of medicines can help; many people need to take 2 or 3 different types
devices implanted in your chest – these can help control your heart rhythm
surgery – such as a bypass operation or a heart transplant
Treatment will usually be needed for life.

A cure may be possible when heart failure has a treatable cause. For example, if your heart valves are damaged, replacing or repairing them may cure the condition.

Outlook for heart failure
Heart failure is a serious long-term condition that will usually continue to get slowly worse over time.

It can severely limit the activities you're able to do and is often eventually fatal.

But it's very difficult to tell how the condition will progress on an individual basis.

It's very unpredictable. Lots of people remain stable for many years, while in some cases it may get worse quickly.

Information:
Social care and support guide
If you:

need help with day-to-day living because of illness or disability
care for someone regularly because they're ill or disabled or because of their age (including family members)
our guide to care and support explains your options and where you can get support.

Page last reviewed: 19 May 2022

6. Mayo Clinic, 2023. Heart failure. [online] Available at: https://www.mayoclinic.org/diseases-conditions/heart-failure/symptoms-causes/syc-20373142 [Accessed 24 June 2024].

Heart failure
Request an Appointment
Overview
Heart failure occurs when the heart muscle doesn't pump blood as well as it should. When this happens, blood often backs up and fluid can build up in the lungs, causing shortness of breath.

Certain heart conditions gradually leave the heart too weak or stiff to fill and pump blood properly. These conditions include narrowed arteries in the heart and high blood pressure.

Proper treatment may improve the symptoms of heart failure and may help some people live longer. Lifestyle changes can improve quality of life. Try to lose weight, exercise, use less salt and manage stress.

But heart failure can be life-threatening. People with heart failure may have severe symptoms. Some may need a heart transplant or a device to help the heart pump blood.

Heart failure is sometimes called congestive heart failure.

If you have heart failure, your heart can't supply enough blood to meet your body's needs.

Symptoms may develop slowly. Sometimes, heart failure symptoms start suddenly. Heart failure symptoms may include:

Shortness of breath with activity or when lying down.
Fatigue and weakness.
Swelling in the legs, ankles and feet.
Rapid or irregular heartbeat.
Reduced ability to exercise.
Wheezing.
A cough that doesn't go away or a cough that brings up white or pink mucus with spots of blood.

Swelling of the belly area.
Very rapid weight gain from fluid buildup.
Nausea and lack of appetite.
Difficulty concentrating or decreased alertness.
Chest pain if heart failure is caused by a heart attack.
When to see a doctor
See your health care provider if you think you might have symptoms of heart failure. Call 911 or emergency medical help if you have any of the following:

Chest pain.
Fainting or severe weakness.
Rapid or irregular heartbeat with shortness of breath, chest pain or fainting.
Sudden, severe shortness of breath and coughing up white or pink, foamy mucus.
These symptoms may be due to heart failure. But there are many other possible causes. Don't try to diagnose yourself.

At the emergency room, health care providers do tests to learn if your symptoms are due to heart failure or something else.

Call your health care provider right away if you have heart failure and:

Your symptoms suddenly become worse.
You develop a new symptom.
You gain 5 pounds (2.3 kilograms) or more within a few days.
Such changes could mean that existing heart failure is getting worse or that treatment isn't working.

Heart failure can be caused by a weakened, damaged or stiff heart.

If the heart is damaged or weakened, the heart chambers may stretch and get bigger. The heart can't pump out the needed amount of blood.
If the main pumping chambers of the heart, called the ventricles, are stiff, they can't fill with enough blood between beats.
The heart muscle can be damaged by certain infections, heavy alcohol use, illegal drug use and some chemotherapy medicines. Your genes also can play a role.

Any of the following conditions also can damage or weaken the heart and cause heart failure.

Coronary artery disease and heart attack. Coronary artery disease is the most common cause of heart failure. The disease results from the buildup of fatty deposits in the arteries. The deposits narrow the arteries. This reduces blood flow and can lead to heart attack.

A heart attack occurs suddenly when an artery feeding the heart becomes completely blocked. Damage to the heart muscle from a heart attack may mean that the heart can no longer pump as well as it should.

High blood pressure. Also called hypertension, this condition forces the heart to work harder than it should to pump blood through the body. Over time, the extra work can make the heart muscle too stiff or too weak to properly pump blood.
Heart valve disease. The valves of the heart keep blood flowing the right way. If a valve isn't working properly, the heart must work harder to pump blood. This can weaken the heart over time. Treating some types of heart valve problems may reverse heart failure.
Inflammation of the heart muscle, also called myocarditis. Myocarditis is most commonly caused by a virus, including the COVID-19 virus, and can lead to left-sided heart failure.
A heart problem that you're born with, also called a congenital heart defect. If the heart and its chambers or valves haven't formed correctly, the other parts of the heart have to work harder to pump blood. This may lead to heart failure.
Irregular heart rhythms, called arrhythmias. Irregular heart rhythms may cause the heart to beat too fast, creating extra work for the heart. A slow heartbeat also may lead to heart failure. Treating an irregular heart rhythm may reverse heart failure in some people.
Other diseases. Some long-term diseases may contribute to chronic heart failure. Examples are diabetes, HIV infection, an overactive or underactive thyroid, or a buildup of iron or protein.
Causes of sudden heart failure also include:

Allergic reactions.
Any illness that affects the whole body.
Blood clots in the lungs.
Severe infections.
Use of certain medicines.
Viruses that attack the heart muscle.
Heart failure usually begins with the lower left heart chamber, called the left ventricle. This is the heart's main pumping chamber. But heart failure also can affect the right side. The lower right heart chamber is called the right ventricle. Sometimes heart failure affects both sides of the heart.

Type of heart failure Description
Source: American Heart Association
Right-sided heart failure This type affects the lower right heart chamber, called the right ventricle. Fluid may back up into the belly, legs and feet, causing swelling.
Left-sided heart failure This type affects the lower left heart chamber, called the left ventricle. Fluid may back up in the lungs, causing shortness of breath.
Heart failure with reduced ejection fraction (HFrEF), also called systolic heart failure This is a type of left-sided heart failure. The left ventricle can't squeeze as strong as it should. The heart isn't strong enough to pump enough blood to the body.

Heart failure with preserved ejection fraction (HFpEF), also called diastolic heart failure This is a type of left-sided heart failure. The left ventricle can't relax or fill fully. The heart has a problem filling with blood.

Risk factors

Diseases and conditions that increase the risk of heart failure include:

Coronary artery disease. Narrowed arteries may limit the heart's supply of oxygen-rich blood, resulting in weakened heart muscle.

