



All about Heart Failure

The  's of Health




Changi
General Hospital


What is Heart Failure?

Heart Failure is a common heart disorder. The heart is not able to pump enough blood to the body's working tissues and water retention occurs. This imbalance of supply and demand shows itself as significant rapid weight gain (more than 1.5 kg over 1-2 days), breathlessness (especially when lying flat), unusual tiredness, dizziness, leg and abdominal swelling. These symptoms can greatly affect your normal daily activities.

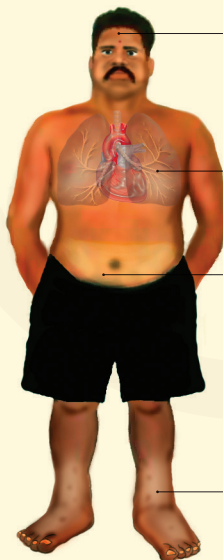
There are many causes of heart failure. The common causes include: progressive coronary artery disease, prolonged uncontrolled hypertension, heart valve disorders, viral or bacterial infections, chronic lung disease, heart damage from excessive alcohol, or heart damage from unknown (idiopathic) cause.



Normal heart supplies blood to major organs



Failing heart is unable to supply enough blood to major organs



Tiredness and dizziness

Breathlessness

Swollen abdomen

Swollen legs

What are the treatment options?

The proven treatment and management of heart failure includes lifestyle changes, medications, medical devices, and surgery.

It will involve the cardiologist, nurses, physiotherapist, occupational therapist, pharmacist and dietitian. Our team will work closely with the Family Physician. Commitment from the patient and his relatives is also very important.

Team management is important.

- Cardiologist
- Patient
- Nurse
- Physiotherapist
- Pharmacist
- Primary care doctor (GP or Family Physician)
- Relative
- Dietitian
- Occupational Therapist

The goal of these treatments is to improve heart function, remove or reduce symptoms (by controlling excess water and salt retention), and reduce further heart damage.

What are the lifestyle modifications?

Lifestyle changes

You have to take charge of your life. You need to undergo lifestyle changes that will make you feel better and which may be potentially life saving. You need to know more about your heart failure condition and commit to involve yourself actively in self-care in areas covering diet, physical activity, stress management, work, and sexual activity. This will help you dispel feelings of hopelessness and improve well being and outcomes.

Health education

Your caregivers and you will need to be actively involved in managing your heart condition. Increased awareness of one's health and knowledge of self care skills have been proven to improve outcomes in the form of reduced hospital admissions and better quality of life. Health education will be given by your doctor, nurses, dietitians, pharmacists and therapists.

Diet

Making changes in your diet can help to relieve your symptoms of heart failure. People with heart failure are required to eat less sodium containing food as too much sodium causes your body to retain water. The excess body fluid build-up increases blood volume and blood pressure which makes your heart work harder. Hence, you should reduce your sodium intake, which comes mainly from the addition of salt and sauces to meals and the intake of processed food. In addition, remember to monitor and limit your daily fluid intake as prescribed by your doctor. As part of a "heart-healthy" diet, it will also be beneficial to your health to adopt a diet that is low in fat, cholesterol and sugar but high in fibre.



Alcohol and Cigarettes

Excessive alcohol directly weakens the heart and can lead to abnormal heart rhythms that can worsen a failing heart. Smoking damages the blood vessels, reduces the amount of oxygen in the blood and makes the heart beat faster. All of these problems can cause and aggravate heart failure.



Exercise

Increased physical activity in the form of regular exercise is encouraged. Regular exercise helps to control cholesterol, blood pressure, diabetes and weight as well as managing stress and anxiety. It also helps to improve your physical fitness, thereby improving your ability to perform daily tasks. The physiotherapist will prescribe an individualised exercise programme so that you can exercise safely.



Managing stress, anxiety, anger and depression

Stress, anxiety, anger and depression are commonly found in patients suffering from heart disease. These negative emotions, if not managed appropriately, can worsen your physical condition. Hence it is important to **recognise such emotions** and take steps to reduce them.

