What is heart failure?

Heart failure is a serious medical condition where the heart does not pump blood around the body as well as it should. This means that your blood can't deliver enough oxygen and nourishment to your body to allow it to work normally. Heart failure often develops because you have (or had) a medical condition, such as coronary artery disease, a heart attack or high blood pressure, which has damaged or put extra workload on your heart. Heart failure can develop at any age but clearly becomes more common with increasing age. Around 1% of people under 65 years of age have heart failure, but 7% of 75-84 year olds have heart failure and this increases to 15% in people older than 85. It is the most common cause of

At first your body will adapt to try and compensate for your weakened heart's poor pumping. The heart will increase the number of times it beats (tachycardia) - to pump more blood around your body, expand its size (dilatation) - by stretching to increase the amount of blood it can hold and pump out and develop stronger, thicker heart muscle (hypertrophy) - to help it pump harder. Your body will also try to increase the amount of circulating blood and re-direct blood flow away from your muscles to your brain and other vital organs. However, these adaptations can only compensate for a limited time, and in fact, in the long-term these adaptations can actually make your heart even weaker.

The two main types of heart failure are chronic heart failure and acute heart failure**.** Chronic heart failure is more common and symptoms appear slowly over time and worsen gradually. Acute heart failure develops suddenly and symptoms are initially severe. Acute heart failure either follows a heart attack that has caused damage to an area of your heart or, more frequently, is caused by a sudden lack of ability by the body to compensate for chronic heart failure.

Symptoms of heart failure

Heart failure symptoms can vary widely from person to person, depending on the type of heart failure you have. Therefore, you may experience all of the symptoms described here or just a few of them. In the early stage, you are unlikely to notice any symptoms, but if your heart failure progresses you are likely to experience symptoms, which become more severe.

The main symptoms of heart failure are caused by fluid accumulation or congestion and poor blood flow to the body and they include:

SHORTNESS OF BREATH is caused by fluid accumulation and congestion in the lungs. In the early stages of heart failure you will probably only experience breathlessness after exercise, but if your heart failure progresses you may feel breathless when resting as well. If you do feel breathless at night or when lying down, try supporting yourself with pillows so you are lying in a more upright position. If symptoms persist, the correction of therapy is necessary.

COUGH OR WHEEZING usually develops due to fluid accumulation in the lungs, but can also be caused by lung conditions (such as chronic obstructive pulmonary disease (COPD) and asthma. If you have a cough or are wheezy, you should find that, as with breathlessness, supporting yourself with pillows or sitting up makes you more comfortable.

It is very common for people with heart failure to experience rapid **CHANGES IN THEIR WEIGHT**. If your heart failure is causing fluid accumulation , you will gain weight. However, if your body loses this fluid (for example, after appropriate treatment), you will lose weight. It is important to weigh yourself frequently and to tell your doctor or nurse if you notice your weight increase by more than 2 kilos (3 pounds) in 3 days.

SWELLING ANKLES. Fluid accumulation can cause swelling (oedema**),** particularly in the ankles. Sometimes the swelling can extend into your legs, thighs and abdomen. Your doctor or nurse may recommend limiting how much you drink every day, in order to limit the amount of fluid that can build up in your body. He/she may also recommend that you take an extra diuretic when required.

LOSS OF APPETITE. Fluid accumulation caused by heart failure can affect any part of your body. Some people accumulate fluid in their liver and digestive system. If this happens, it can make you feel full and/or bloated. Therefore, you may feel less hungry. You can try eating smaller meals more frequently to stop you from feeling too full or bloated.

NEED TO URINATE AT NIGHT. When you lie down in bed at night, the fluid that has built up in your legs during the day can move back into your bloodstream and is taken to your kidneys to be eliminated as waste urine. Going to the toilet before going to bed and limiting the amount you drink in the evening may help reduce the number of times you have to get up at night to urinate. Taking your diuretic in the morning may also help.