Heart attack. A heart attack is a form of coronary artery disease that occurs suddenly. Damage to the heart muscle from a heart attack may mean the heart can no longer pump as well as it should.

Heart valve disease. Having a heart valve that doesn't work properly raises the risk of heart failure.

High blood pressure. The heart works harder than it has to when blood pressure is high.

Irregular heartbeats. Irregular heartbeats, especially if they are very frequent and fast, can weaken the heart muscle and cause heart failure.

Congenital heart disease. Some people who develop heart failure were born with problems that affect the structure or function of their heart.

Diabetes. Having diabetes increases the risk of high blood pressure and coronary artery disease.

Sleep apnea. This inability to breathe properly during sleep results in low blood-oxygen levels and an increased risk of irregular heartbeats. Both of these problems can weaken the heart.

Obesity. People who have obesity have a higher risk of developing heart failure.

Viral infections. Some viral infections can damage to the heart muscle.

Medicines that may increase the risk of heart failure include:

Some diabetes medicines. The diabetes drugs rosiglitazone (Avandia) and pioglitazone (Actos) have been found to increase the risk of heart failure in some people. Don't stop taking these medicines without first talking to your health care provider.

Some other medicines. Other medicines that may lead to heart failure or heart problems include nonsteroidal anti-inflammatory drugs (NSAIDs) and some medicines used to treat high blood pressure, cancer, blood conditions, irregular heartbeats, nervous system diseases, mental health conditions, lung and urinary problems, and infections.

Other risk factors for heart failure include:

Aging. The heart's ability to work decreases with age, even in healthy people.

Alcohol use. Drinking too much alcohol may weaken the heart muscle and lead to heart failure.

Smoking or using tobacco. If you smoke, quit. Using tobacco increases the risk of heart disease and heart failure.

Complications

If you have health failure, it's important to have regular health checkups, even if symptoms improve. Your health care provider can examine you and run tests to check for complications.

Complications of heart failure depend on your age, overall health and the severity of heart disease. They may include:

Kidney damage or failure. Heart failure can reduce the blood flow to the kidneys. Untreated, this can cause kidney failure. Kidney damage from heart failure can require dialysis for treatment.
Other heart problems. Heart failure can cause changes in the heart's size and function. These changes may damage heart valves and cause irregular heartbeats.
Liver damage. Heart failure can cause fluid buildup that puts too much pressure on the liver. This fluid backup can lead to scarring, which makes it more difficult for the liver to work properly.
Sudden cardiac death. If the heart is weak, there is a risk of dying suddenly due to a dangerous irregular heart rhythm.
Prevention
One way to prevent heart failure is to treat and control the conditions that can cause it. These conditions include coronary artery disease, high blood pressure, diabetes and obesity.

Some of the same lifestyle changes used to manage heart failure also may help prevent it. Try these heart-healthy tips:

Don't smoke.
Get plenty of exercise.
Eat healthy foods.
Maintain a healthy weight.
Reduce and manage stress.
Take medicines as directed.

7.European Society for Cardiology, 2021. ESC Guidelines on Chronic and Acute Heart Failure Management. [online] Available at: https://www.heartfailurematters.org/esc-clinical-practice-guidelines-on-the-management-of-chronic-and-acute-heart-failure/ [Accessed 24 June 2024].

ESC Clinical Practice Guidelines on
The Management of
Chronic and Acute
Heart Failure:
What Patients
Need to Know
1 https://www.escardio.org/Guidelines/Clinical-Practice-Guidelines/Acute-and-Chronic-Heart-Failure
What is Heart Failure?
Heart failure is not a single disease but a ‘syndrome’ made up of symptoms, such as breathlessness or fatigue, that may appear alongside signs such as swollen ankles, caused by something wrong in the heart.
Heart failure can be acute (comes on quickly and severely, requiring urgent attention) or chronic (long-lasting, with the coming-and-going of symptoms). This document

mainly refers to chronic heart failure.

Types of Heart Failure

Heart failure occurs when the pumping action of the heart is impaired. This impairment may be mild or severe.

Generally, there are three types of chronic heart failure based on the amount of blood that is pumped out of the heart's main pumping chamber, the left ventricle, during each heartbeat. This is known as the 'left ventricular ejection fraction'.

The three types of chronic heart failure are:

• Heart Failure with reduced Ejection Fraction (HFrEF)

• Heart Failure with mildly reduced Ejection Fraction (HFmrEF)

• Heart Failure with preserved Ejection Fraction (HFpEF)

HFrEF

Left ventricular ejection fraction

Changes in heart structure

<40%

In HFrEF, the heart is usually enlarged compared with a normal heart and pumping weakly

HFmrEF

≥40 to <50%

HFpEF

≥50%

HFmrEF is between HFrEF and HFpEF

Changes in heart function

In HFpEF, the heart is less enlarged than in HFrEF; the left ventricle is smaller compared with the HFrEF heart and stiffened

The left ventricle fills with higher pressure than is normal.

There is higher pressure in the lungs, veins and liver that can lead to breathlessness and/or oedema (swelling)

The changes associated with each type of chronic heart failure are shown below:

Right
ventricle
Left
ventricle
Normal heart
Left
ventricle
Right
ventricle
HFrEF
Weakened
heart muscle
Advanced Heart Failure
Left
ventricle
Right
ventricle
HFpEF
Stiffened
heart muscle

Advanced heart failure is a development of chronic heart failure when symptoms cannot be fully controlled despite maximum therapy. This is sometimes referred to as 'resistance to treatment'.

Advanced heart failure is different from when acute heart failure arises in a patient with chronic heart failure, which describes the rapid onset of a change in heart function that requires urgent attention.