Here are some tips to help you cope with negative emotions:

1. **Acknowledge** your negative feelings and emotions.
2. **Accept reality** i.e. you have heart disease and that life is not going to be the same.
3. **Adjust** to the limitations imposed by your heart condition.
4. **Adopt a positive attitude.** A positive attitude is a good defense against stress and depression. Tell yourself that your present heart condition is a wake up call. It gives you a chance to review your priorities and live differently.
Expect to keep on living and initiate your own healing process by:
 - Finding out more about your heart disease.
 - Stop doing things that may have contributed to your illness e.g. smoking and overeating.
 - Start doing things that would contribute to your health e.g. regular exercises and good diet.
 - Staying connected to people and accepting emotional support from your family and friends. Joining a support group would help.Fill your mind with optimism, hope and peace.
5. **Learn to relax** – relaxation is an active process involving techniques and activities that calm your body and mind. Some of the techniques include: meditation, listening to music, deep breathing, and progressive muscle relaxation and guided imagery. Use and practise one relaxation technique that suits you. Relaxation is a learnt skill. So set aside time to practise it.
6. **Do not be afraid to ask for help.**
7. **Seek professional help** if you feel depressed or experience any of the following symptoms for more than two weeks:
 - Feeling sad, anxious, irritable and nervous.
 - Loss of interest in activities you used to enjoy.
 - Loss of energy, feeling tired all the time.
 - Difficulty concentrating, remembering things or making decisions.
 - Feelings of worthlessness, hopelessness and guilt.
 - Thoughts of suicide or death.

Work

People with heart failure are strongly encouraged to live as normally as possible. Under appropriate care, most patients with heart failure are able to go back to some sort of work, except physically heavy work.



Work stress will have to be recognised and managed accordingly. You must make time for a healthier lifestyle, especially time for a healthier diet and time for exercise.

Energy conservation tips

Energy conservation in the course of daily activities is very important. The Occupational Therapist will teach you, and offer you customised advice on how to do this. Below is a very brief summary.

1. Rearrange the environment
 - Keep frequently used items in easily reached places.
 - Replace existing heavy items with lighter ones: for example, use plastic plates and cups rather than glass or porcelain.
 - Install long handles on taps and doorknobs.
 - Adjust workspaces, such as raising a tabletop to eliminate awkward positions.
 - Consider moving your bed to the first floor to eliminate stair climbing.

2. Eliminate unnecessary effort
 - Sit rather than stand whenever possible: while washing your face, showering, etc.
 - Use adaptive equipment to make tasks easier, e.g. electric toothbrush.
 - Push a cart rather than carry items.
 - Use disposables.
 - Avoid bending, reaching, twisting or squatting.

3. Plan ahead
 - Gather all the things you need for a task before starting.
 - Plan rest breaks into activities as often as possible. Take a break before you get tired.
 - Schedule enough time for activities as rushing takes more energy.
 - Try keeping a daily activity journal for a few weeks to identify task that result in more fatigue.

Sexual activity

People with heart failure can have sex.

Sexual activity is safe if you have no symptoms and precautions are taken.

Some safety tips for sexual activity:

- Wait until 1 to 2 hours after a meal.
- Do not smoke or drink alcohol before and after sex.
- Be with a familiar partner in a familiar and comfortable environment.
- Have your partner assume the more physically demanding role.

Stop if there are symptoms during sexual activity and explore other ways of showing affection. Alternatively, have your partner take on the more physically demanding role.

What are the important things?

Important things you must do in heart failure management

1. Accept the condition for what it is.
2. Realise that this is part of your life.
3. Listen to your health care professionals.
4. Control your salt, cholesterol and water intake. Avoid cigarettes and excess alcohol.
5. Take your medications as prescribed.
6. Stay as active as possible and exercise safely.
7. Control stress.
8. Recognise feelings of hopelessness and depression. Get psychological support if needed.



Medications – what and why?

A person with heart failure has to take multiple medications that are proven to improve the quality of life and/or outcomes.

The pharmacist will educate you on your medications. It is important to know the name of your medications, what they are used for and how often and at what time of the day you should take them.

The pharmacist will counsel you on the side effects of the medications so that you will be able to know what to expect and what to look out for if you are not tolerating the medications well.

The table on the next page provides a list of medications used in heart failure.

These medications are very important in relieving and preventing the symptoms of heart failure, and improving its outcomes.

Take your medications as prescribed. Even if you have no symptoms, your medications will decrease the load to your heart so that it can pump more effectively.

Keep a list of your medications and bring them with you for each of your visits to the doctor.

Never stop taking your medications without first discussing it with your doctor.

Please inform your doctor(s) of any new medications that you wish to start or have started, including supplements or medications that you purchased off the shelves.

If you have any doubts regarding your medications or have developed new symptoms, you must consult your pharmacist, heart failure programme nurse or doctor.