DEPRESSION AND ANXIETY. It is very common for people with heart failure to feel depressed, uneasy or anxious. Heart failure symptoms can leave you worn out and exasperated and may prevent you from participating in normal social activities, which can limit your social network. You may also depend on help from family and friends, which may make you feel that you are a burden on them.

Symptoms related to the reduced blood flow to parts of the body include:

TIREDNESS/FATIGUE. Heart failure reduces your heart's pumping ability so less blood reaches your muscles. This lack of oxygen and nourishment cause your muscles to get tired much more quickly. Moderate exercise and exercise training may help improve your symptoms. In contrast to what many people believe, exercise is considered beneficial in patients with heart failure It reduces stress and boosts your energy levels.

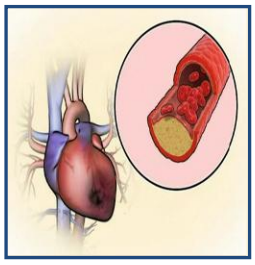
DIZZINESS. Heart failure causes reduced blood flow to the rest of your body. If the flow to your brain is lower than usual or your blood pressure is low, you may feel dizzy. Dizziness in people with heart failure is often caused by their medicines. However, irregular heart beats , which often happen with heart failure, or a temporary drop in blood pressure cuased by rising from a sitting or lying position (postural hypotension) can also cause dizziness.

RAPID HEART RATE. When you have heart failure, your heart tries to compensate for its lack of pumping power by beating faster (tachycardia) in order to keep up the same flow of blood around your body. This increased heart rate may sometimes be irregular and cause palpitations which feel like your heart is racing or throbbing.

What causes heart failure?

Heart failure can be caused by current or past medical conditions, which either damage or add extra workload to the heart. If you have (or had) more than one of these conditions your risk of heart failure is substantially increased. Some of the more common causes of heart failure include:

PAST HEART ATTACKS. Heart attacks are the most common cause of heart failure. During heart attack one of the arteries supplying heart muscle itself has becomes completely blocked, cutting off the blood supply, oxygen and nourishment to heart muscle, causing it to die. Your remaining healthy heart muscle then has to pump harder to **compensate**, putting more workload onto your heart than it can handle. This can lead to heart failure (over several months or years).



CORONARY ARTERY DISEASE. In coronary heart disease, one or more of your coronary arteries has become narrow due to the build up of a cholesterol containing mass (plaque) inside the artery wall. This narrowing of your artery reduces the amount of oxygen and nourishment that are able to reach your heart muscle, causing angina (chest pain) oftern during exercise. This lack of oxygen and nutrients makes the muscle work harder in order to pump blood around your body. Coronary artery disease can be delayed or even prevented by lifestyle and medical approaches.

HIGH BLOOD PRESSURE in your blood vessels is known as hypertension. When the pressure is too high, your heart has to pump harder than normal to keep the blood circulating. Hypertension that is not controlled increases your risk of heart failure. Hypertension can be easily treated.

HEART VALVE DISEASE, HEART MUSCLE DISEASE OR INFLAMMATION OF THE HEART AND CONGENITAL HEART DEFECTS. If your valves don't work properly, they don't close (leading to leaking of blood) and/or open completely (making them too narrow) during each heartbeat. Your heart has to work harder to keep enough blood moving in the correct direction and heart failure may develops. Both heart muscle disease (cardiomyopathy) and inflammation of the heart muscle (**myocarditis**) affect the heart muscle. Cardiomyopathy changes the structure of your heart. The muscle may thicken and become stiffer, or the heart may dilate. Myocarditis is an acute inflammation of your heart muscle, usually caused by a viral infection. Acute inflammation may result in a dilated cardiomyopathy. If your heart and its chambers weren't formed correctly before you were born, the blood flow in your heart or vessels near it may be blocked or have abnormal pathways or connections. This makes it harder for your heart to pump blood around your body and the extra workload can cause heart failure.