Diagnosis of Heart Failure

To be diagnosed with heart failure, you must have symptoms and/or signs of heart failure as well as abnormalities and functional problems in the heart as seen on tests. The types of tests and investigations you may have to diagnose your condition are shown below:

Blood tests,
such as BNP/
NT-proBNP
Electrocardiogram (ECG),
checks electrical activity of
the heart
X-ray
Echocardiogram (echo),
ultrasound of the heart

These tests will identify which type of heart failure you have (HFrEF, HFmrEF, or HFpEF)

and guide the appropriate course of treatment.
You may need further tests for better evaluation of the features of your heart failure and how your condition will develop.
A magnetic resonance imaging (MRI) scan is sometimes used instead of or with an echo to identify particular characteristics of the heart, including scarring of the heart muscle.
The types of treatments that you receive will be chosen depending on how much help your heart needs to function. The more that is known about your diagnosis, the better your doctors can personalise your treatment options, which may improve your symptoms and/or outcomes.
Severity Classification of Heart Failure
Following diagnosis, doctors will often classify your condition using the New York Heart Association (NYHA) Functional Classification system, according to the severity of your symptoms and how they affect your physical activity:

NYHA class	Description
Class I	No limitation of physical activity. Ordinary physical activity does not cause excessive symptoms, e.g., breathlessness, fatigue or palpitations (more noticeable or 'skipping' heartbeats)
Class II	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity causes excessive symptoms
Class III	Significant limitation of physical activity. Comfortable at rest, but less than ordinary physical activity causes excessive symptoms
Class IV	Unable to do any physical activity without discomfort. Symptoms can be present even at rest. If any physical activity is done, discomfort is increased

Hereditary Forms of Heart Failure
Some causes of heart failure, such as a disease of the heart muscle called cardiomyopathy, may be 'hereditary', meaning they can be passed down in your family. Genetic testing should be considered in people who may have cardiomyopathy depending on age, family history and heart structure.
Treatment for Heart Failure
Care from a multidisciplinary team (healthcare professionals across different specialities) is key to meeting the three major goals of treatment for people with heart failure:
1.
longer life
2. prevent hospital stays due to worsening heart failure

3. decrease symptoms and improve quality of life

Some of the ways that you and your multidisciplinary team can help to achieve these goals are shown below:

Multidisciplinary team

Medication

Devices

Surgery

Lifestyle

Management

and

monitoring

Help patients live longer, prevent hospital stays, decrease symptoms and improve quality of life

Medications for People with HFrEF

Medicines are the first treatment for HFrEF and should be started as early as possible, before devices or other non-medicinal treatments are used.

The ESC Clinical Practice Guidelines currently recommend four different types of medicines for people with HFrEF: Angiotensin converting enzyme inhibitors (ACE-I) or angiotensin receptor neprilysin inhibitors (ARNI), beta-blockers (BB), mineralocorticoid receptor antagonists (MRA) and sodium-glucose cotransporter-2 (SGLT2) inhibitors.

The table below explains how the different medicines work:

Type of medicine

Angiotensin converting enzyme inhibitors (ACE-I)

Angiotensin receptor neprilysin inhibitors (ARNI)

Beta-blockers (BB)

Mineralocorticoid receptor antagonists (MRA)

Sodium-glucose cotransporter-2 (SGLT2) inhibitors

What it does

Relax blood vessels and reduce how hard the heart has to work

Work in a similar way to ACE-I (above) and have additional heart-protective effects

Slow down the heart so that it doesn’t have to work as hard, and protect the heart from future heart attacks

Reduce build-up of fluid and sodium, reducing scarring of heart muscle, and thus protect the heart

Help remove fluid and sodium, protecting the

heart and kidneys2

You may also receive other types of medications to control your symptoms or improve your condition, e.g., diuretics ('water pills', which help your body get rid of salt [sodium] and water) are recommended to reduce excess fluid and lower pressures within the heart.

Medications for People with HFmrEF

Most research into medications for people living with heart failure has been focused on treatment of people with HFrEF. However, many medications used for HFrEF may also help people with HFmrEF, including diuretics.

2The scientific evidence on the benefit of SGLT2 inhibitors for patients with HFrEF and HFpEF was published after the ESC Clinical Practice Guidelines for the diagnosis and treatment of acute and chronic heart failure.

Medications for People with HFpEF

Recently, SGLT2 inhibitors have also been shown to help people with HFpEF live longer, prevent hospital stays, decrease symptoms and improve quality of life2.

Other medications can be used to help relieve symptoms for people with HFpEF, such as diuretics to reduce breathlessness. As most people with HFpEF have underlying high blood pressure and/or coronary artery disease, many are treated with ACE-I/ angiotensin II receptor blockers (ARB), BB or MRA.

Managing Heart Failure Alongside Other Health Conditions

Many people with heart failure also have other health conditions such as diabetes, kidney disease or chronic obstructive pulmonary disease.

Your heart failure treatment might be changed if you have one of these conditions, are pregnant or have another condition such as congenital heart disease.

For people with heart failure and atrial fibrillation, anticoagulants ('blood thinners') are often needed to prevent stroke, and digoxin is sometimes given to slow a high heart rate.

For people who don't have enough iron, an iron infusion can be given to improve symptoms and prevent hospitalisation.

2The scientific evidence on the benefit of SGLT2 inhibitors for patients with HFrEF and HFpEF was published after the ESC Clinical Practice Guidelines for the diagnosis and treatment of acute and chronic heart failure.

Devices and Surgery for Heart Failure

Devices

Medical devices can help support the heart by using electrical signals to keep it beating regularly and/or improve how it works.

These devices, placed under the skin near the collarbone, may not only improve symptoms but have been shown to help people with heart failure live longer.

Three types of devices that may be recommended to you are shown below:

Pacemaker

ICD

A pacemaker monitors heart rate and sends small and painless electrical impulses to the heart to start each heartbeat if needed

CRT-P

/CRT-D

An Implantable Cardioverter Defibrillator (ICD) is a pacemaker-like device that can deliver either a painless electrical impulse or a more noticeable shock to the heart to correct the heart rhythm if it senses a serious problem that could lead to sudden cardiac arrest

A cardiac resynchronisation therapy pacemaker (CRT-P) is a special type of pacemaker that makes the different parts of the heart pump together. It can be combined with an ICD (CRT-D)

Pacemaker

A pacemaker monitors heart rate and sends

People with HFrEF are at increased risk of cardiac arrest, where the heart suddenly stops pumping.

Pacemakers may be recommended for people with a heartbeat that is too slow or too fast.

People who have recovered from cardiac arrest and those with a history of heart attack are most likely to receive an ICD. In people with other heart disease not related to the blood vessels of the heart, ICDs are most helpful in those under 70 years old.

A cardiac resynchronisation therapy (CRT) device may be used in certain people to improve heart function and quality of life, depending on the results of an ECG as well as how well and for how long medications are working.

small and painless

electrical impulses to the heart to start each heartbeat if needed.

ICD

CRT-P

/CRT-D

An Implantable Cardioverter Debrillator (ICD) is a pacemaker-like device that can deliver either a painless electrical impulse or a more noticeable shock to the heart to correct the heart rhythm if it senses a serious problem that could lead to sudden cardiac arrest.