Medications Used In Heart Failure

Class of Medications	Members of class	Use of Medications	Common side effects	Precautions and advice
Angiotensin Converting Enzyme (ACE) Inhibitors	Captopril Enalapril Lisinopril Perindopril Ramipril	Prevents heart from further weakening. Prevents narrowing of blood vessels.	Dry cough Dizziness Changes in taste	Do not take additional potassium supplements unless prescribed.
Angiotensin Receptor Blockers (ARBs)	Candesartan Losartan Valsartan	Reduces blood pressure to reduce risks of heart attack, stroke and kidney failure.	Dizziness Changes in taste	Avoid using salt substitutes.
Beta - blockers	Bisoprolol Carvedilol Nebivolol Metoprolol Succinate Extended Release (CR/XL)	Reduces blood pressure and heart rate. Thus, reducing workload and oxygen demands of the heart. Prevents angina chest pains, reduces worsening of heart function, reduces risk of heart attack, and abnormal heart rhythms.	Tiredness Dizziness Cold hands and feet Slow heart beat excessively Breathlessness Erectile dysfunction	Inform doctor if you have asthma, past fainting or near fainting spells.
Mineralocorticoid Receptor Antagonist (MRA)	Eplerenone Spironolactone	Prevents heart from further weakening. Removes excess water in the body.	Dizziness Nausea Breast tenderness	Do not take additional potassium supplements unless prescribed. Avoid using salt substitutes
I _f Current Inhibitor	Ivabradine	Reduces heart rate. Thus, reducing workload and oxygen demands of the heart.	Headache Dizziness Slow heart beat excessively Flashes of light (Phosphenes)	Inform doctor if you have fainting or near-fainting spells.

Class of Medications	Members of class	Use of Medications	Common side effects	Precautions and advice
n-3 Polyunsaturated Fatty Acids	Omega-3 fatty Acids, containing Eicosapentaenoic Acid [EPA] and Docosahexaenoic Acid [DHA]; 1g daily	Provides beneficial effects on cardiovascular system by possibly having anti-arrhythmic, anti-inflammatory and anti-atherogenic effects.	Halitosis (bad breath) Diarrhea Nausea and other minor gastrointestinal disturbances	Rinse the mouth more frequently to counter halitosis
Dihydropyridine Calcium Channel Blockers	Amlodipine Nifedipine LA	Relax blood vessels. Reduces blood pressure. Preventing angina chest pains.	Headache Flushing Dizziness Palpitations Swelling of the feet	
Vasodilators	Isosorbide Dinitrate (ISDN), Isosorbide Mononitrate (ISMN)	Relaxes blood vessels. Increase blood and oxygen supply to the heart. Nitrates reduce the incidence of chest pain.	Headache Flushing Dizziness	You may take paracetamol (Panadol) to relieve the headaches.
	Hydralazine		Flushing Palpitations	
Cardiac Glycosides	Digoxin	Improves the strength and pumping action of the heart resulting in better circulation.	Nausea and vomiting Diarrhoea Headache Dizziness Visual changes	Contact a doctor if any side effect occurs.
Diuretics	Bumetanide Frusemide Metolazone	Removes excess water in the body by increasing urine flow.	Nausea Muscle cramp Muscle weakness Dizziness	Do not take later than 7 pm to avoid waking up in the night to go to the toilet.
Potassium supplements	Potassium Chloride	Supplement the loss of potassium (due to the effects of diuretics).	Gastric pain Nausea / vomiting Diarrhoea	Do not take additional potassium supplements unless prescribed. Avoid using salt substitutes

Medicines -*what to avoid?*

The following medications should be avoided if possible or use with caution. If you are seeing any doctor for any medical condition, please inform them about your heart condition so that they can avoid prescribing drugs that can potentially worsen your heart.

- Certain painkillers: Non-Steroidal Anti-inflammatory Drugs (NSAIDs) e.g. Mefenamic acid (Ponstan®), Naproxen Sodium (Synflex®), Celecoxib (Celebrex®).
- Most anti arrhythmic agents e.g. sotalol, ibutilide, dronedarone.
- Rate slowing Calcium Channel Blockers i.e. Verapamil, Diltiazem.
- Certain diabetes medications: Thiazolidinediones i.e. Rosiglitazone (Avandia®), Pioglitazone (Actos®).
- Some growth hormone therapies.
- Antacids that contain sodium (salt).
- Decongestants such as Pseudoephedrine (Sudafed®) as they can make your heart work harder.
- Traditional medications or steroids which impair your heart's ability to work.

Which medical devices and surgery?