LUNG, KIDNEY AND OTHER CONDITIONS. If you have lung disease, there is less oxygen in your blood and your heart will have to work harder to deliver the available oxygen around your body, which can cause heart failure. Heart failure caused by lung disease usally affects the right side of the heart and it usually causes fluid accumulation in your legs and abdomen. The kidneys try to compensate for heart failure by retaining salt and water and thereby increasing circulating blood volume. When they are diseased or not functioning properly, they produce hormones that retain salt and water even when blood volume has increased, causing further fluid accumulation and congestion. This may develop into a vicious cycle and aggravate heart failure. Other conditions, such as, infection , anaemia, abnormal heart rhythm, diabetes and overactive thyroid gland may aggravate heart failure

Common tests for heart failure

The most common tests in heart failure diagnostics are:

- Medical history
- Physical examination
- Electrocardiogram (ECG)
- Blood tests
- Chest x-ray
- Echocardiogram

Additional tests may be able to find out more about your heart failure or identify the cause. These include: lung function tests, exercise testing, cardiac Magnetic Resonance Imaging (MRI), cardiac catheterisation and angiography, nuclear medicines techniques and Multi-slice Computer Tomography (MSCT).

How can heart failure change over time?

Heart failure is a serious, chronic condition that tends to gradually get worse over time. Eventually it can shorten your life. The progress of heart failure is unpredictable and different for each person. In many cases, the symptoms remain at a stable level for quite some time (months or years) before becoming worse. In some cases the severity and symptoms become gradually worse over time. You should understand that careful management of your condition can not only ease symptoms but can also improve prognosis and prolong life.

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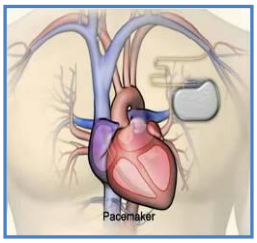
HEART FAILURE MEDICINES

There are lots of medicines that you may be given. All of these can help to keep your symptoms under control and improve your quality of life. Not all medicines are needed by every person with heart failure. Which medicines are right for you will depend on your symptoms, general health and lifestyle. It is very important to take your medicines exactly as your doctor tells you as this will ensure that the medicine works as well as it can. You are likely to need more than one medicine at a time. Some of them have side effects and if you do find it hard to cope with them, it's important to talk to your doctor rather than stopping the medicine straight away. The available groups of heart failure medicines are: Diuretics, ACE (Angiotensin converting enzyme) inhibitors, ARBs (Angiotensin II receptor blockers), Beta blockers, Aldosterone receptor antagonists, Vasodilators, Digitalis preparations, Antiarrhythmics, Anticoagulants, Antiplatelets and Statins.



DEVICES AND SURGERY

If you have an abnormal heart rhythm or if the electrical impulses do not travel through your heart properly, your doctor may decide your heart needs additional support. A number of advanced medical devices can help support your heart by using painless electrical signals to keep it beating regularly and/or improve function. These devices may not only improve symptoms but have been shown to improve long-term survival. These devices are constantly getting smaller, more efficient, and with longer lasting batteries. Typically these devices are inserted with a local anaesthetic. They are positioned under your collarbone so as not to be visible on the outside of your body. Most devices will require periodic monitoring, usually annually, on an outpatient basis. Sometimes, it may be necessary for you to have heart surgery. While surgery generally improves heart failure, it will only be carried out if the anticipated benefits of the procedure outweigh the risks. Surgery that can improve your heart failure includes coronary artery bypass, valve replacement surgery and heart transplantation.

Adapting your lifestyle

Heart failure is a chronic condition, which means it requires long-term treatment. You may have to adapt other aspects of your lifestyle, such as diet, exercise, smoking and alcohol consumption, to ensure that you get the most benefit from your treatment.

ADJUSTING YOUR DIET

Although you may consider your current diet to be fairly healthy, you may be required to reduce key elements of it, such as salt, fat and alcohol. You may be referred to a dietician who will work with you to develop a personalised diet to improve the way you feel and help control your heart failure.