A cardiac resynchronisation therapy pacemaker (CRT-P) is a special type of pacemaker that makes the di erent parts of the heart pump together. It can be combined with an ICD

Some of the important steps in the process of receiving or replacing an implanted device are shown below:

If you have a left ventricular ejection fraction ≤35%, you should be considered for an implanted device (ICD or CRT) You should receive education around the purpose of the device and potential complications

A review of

medications

(particularly
diuretic therapy)
is advised after
receiving a CRT
You should be evaluated
by an experienced
cardiologist before your
device is replaced, in
case management goals
or needs have changed
Time
Surgery
Some people with underlying cardiac diseases that are causing heart failure will benefit from surgery or other procedures.
Some of the common surgical or catheter procedures for heart failure, who they are for, and what they do and how, are listed below:

Procedure/ surgery	Who's it for?
Catheter ablation	People with worsening heart failure symptoms due to atrial fibrillation
Coronary artery bypass grafting	People with narrowing of the coronary arteries, symptoms of angina and left ventricular ejection fraction ≤35%
Valve repair or replacement	People who develop problems with their heart valves, including aortic stenosis (narrowing of the opening of
Mitral valve procedures	
Mechanical circulatory support	

the left ventricle)

What it does and how	
Restores normal heart rhythm by blocking extra electrical impulses coming into the heart	
Diverts blood around narrowed parts of the arteries to improve blood flow and oxygen supply to the heart	
Surgery may be done to repair or replace the valve. In patients with severe aortic stenosis, surgical or catheter replacement of the aortic valve is recommended	
People who have symptoms despite medications and in whom the procedure is likely to reduce heart failure hospitalisation	
People with advanced heart failure	
Heart transplantation	
People with advanced heart failure	
Prevents abnormal blood flow between heart chambers	
Implanted device that takes over the pumping function of the heart. It can be used until a heart transplant is available or as a long-term treatment	
Optimal treatment for limited group of patients	

Lifestyle Modifications for People with Heart Failure

People with heart failure can make lifestyle modifications to improve their symptoms and the condition itself.

Your healthcare team should refer you to rehabilitation where you can learn more about your condition and how to look after yourself.

Looking after yourself is essential in the effective management of heart failure and you should discuss any lifestyle recommendations with your healthcare team.

Some examples of lifestyle modifications are shown below:

- Exercise according to physical ability
- Plan travel and leisure activities according to physical ability
- Reduce sedentary habits, cigarettes and alcohol
- Seek help if experiencing depression, anxiety or low mood
- Maintain a healthy diet and body weight
- Monitor, recognise and react to changes in signs/symptoms

Management and Monitoring of Heart Failure

- Regular monitoring is important to maintain symptom control.

You may meet with your healthcare providers in the following ways:

- A multidisciplinary team (which combines healthcare professionals from different specialities) is recommended to ensure correct tests, accurate diagnosis and appropriate therapy, education and follow-up
- If you've recently been discharged from hospital, follow-up should be more frequent, including a visit 1–2 weeks after leaving hospital to check your symptoms and how well the medications are working
- Regular follow-up is important, even if your condition is stable. The ESC Clinical Practice Guidelines recommend at least every 6 months to check things like heart rhythm, blood pressure and kidney function
- Telemonitoring, where you may send information such as your symptoms, weight or blood pressure to your healthcare provider, may be used to adjust treatment or get further advice
- Each person's experience with heart failure is different; despite the best medications, devices and surgical treatments, symptoms can get worse.
- A supportive approach from all members of your multidisciplinary team can improve quality of life by balancing medical treatment and symptom control with particular reference to mental and spiritual wellbeing.

This guide for patients is a simplified version of the ESC's Clinical Practice Guidelines for the diagnosis and treatment of acute and chronic heart failure. The full guidelines are available in English on the ESC website (https://www.escardio.org/Guidelines/Clinical-Practice-Guidelines/Acute-and-Chronic-Heart-Failure); your cardiologist will be familiar with its content and recommendations. Online translator tools may be able to translate the text and present it in an alternative language, with limitations.

If you are interested in more information about heart failure and its diagnosis and treatment or the terms used in this document, the Heart Failure Matters website (https://www.heartfailurematters.org/) is a good place to start. It contains details about heart failure and the medicines used to treat it (presented in 10 different languages).

8.Diabetes UK, 2023. The correlation between heart failure and diabetes. [online] Available at: https://www.diabetes.co.uk/diabetes-complications/heart-failure.html [Accessed 24 June 2024].

Diabetes Complications
Heart Failure

Heart failure, which is not to be confused with a fatal heart attack, describes any condition that prevents the heart from pumping blood around the body effectively enough.

Around 70,000 people are diagnosed with heart failure in the UK each year.

Heart failure becomes more common as we age, affecting around 1 in 7 of people aged 85 or older

Data from the UK National Diabetes Audit showed that people with diabetes are up to 65% more likely to suffer heart failure than the rest of the population

Types of heart failure
The three most common types of heart failure are a result of the following:

Left ventricular systolic dysfunction (LVSD) – weakening of the left ventricle, the part of the heart that pumps blood around the body
Heart failure with preserved ejection fraction (HFPEF) – this can cause the left ventricle to become stiff and impairs its ability to fill with blood
Valve disease – if the valves of the heart suffer damage or their function deteriorates
Symptoms of heart failure
Some of the more common symptoms of heart failure include:

Being short of breath
Having swollen ankles or feet which may develop to include a swollen stomach and lower back
Feeling unusually weak or fatigued
Diagnosing heart failure
The following tests may be run to diagnose heart failure and to assess the type of heart failure you may have:

Blood tests – which can indicate whether heart failure is present or if the symptoms may be caused by another condition

Breathing test – which can identify whether a lung condition is contributing to symptoms such as shortness of breath
ECG (electrocardiogram) test – which measures the electrical activity as your heart beats
Echocardiogram – which uses ultrasound to view the heart as it beats

Causes
Heart failure can be caused by a number of different problems and having more than one of these contributory factors will increase the risk of heart failure occurring.

Some of the main contributory factors for heart failure include:

Heart disease
Cardiomyopathy (deterioration of the heart muscle)
Atrial fibrillation (irregular heart rhythm)
Problems that affect the valves of the heart
Hypertension (high blood pressure)
Presence of diabetic nephropathy (kidney disease)
Treatments for heart failure
Treatments for heart failure can vary depending on the root cause or causes.