MAINTAINING A HEALTHY WEIGHT

Heart failure is often associated with rapid changes in weight. Losing a lot of weight unintentionally over a short space of time can be serious. It could mean that you are not consuming enough calories or that your heart failure or inactivity are causing muscle loss. It could also indicate that your diuretic dose is too high. If you are losing weight and are finding it **difficult to gain weight, your doctor/dietician may recommend that you try** a high calorie, high protein diet or try eating smaller and more frequent meals. Sudden weight gain

may be due to fluid retention or overeating. An adjustment of your diet and diuretic dose may be necessary. Keeping track of your weight by weighing yourself daily (preferably at the same time of day, can inform your doctor of any noticeable changes in your weight.

SALT INTAKE

Reducing your salt intake can be important for people with heart failure. Heart failure causes your body to hold on to extra salt and water, which causes fluid to build up in your body, which causes swelling of your ankles, feet or stomach, weight gain and congestion of your lungs. To reduce salt intake first remove the salt pot (shaker) from the table, than try to eat more fruit and vegetables, meat substitutes, unprocessed foods, low fat dairy products, polyunsaturated fats, cereals and fish. Try adding herbs, spices or fruit juices (lemon/lime) to your meal to add more flavour. Always check the label of foods for their salt content.You may find that even if you do not have the symptoms of fluid build-up or are taking a diuretic, reducing your salt intake will make you feel better. It will also help your treatment work better.

FLUID INTAKE

Water and salt retention leads to an increased amount of fluid in the blood. Your heart has to work harder to push this increased amount of blood around your body. The excess fluid may be pushed into your lungs, making it harder to breathe, into the abdomen making it more difficult to eat and digest food, or into your lower legs. Your doctor may prescribe you drugs called diuretics to help you get rid of the extra fluid you are retaining. For most patients with heart failure the amount of fluids that should be taken on a daily basis varies between 1.5 and 2 litres and it includes water, juice, ice cubes, coffee, milk, soup, tea or fizzy drinks. To limit the amount you drink try using small cups instead of mugs, spread your daily allowance over the whole day and try drinking very cold or very hot fluids - it takes longer. If you feel very thirsty suck on a ice cube, limit the intake of caffeinated and alcoholic drinks, try chewing gum or eat frozen fruits.

ALCOHOL INTAKE

Alcohol may relax your heart muscle, slowing the beating of your heart and reducing your blood pressure. While having a little alcohol may help to prevent coronary artery disease, too much alcohol intake when you have an existing heart condition may raise your heart rate and blood pressure and long-term abuse may cause cardiomyopathy. In general it is recommended that you drink no more than 1 to 2 alcoholic beverages a day (a single drink is classed as one glass of beer or wine, or one mixed drink with only one measure of alcohol). If you have serious symptoms, you may be advised to avoid alcohol altogether.

POTASSIUM INTAKE

Potassium is an important mineral that your body requires for proper functioning. You will normally receive the recommended daily amount in your diet, however if you are taking diuretics for your heart failure, your body may lose some of this potassium. Your doctor may prescribe you a type of diuretic or adjust your other medication to prevent this from happening. You may, also, be advised to supplement your diet with foods rich in potassium such as bananas, oranges, prunes, soybeans, cantaloupe melon, fish such as halibut or flounder and potatoes.

FATS AND CHOLESTEROL

Eating too much of these fatty foods can result in high levels of fats and cholesterol in the blood. High blood cholesterol is linked to coronary artery disease, which can lead to a heart attack and heart failure. In addition, foods with a high fat content also contain a lot of calories, which can lead to weight gain. Your diet should include fruit and vegetables, fish, poultry, lean meat, meat-substitutes (e.g. soya), and unsaturated fats. A good habit to get into is reading food labels to find out what the food contains and in what quantities. You should avoid foods high in saturated fats, for instance those found in whole milk products and red meats. Cutting down on egg yolks and animal products in general will help to reduce your cholesterol level.

Living with heart failure

With the right care and support, heart failure should not keep you from doing most of the things you want to, as long as you are aware of your own limits. Your future health depends not only on how well your heart functions and how well your heart responds to treatment, but also on how well you work with your doctor or nurse to control your symptoms and how well you follow your treatment plan.

ACTIVITY AND EXERCISE

Any mild physical activity is beneficial for the majority of people with heart failure. Activity may improve the functioning of your heart, by reducing the workload and enabling it to beat more efficiently. Before starting an exercise programme, or if you want to increase or change the type of exercise you do, talk to your doctor or nurse to make sure you are not putting too much strain on your heart too quickly. Choose an activity that you enjoy, as you will be more likely to do it regularly. Exercising with a friend also helps, as you will be able to encourage each other. Always warm up and cool down with a few stretches before you begin exercising. If it is cold or windy outside, you should try and warm up before leaving the house. Walking is a good activity to start with. Try to walk every day by doing activities such as collecting the newspaper, or getting off the bus one stop earlier. If you already walk, try cycling or swimming. Start slowly and gradually increase the distance or intensity of the activity as your strength/fitness improves. A good rule of thumb is that you should still be able to talk while you are exercising. Stop exercising at once if you experience shortness of breath, dizziness, chest pain, nausea or a cold sweat. Try not to exercise straight after a large meal, or when you haven't eaten for a long time. Plan to exercise 1-2 hours after a light meal. Activities that require holding your breath, bearing down or sudden bursts of energy are best avoided.

SMOKING

Carbon monoxide in cigarette smoke affects the oxygen carrying ability of your blood. Therefore, your heart has to work harder to supply your body with adequate oxygen. Smoking also contributes to the deposit of fats in your blood vessels, causing narrowing of vessels and increasing your blood pressure. Smoking causes the blood vessels in your body, including those in your heart, to constrict (narrow). This will make the symptoms of your heart failure worse. It is never too late to stop smoking, and stopping will be beneficial for your heart. There are a number of different ways to stop smoking: 1. Use nicotine patches, gum and inhalers, 2. Give up gradually, reducing the number of cigarettes you have a day, 3. Brush your

teeth after a meal instead of lighting a cigarette, 4. Avoid places where smoking is permitted, 5. Find something else to do with your hands or mouth, such as playing with a paperclip, or chewing gum, 6. Get more active, exercise boosts morale and helps you relax, 7. Don't empty your ashtray, this will show you how much you smoke and how horrid the smell of stale smoke is, 8. Involve your family, especially those who smoke - this can be key to success.

TRAVELING

Generally, if your heart failure is well-controlled and stable, you should have no difficulties with mild traveling. If you have new or worsening symptoms - such as increasing shortness of breath or recent weight gain - you should discuss your travel plans with your doctor. If you have had a device (pacemaker**,** CRT**,** ICD) implanted then it will probably be detected by the security machines. You should inform the security personnel beforehand. Security control and air travel will not interfere with the function of your device. Devices use standard technology and you will be able to have your device checked in most parts of the world if required. Sitting still for long periods in cramped positions in aircraft frequently leads to swollen ankles and sometimes muscle cramps. Regular stretching and mobility exercises can help, as well as walking around the cabin and while waiting in airports. In some cases, your doctor may recommend that you wear knee-high support stockings during the flight to prevent blood clots (DVT). It is very important that you remember to take all your medicines with you on holiday and that you take enough for the duration of your stay plus 2 days in case of delays/cancellations in flights. Whilst on holiday you may well be out of your normal daily routine so it is possible that you may miss a dose of your medicine. You should not worry unduly about this but try and get back onto your treatment regime as soon as possible. DO NOT take a double dose of any medicine to make up for a missed dose as this could potentially be more harmful than missing a dose. When travelling over several time zones it is recommended that you take your medicines after arrival at the local time.

DRIVING

Most people with heart failure can safely drive a car. However, people who have a history of loss of consciousness or fainting due to an abnormal heart rhythm **(**arrhythmia) in general should talk to their doctor about their ability to drive. People who drive for a living are likely to require regular review of their condition, and in some countries may be excluded from driving. Having a pacemaker will not prevent you from maintaining your driver's license.