Lifestyle changes – see preventing heart failure below which list the lifestyle changes that can also help with treating the condition
Medications – which include diuretics, blood pressure medication and blood thinning medication
Pacemakers or other medical devices such as ICDs (implantable cardioverter defibrillators) or CRT-Ds (cardiac resynchronization therapy pacemaker with defibrillation therapy)
Surgery – which may include heart valve surgery, coronary angioplasty, coronary artery bypass graft (CABG) or heart transplantation
Preventing heart failure
A number of lifestyle interventions can help to reduce the risk of heart failure which includes:

Maintaining a healthy weight – which include not being too thin as well as not being overweight
Eating a healthy, balanced diet
Avoiding excess salt in your diet – severe salt restriction is to be avoided as well
Having a healthy intake of iron to avoid anaemia
Taking at least 2 and a half hours of exercise each week
Decreasing alcohol intake
Quitting smoking
Keeping blood glucose levels tightly controlled – research has shown that reducing HbA1c by 1% lowers the risk of heart failure by 16% in people with type 2 diabetes.
In addition, research has shown reducing HbA1c by 1% decreases the risk of heart failure by 16% in people with type 2 diabetes. [1]

9.Mount Sinai Health Library, n.d. Heart failure: overview. [online] Available at: https://www.mountsinai.org/health-library/diseases-conditions/heart-failure-overview [Accessed 24 June 2024].

Heart failure - overview
CHF; Congestive heart failure; Left-sided heart failure; Right-sided heart failure - cor pulmonale; Cardiomyopathy - heart failure; HF

Heart failure is a condition in which the heart is no longer able to pump oxygen-rich blood to the rest of the body efficiently. This causes symptoms to occur throughout the body.

If you cough a lot, often feel weak, have lost your appetite, and need to urinate a lot at night, you might have symptoms of heart failure. Heart failure is a long-term condition that usually comes on slowly. However, it can develop suddenly, for instance, after a heart attack. You have heart failure when your heart does not pump blood out of your heart very well, or when your heart muscles are stiff and do not easily fill up with blood. When you have heart failure, your heart cannot pump enough oxygen-rich blood to the rest of your body, especially when you exercise or move around a lot. As the heart loses the ability to pump blood, blood backs up in other parts of your body, including your lungs, liver, gastrointestinal tract, and your arms and legs. The most common cause of heart failure is coronary artery disease, the narrowing of the blood vessels that supply blood and oxygen to your heart. So, how do you know if you have heart failure? Get to your doctor. You may have trouble breathing, an irregular heartbeat, swollen legs, neck veins that stick out, and sounds from fluid built up in your lungs. Your doctor will check for these and other signs of heart failure. A test called an echocardiogram is often the best test to diagnose your heart failure. Your doctor can also use this test to find out why you have heart failure, and then monitor your condition going forward every three to six months. Your doctor will talk to you about knowing your body and symptoms that mean your heart failure is getting worse. You will need to learn to watch for changes in your heart rate, pulse, blood pressure, and weight. You will also need to limit salt in your diet, stop drinking alcohol, quit smoking if you need to, exercise, lose weight if you need to, and get enough rest. Your doctor will probably ask you to take medicines to treat your heart failure. These medicines can treat your symptoms, prevent your heart failure from getting worse, and help you live longer. If you have heart failure, taking your medicines, changing your lifestyle, and treating the condition that caused heart failure can go a long way toward improving your health. But heart failure is a chronic, or long-term, illness, which means it may get worse over time. Make sure you call your doctor if you start coughing more, have sudden weight gain or swelling, or feel week. Have someone take you to the emergency room right away if you have trouble with fainting, a fast and irregular heartbeat, or feel severe crushing chest pain.

Causes
Heart failure is most often a long-term (chronic) condition, but it may come on suddenly. It can be caused by many different heart problems.

The condition may affect only the right side or only the left side of the heart. Both sides of the heart also can be involved.

Heart failure is present when:

Your heart muscle cannot contract very well. This is called systolic heart failure, or heart failure with a reduced ejection fraction (HFrEF).
Your heart muscle is stiff and does not fill up with blood easily even though pumping power is normal. This is called diastolic heart failure, or heart failure with a preserved ejection fraction (HFpEF).
As the heart's pumping becomes less effective, blood may back up in other areas of the body. Fluid may build up in the lungs, liver, gastrointestinal tract, and the arms and legs. This is called congestive heart failure or, more simply, just heart failure.

The most common causes of heart failure are:

Coronary artery disease (CAD), a narrowing or blockage of the arteries that supply blood and oxygen to the heart. This can weaken the heart muscle over time or suddenly.
High blood pressure that is not well controlled, leading to problems with stiffness, or eventually leading to muscle weakening.
Other heart problems that may cause heart failure are:

Congenital heart disease
Heart attack (when coronary artery disease results in a sudden blockage of a heart artery)
Heart valves that are leaky or narrowed
Infection that weakens the heart muscle
Some types of abnormal heart rhythms (arrhythmias)
Other diseases that can cause or contribute to heart failure:

Amyloidosis
Emphysema
Overactive thyroid
Sarcoidosis
Severe anemia
Too much iron in the body (usually due to hereditary hemochromatosis)
Underactive thyroid
Symptoms
Symptoms of heart failure often begin slowly. At first, they may only occur when you are very active. Over time, you may notice breathing problems and other symptoms even when you are resting. Symptoms may also appear suddenly after the heart is damaged from a heart attack or other problem.

Common symptoms are:

Cough
Fatigue, weakness, faintness
Loss of appetite
Need to urinate at night
Pulse that feels fast or irregular, or a sensation of feeling the heartbeat (palpitations)
Shortness of breath when you are active or after you lie down
Swollen (enlarged) liver or abdomen
Swollen feet and ankles
Waking up from sleep after a couple of hours due to shortness of breath
Weight gain
Exams and Tests
Your health care provider will examine you for signs of heart failure:

Fast or difficult breathing
Leg swelling (edema)
Neck veins that stick out (are distended)
Sounds (crackles) from fluid buildup in your lungs, heard through a stethoscope
Swelling of the liver or abdomen
Uneven or fast heartbeat and abnormal heart sounds
Many tests are used to diagnose and monitor heart failure.

After an electrocardiogram (ECG), an echocardiogram (echo) is most often the best first test for people when heart failure is being evaluated. Your provider will use it to guide your treatment.

Other imaging tests can look at how well your heart is able to pump blood, and how much the heart muscle is damaged.

Many blood tests may also be used to:

Help diagnose and monitor heart failure
Identify risks for various types of heart disease
Look for possible causes of heart failure, or problems that may make your heart failure worse
Monitor for side effects of medicines you may be taking
Treatment
MONITORING AND SELF CARE

If you have heart failure, your provider will monitor you closely. You will have follow-up visits at least every 3 to 6 months, but sometimes much more often. You will also have tests to check your heart function.