WORKING

In most cases, heart failure can be adequately treated and controlled, allowing you to continue to work full time for many years. Your particular situation will depend on the cause and severity of your heart failure, as well as the demands of your job. You may need to adjust your working hours or other strenuous activities. If you feel you are becoming less able to do your job, discuss this with your doctor in case a change of medication is needed, and/or with your employer to see if other work can be arranged.

IMMUNIZATIONS

Caring for yourself when you have heart failure is mainly about staying well. One way to stay well is to minimise the risk of getting respiratory infections like influenza (flu) or **pneumonia**, as respiratory problems can worsen heart failure. Safe vaccines that can provide immunity against flu and pneumonia are available.

RELATIONSHIPS

Learning that you have a serious condition like heart failure may initially provoke feelings of anxiety, anger or depression. These feelings should fade as you begin to accept the diagnosis, take charge of your health and make positive lifestyle changes. It is important for you to understand that those close to you may also be experiencing similar reactions to you, such as fear and concern for your safety and well-being. They may need to share their thoughts and feelings with you. Effective management of heart failure is often a group effort. Your family members can play a key role in supporting you to live as actively as possible with your heart failure. As you learn more about heart failure keep them informed and updated. Let your family know the best way they can lend you emotional and moral support. Involve them in helping with aspects of your medical care issues, for example helping with your medicine regime or measuring your heart rate and blood pressure. Consider ways in which you and your family can do activities together (for example, active family outings, preparing healthy meals together). Let it be known that you will accept help, but that you want to remain as independent as possible.

SEX AND HEART FAILURE

Many people with heart failure are not sure if they should have sex because of their condition and may feel embarrassed to raise this question with their doctor or nurse. The good news is that most people with heart failure can continue to enjoy sexual relations once their symptoms are under control. Just as with any other activity, you should not have sex if you are feeling ill, are very short of breath, or are having chest pains. You may feel more comfortable and confident when trying the following: 1. Choose a time for sex when you are rested, relaxed and not pressured, 2. Avoid having sex immediately after eating a heavy meal or drinking excessive amounts of alcohol, 3. Have sex in a comfortable, familiar room that is not too hot or too cold and where you will not be interrupted, 4. Use foreplay as a warm-up period to help your body get used to the increased activity level of intercourse, 5 .Have sex in less strenuous positions such as lying on the bottom or with you and your partner lying side by side. If at any time you start to feel uncomfortable, breathless or tired during intercourse, stop and rest for a short while. Feelings like stress, anxiety and depression are natural after a diagnosis of this nature and can often cause a loss of interest in sex. If this is the case, you might like to find other ways of being physically close and intimate with your partner. For example, you could spend time hugging, kissing and touching instead. Also bear in mind that people with heart failure frequently have physical problems with sex such as erectile dysfunction (impotence), problems with ejaculation or the inability to have an orgasm or climax. You should seek advice from your doctor or nurse if you have any concerns. There are very effective medical treatments available that most people with heart failure can use as required.

Warning signs

It is important to monitor all your symptoms on a regular basis as heart failure can progress slowly.

You **should call for help immediately** if you experience:

- Persistent chest pain that is not relieved by glyceryl trinitrate (GTN / nitroglycerin)
- Severe and persistent shortness of breath
- Fainting

You should **inform your doctor as soon as possible** if you experience:

- Increasing shortness of breath
- Frequent awakenings due to shortness of breath
- Needing more pillows to sleep comfortably
- Rapid heart rate or worsening palpitations

And you should **discuss any of the symptoms** below with your doctor or nurse.

- Rapid weight gain
- Progressive swelling or pain in the abdomen
- Increased swelling of the legs or ankles
- Loss of appetite/nausea
- Increasing fatigue
- Worsening cough

You can find out more about heart failure on **heartfailurematters.org**