Knowing your body and the symptoms that mean your heart failure is getting worse will help you stay healthier and out of the hospital. At home, watch for changes in your heart rate, pulse, blood pressure, and weight.

Weight gain, especially over a day or two, can be a sign that your body is holding on to extra fluid and your heart failure is getting worse. Talk to your provider about what you should do if your weight goes up or you develop more symptoms.

Limit how much salt you eat. Your provider may also ask you to limit how much fluid you drink during the day.

Other important changes to make in your lifestyle:

Ask your provider how much alcohol you may drink.
DO NOT smoke or use tobacco.
Stay active. Walk or ride a stationary bicycle. Your provider can provide a safe and effective exercise plan for you. DO NOT exercise on days when your weight has gone up from fluid or you are not feeling well.
Lose weight if you are overweight.
Lower your cholesterol by changing your lifestyle.
Get enough rest, including after exercise, eating, or other activities. This allows your heart to rest too.
MEDICINES, SURGERY, AND DEVICES

You will need to take medicines to treat your heart failure. Medicines treat the symptoms, prevent your heart failure from getting worse, and help you live longer. It is very important that you take your medicine as your health care team directed.

These medicines may:

Help the heart muscle pump better
Keep your blood from clotting
Lower your cholesterol levels
Open up blood vessels or slow your heart rate so your heart does not have to work as hard
Reduce damage to the heart
Reduce the risk for abnormal heart rhythms
Replace potassium
Rid your body of excess fluid and salt (sodium)
It is very important that you take your medicine as directed. DO NOT take any other drugs or herbs without first asking your provider about them. Drugs that may make your heart failure worse include:

Ibuprofen (Advil, Motrin)
Naproxen (Aleve, Naprosyn)
The following surgeries and devices may be recommended for some people with heart failure:

Coronary bypass surgery (CABG) or angioplasty with or without stenting may help improve blood flow to the damaged or weakened heart muscle.
Heart valve surgery may be done if changes in a heart valve are causing your heart failure.
A pacemaker can help treat slow heart rates or help both sides of your heart contract at the same time.
A defibrillator sends an electrical pulse to stop life-threatening abnormal heart rhythms.
END-STAGE HEART FAILURE

Severe heart failure occurs when treatments no longer work. Certain treatments may be used when a person is waiting for (or instead of) a heart transplant:

Intra-aortic balloon pump (IABP)
Left or right ventricular assist device (LVAD)
Total artificial heart
At a certain point, the provider will decide whether it is best to keep treating heart failure aggressively. The person, along with their family and doctors, may want to discuss palliative or comfort care at this time.

Outlook (Prognosis)
Often, you can control heart failure by taking medicine, changing your lifestyle, and treating the condition that caused it.

Heart failure can suddenly get worse due to:

Ischemia (lack of blood flow to the heart muscle)
Eating high-salt foods
Heart attack
Infections or other illnesses
Not taking medicines correctly
New, abnormal heart rhythms
Most of the time, heart failure is a chronic illness. Some people develop severe heart failure. At this stage, medicines, other treatments, and surgery no longer help the condition.

People with heart failure may be at risk for dangerous heart rhythms. These people often receive an implanted defibrillator.

When to Contact a Medical Professional
Contact your provider if you develop:

Increased cough or phlegm
Sudden weight gain or swelling
Weakness

Other new or unexplained symptoms
Go to the emergency room or call the local emergency number (such as 911) if:

You faint
You have fast and irregular heartbeat (especially if you also have other symptoms)
You feel a severe crushing chest pain
Prevention
Most cases of heart failure can be prevented by living a healthy lifestyle and taking steps aimed at reducing your risk for heart disease.

10.Organs Talk, 2021. Learn about cardiovascular disease and the interconnected systems [online] https://www.organs-talk.com/cvd/cardiovascular-disease/learn-about-cardiovascular-disease-and-the-interconnected-systems [Accessed 24 June 2024].

Learn about cardiovascular disease and the interconnected systems

What is the connection between the heart and type 2 diabetes?
The heart serves as an engine that pumps fuel around the body in the form of blood, and the pancreas produces hormones that regulate blood sugar and help the body to digest food to create more fuel.1,2 Type 2 diabetes is caused by pancreatic dysfunction or insulin resistance, making it harder for your body to sufficiently utilize glucose, resulting in high blood sugar levels.3

The heart and type 2 diabetes are linked, as the high blood sugar in type 2 diabetes damages vessels the heart uses to pump blood around the body, and to itself.4 In addition, impaired utilization of nutrients in diabetes can cause dysfunction of the heart muscle.5

People living with type 2 diabetes are more likely to have other conditions, such as high blood pressure and high cholesterol, that increase the risk of developing additional cardiovascular diseases.4

Because the two organ systems are so closely related, getting your type 2 diabetes under control can help to improve your heart health and limit the risk to your heart caused by high blood sugar.4,5

If you have questions or concerns about the interconnectivity of these conditions, speak to your doctor.

What is the connection between the heart and the kidneys?
The heart and the kidneys work together to make sure that clean blood is provided to the body. Your kidneys remove waste products and excess water from your blood, and your heart pumps the blood to the rest of your body (including back into your kidneys).6,7 Due to the close relationship between the organ systems, when one isn't functioning properly, the other is affected.6

When the kidneys aren't working properly, this changes the composition and volume of your blood, requiring the heart to work harder to pump it around your body, and putting increased pressure on your blood vessels (high blood pressure).7,8

In turn, the increased pressure on your blood vessels can cause damage to your kidneys, which can limit their ability to filter your blood.7 Managing your high blood pressure through regular check-ins with your healthcare team and lifestyle changes can drastically reduce the risk of further heart and kidney damage.9

Similarly, heart failure and kidney damage are closely related. In people with heart failure, the kidneys often don't work properly and in turn increase stress to the already damaged heart.7

heart and the kidneys
If you have questions or concerns about the interconnectivity of these conditions, speak to your doctor.

11. Cleveland Clinic, 2021. Circulatory system. [online] Available at: https://my.clevelandclinic.org/health/body/21775-circulatory-system [Accessed 24 June 2024].

Circulatory System
The circulatory system (cardiovascular system) pumps blood from the heart to the lungs to get oxygen. The heart then sends oxygenated blood through arteries to the rest of the body. The veins carry oxygen-poor blood back to the heart to start the circulation process over. Your circulatory system is critical to healthy organs, muscles and tissues.

Overview
What is the circulatory system?
Your heart and blood vessels make up the circulatory system. The main function of the circulatory system is to provide oxygen, nutrients and hormones to muscles, tissues and organs throughout your body. Another part of the circulatory system is to remove waste from cells and organs so your body can dispose of it.

Your heart pumps blood to the body through a network of arteries and veins (blood vessels). Your circulatory system can also be defined as your cardiovascular system. Cardio means heart, and vascular refers to blood vessels.

Anatomy of the human circulatory system.
The circulatory system provides blood to all the body's tissues so they can function.

Function
What does the circulatory system do?
The circulatory system's function is to move blood throughout the body. This blood circulation keeps organs, muscles and tissues healthy and working to keep you alive.

The circulatory system also helps your body get rid of waste products. This waste includes:

Carbon dioxide from respiration (breathing).
Other chemical byproducts from your organs.
Waste from things you eat and drink.
How does the circulatory system work?
Your circulatory system functions with the help of blood vessels that include arteries, veins and capillaries. These blood vessels work with your heart and lungs to continuously circulate blood through your body. Here's how:

The heart's bottom right pumping chamber (right ventricle) sends blood that's low in oxygen (oxygen-poor blood) to the lungs. Blood travels through the pulmonary trunk (the main pulmonary artery).
Blood cells pick up oxygen in the lungs.
Pulmonary veins carry the oxygenated blood from the lungs to the heart's left atrium (upper heart chamber).
The left atrium sends the oxygenated blood into the left ventricle (lower chamber). This muscular part of the heart pumps blood out to the body through the arteries.
As it moves through your body and organs, blood collects and drops off nutrients, hormones and waste products.
The veins carry deoxygenated blood and carbon dioxide back to the heart, which sends the blood to the lungs.
Your lungs get rid of the carbon dioxide when you exhale.
Anatomy
What are the circulatory system parts?
The parts of your circulatory system are your:

Heart, a muscular organ that pumps blood throughout your body.
Blood vessels, which include your arteries, veins and capillaries.
Blood, made up of red and white blood cells, plasma and platelets.
What are the circulatory system circuits?
Your circulatory system has three circuits. Blood circulates through your heart and through these circuits in a continuous pattern:

The pulmonary circuit: This circuit carries blood without oxygen from the heart to the lungs. The pulmonary veins return oxygenated blood to the heart.
The systemic circuit: In this circuit, blood with oxygen, nutrients and hormones travels from the heart to the rest of the body. In the veins, the blood picks up waste products as the body uses up the oxygen, nutrients and hormones.
The coronary circuit: Coronary refers to your heart's arteries. This circuit provides the heart muscle with oxygenated blood. The coronary circuit then returns oxygen-poor blood to the heart's right upper chamber (atrium) to send to the lungs for oxygen.
What are the types of blood vessels?
There are three main types of blood vessels:

Arteries: Arteries are thin, muscular tubes that carry oxygenated blood away from the heart and to every part of your body. The aorta is the body's largest artery. It starts at the heart and travels up the chest (ascending aorta) and then down into the stomach (descending aorta). The coronary arteries branch off the aorta, which then branch into smaller arteries (arterioles) as they get farther from your heart.
Veins: These blood vessels return oxygen-depleted blood to the heart. Veins start small (venules) and get larger as they approach your heart. Two central veins deliver blood to your heart. The superior vena cava carries blood from the upper body (head and arms) to the heart. The inferior vena cava brings blood up from the lower body (stomach, pelvis and legs) to the heart. Veins in the legs have valves to keep blood from flowing backward.
Capillaries: These blood vessels connect very small arteries (arterioles) and veins (venules). Capillaries have thin walls that allow oxygen, carbon dioxide, nutrients and waste products to pass into and out of cells.
What are the circulatory system organs?
Your heart is the only circulatory system organ. Blood goes from the heart to the lungs to get oxygen. The lungs are part of the respiratory system. Your heart then pumps oxygenated blood through arteries to the rest of the body.

Conditions and Disorders
What conditions affect the circulatory system?
Many conditions can affect the health of your circulatory system, including:

Aneurysms: Aneurysms occur when an artery wall weakens and enlarges. The weak spot can bulge as blood moves through the artery. The weak spot may tear, causing a life-threatening rupture. Aneurysms can affect any artery, but aortic aneurysms, abdominal aortic aneurysms and brain aneurysms are the most common.
High blood pressure: Your arteries work hard to circulate blood throughout the body. When the pressure (force of blood against the blood vessel walls) gets too high, you develop high blood pressure. When the arteries become less elastic (stretchy), less blood and oxygen reaches organs like the heart. High blood pressure puts you at risk for cardiovascular disease, heart attacks and strokes.
Plaque deposits: High cholesterol and diabetes can lead to fat and other substances collecting in the blood. These substances form deposits called plaques on artery walls. This condition is atherosclerosis, or narrowed or hardened arteries. Atherosclerosis increases the risk of blood clots and strokes, coronary artery disease, peripheral artery disease (and other artery diseases), heart attacks and kidney disease.
Venous disease: Venous diseases tend to affect veins in the lower body. Problems like chronic venous insufficiency and varicose veins occur when blood can't flow back to the heart and pools in leg veins. Deep vein thrombosis (DVT), a blood clot in the legs, can lead to a life-threatening pulmonary embolism.
Care
How can I prevent circulatory system problems?
These steps can protect the health of your circulatory system:

Aim for at least 150 minutes of physical activity every week.
Eat a heart-healthy diet rich in vegetables and fiber and low in saturated fats and processed foods. Consider a Mediterranean-style diets or plant-based diet, as they appear to be the most heart healthy.
Find healthy ways to ease stress.
Maintain a healthy weight.
Manage conditions like diabetes, high blood pressure and high cholesterol.

Get help to quit smoking.
Additional Common Questions
How big is the circulatory system?
Your body has more than 60,000 miles of blood vessels that circulate about 1.5 gallons of blood every day.

What is red blood and blue blood?
All blood is red. Hemoglobin, an iron-rich protein in red blood cells, mixes with oxygen to give blood its red color. Blood that's rich in oxygen is known as red blood.

Your veins carry oxygen-poor blood. This is sometimes called blue blood because your veins can look blue underneath the skin. The blood is actually red, but the low oxygen levels give veins a bluish hue.

Do arteries always carry oxygenated blood?
For the most part, yes. The exceptions are pulmonary arteries and veins. Pulmonary arteries carry deoxygenated blood to the lungs. Pulmonary veins return the oxygenated blood to the heart.

A note from Cleveland Clinic

Your circulatory system plays a critical role in keeping you alive. Blood vessels carry blood to the lungs for oxygen. Then your heart pumps oxygen-rich blood through arteries to the rest of the body. Your veins help your body get rid of waste products. Conditions like high blood pressure, high cholesterol and atherosclerosis can affect the health of your circulatory system. If you have one of these conditions, talk to your healthcare provider about steps you can take to protect your cardiovascular health.

12. Organs Talk, 2021. Living life with cardiovascular disease. [online] Available at: https://www.organs-talk.com/cvd/cardiovascular-disease/living-with-cardiovascular-disease [Accessed 24 June 2024].

Living life with cardiovascular disease
How can my healthcare team help?
Your doctor may suggest changes to lifestyle, such as eating a low salt/low sodium diet, and doing more regular exercise, to help improve your heart health and reduce your risk of further complications.1

If management of your condition(s) requires medication, your doctor will discuss the treatment options that are appropriate for you to ensure that you're receiving care to meet your individual needs.1

It's not uncommon for those living with cardiovascular disease to have more than one condition that could be affecting their heart health. Your doctor or healthcare team will provide testing, monitoring, advice and medication (if required) to help you to manage these conditions, and ensure you have the best chance at living the life you want to live.

Treatment for cardiovascular disease

Being diagnosed with a cardiovascular disease, such as heart failure, coronary artery disease, or peripheral vascular disease, may lead to negative feelings and emotions. But remember that proper management and lifestyle changes can dramatically reduce your cardiovascular risk.1

Treatment can help to target symptoms and limit further damage to your heart and body.1

Types of treatment depend on what type of cardiovascular disease you have, but typically treatment options will include:1,2

Lifestyle adaptations
such as a more heart-healthy diet and regular exercise.

Surgery
such as, pacemakers, stents etc, to support areas of the heart that aren't working as well as they should.

Medication
to reduce cholesterol, improve blood flow and help your heart to work properly.

Medications for cardiovascular disease include:3
Statins – Help to reduce cholesterol levels in your blood

Aspirin – Helps to prevent the blood from clotting

Beta-blockers – Stop the effects of the hormones such as adrenaline. This helps to slow down your heartbeat and improve blood flow

Angiotensin-converting enzyme (ACE) inhibitors and angiotensin-2 receptor blockers (ARBs) – Block the effect of the hormone angiotensin-2 which helps the blood vessels to widen, enabling better blood flow

Nitrates – Relax your blood vessels and help improve blood flow

Calcium channel blockers – Help to relax the muscles of your arteries and decrease blood pressure

Diuretics – Help to reduce blood pressure by flushing excess water and salt from the body

Mineralocorticoid receptor antagonists (MRAs) - Help to increase water excretion by the kidneys, reducing blood pressure and fluid around the heart

Sodium-glucose cotransporter 2 (SGLT2) inhibitors – Reduce the amount of glucose in your blood by helping the kidneys pass excess glucose through the urine

Each therapy has a different role in managing your condition, so be sure to take your treatments as directed by your doctor.

Staying on top of your cardiovascular disease

When it comes to managing your symptoms and reducing your risk, some steps can have a huge impact. Lifestyle changes such as switching out some of your food choices for more heart-healthy options or finding effective ways to do more physical activity in your day-to-day life, can have a positive impact.4

Changing your lifestyle can seem daunting but you don't have to make these changes all at once. The key is to take small, practical steps to a healthier lifestyle. On this page you will find helpful tips to support you to take a step in the right direction towards a heart-healthier lifestyle.

Nutrition

Most of us are aware that a healthy diet is essential to good health but did you know that eating a heart-healthy diet could even help to reverse heart disease? Swapping out unhealthy foods for more healthful alternatives can help to lower blood pressure, improve blood sugar levels, lower cholesterol and help you lose weight, all of which can help to improve your overall heart health and reduce the risk of further complications associated with cardiovascular disease.4,5 Below is a list of swaps you can make to help your heart:

Nutrition

Consider

swapping foods, such as pasta or rice, with wholegrain alternatives and include oats to your diet.

Try

snacking on fresh fruit, nuts, or raw vegetables to fill you up in between meals.

Think

about steaming, boiling, or grilling food, using vegetable oils as an alternative to frying with butter, ghee or lard.

Swap

out condiments high in salt for reduce-salt alternatives or season food with other flavourful alternatives like herbs and spices and salt-free seasoning blends.

Exercise

Just like with nutrition, the benefits of regular exercise are widely known, but can regular exercise improve cardiovascular health even when you have cardiovascular disease? Studies have shown that regular exercise paired with a healthy diet not only helps to prevent further damage to the heart and blood vessels, but it can also help to reverse some risk factors.5,6 In this section you'll find ways that you can make to boost your physical activity just by making small adaptations to your daily routine.

Exercise

Walk

if and when you can – this could be as simple as: taking the stairs instead of the elevator; parking the car a little further away; getting off the bus one stop earlier.

Do household chores
where you need to move and stretch a lot, like mopping, vacuuming or gardening.

Active
Active play with children and pets
or taking a walk in the park with friends.

Other things to consider
Quitting smoking, if you smoke
You may not be ready to quit so consider reducing the number of cigarettes and stretch intervals between. If you are ready, there is support available to help you in your transition to becoming a non-smoker.7

Cutting down your alcohol intake
A higher level of alcohol intake can increase your blood pressure and ultimately lead to cardiovascular disease e.g., abnormal heart rhythm.8 For some, reducing alcohol intake is easy but for others it isn't. If you feel you need support to help you to cut down on your drinking, there is valuable support available.
Remember to reward yourself after every success to help maintain your motivation.
If you experience any new symptoms or if your symptoms are worrying you, speaking to your doctor or healthcare team can shine a light on any additional management measures that can be put in place to ensure that your symptoms don't impact the way you live your life.

Your emotional experience with cardiovascular disease
Being diagnosed and living with a long-term condition can leave you feeling afraid and maybe even depressed.1,9 The uncertainty of what the future may hold can be overwhelming and can lead to emotions that you may not feel equipped to handle. If this sounds familiar, then you might find these tips useful to help you come to terms with your diagnosis.

You might find it helpful to speak close friends or loved ones to help you to wrap your head around things. At the very least, sharing your feelings with someone close to you can help lighten the load.1

Speaking to other people who are living with cardiovascular disease might also help. Online or local communities and support groups can be amazing sources of information, support and advice.1

Sometimes low moods can last weeks or months and can begin to affect your day-to-day life. If you've been struggling with your emotions for longer than two weeks, then it's important to speak to someone about your feelings.

For further information, ask your doctor for help in searching for helplines that can offer support.