Medical devices and Surgery

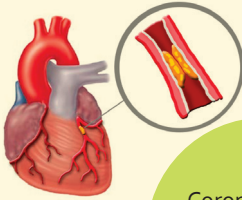
1. Revascularisation Procedures

Coronary artery disease is the cause of about two out of three cases of heart failure. If suspected, diagnostic cardiac catheterisation can be done. Two revascularisation treatment options are available if significant blockages of coronary arteries are found. These may improve quality and length of life. They are Percutaneous Coronary Intervention (PCI) and Coronary Artery Bypass Surgery (CABG).

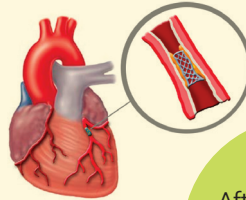
1.1 Percutaneous Coronary Intervention (PCI)

This involves inserting a balloon tipped catheter into the blocked coronary artery, and inflating it to unblock the diseased coronary artery or arteries. This is usually followed by insertion of a stent to keep the newly unblocked arteries open. This procedure is done under local anaesthesia.

Percutaneous Coronary Intervention



Coronary artery blocked by 'plaque' (cholesterol deposit)



After unblocking the artery, a stent is inserted to keep artery open

1.2 Coronary Artery Bypass Surgery (CABG)

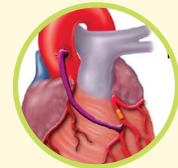
This involves surgical rerouting of the blood supply around a blocked section of the artery. Patients' own arteries or veins in the chest or limbs are taken and used as bypass grafts to supply around a blocked section of the artery or arteries. This procedure is done under general anaesthesia.



One end of the graft connects to the aorta



The other end of the graft connects to the coronary artery below the point of blockage



Bypass graft re-routes blood flow and brings blood to the coronary artery, bypassing the point of blockage

2. Infarct exclusion surgery (Modified Dor or Dor Procedure)

When a heart attack occurs, a scar may form in the heart muscle. The scarred area is thin and can bulge out with each beat. The bulging thin area is called an aneurysm. When heart failure occurs after a heart attack, the surgeon may choose to combine bypass surgery and/or valve repair, with removal of the infarcted scarred (dead) area of heart tissue or the aneurysm. Infarct exclusion surgery allows the surgeon to return the left ventricle to a more normal shape and to improve function. After this surgery, most patients' heart pumps better and they have less heart failure symptoms.

3. Heart valve surgery

Damaged heart valves may be the cause of heart failure. If this is so, valve surgery, either repair or replacement may be curative. As heart failure progresses, the mitral valve apparatus is stretched out of shape, causing the valve to leak. Repair of the mitral valve may be useful. It usually involves reshaping the leaflets and providing support to the mitral valve with a ring.

4. Permanent Pacemakers including Biventricular Pacemakers (Cardiac Resynchronisation Therapy)

Heart rhythm disorders are not uncommon in patients with heart failure (heart beats too slow, too fast, or irregularly). They may require a permanent pacemaker for the heart to work or relieve symptoms that come with these rhythm disorders.



In a small proportion of heart failure patients, despite optimal medical therapy, they are still very disabled by symptoms. They have the option of cardiac resynchronisation therapy in the form of biventricular pacing. This type of pacemaker sends carefully timed electrical impulses to the heart's lower chambers to improve the heart pump coordination and thus improve its ability to pump blood more effectively.

5. Ventricular assist device (VAD)

The VAD is a treatment option for heart failure patients who haven't responded to other treatments and are very ill with very severe reduced ejection fraction. This is a device that helps your heart pump blood throughout your body. It can be done temporarily as a bridge to transplant, bridge to recovery or permanently as destination therapy.

6. Heart Transplant

A heart transplant is a major operation involving the transplant of a donor heart (from a deceased donor) to the recipient heart failure patient. It requires diligent, lifelong care on the part of the recipient and the doctors.

In some cases, where the heart is damaged beyond recovery despite maximum medical and lifestyle treatment, a heart transplant is the final alternative. However there is a shortage of heart donors, thus the present criteria for receiving a donor heart are strict.

What to do when things get worse?

The heart failure programme nurse and doctor will advise you on self-care and self-management. This information may reduce readmissions, and improve quality of life.

You will be taught to keep a look out for the early signs of fluid retention. They are:

- Increase in weight of ≥ 1.5 kg over 1 to 2 days.
- Abdominal distension.
- Lower limb swelling.

Any one of the above symptoms or signs, especially weight gain (thus the importance of regular weighing) is an early sign that the heart is not coping well, and is beginning to fail (incipient decompensation). When this happens, please visit your primary care doctor.

The later symptoms and signs of heart failure are:

- Worsening breathlessness, initially on exertion, later even at rest.
- Breathlessness on lying flat.
- Increased unusual tiredness.
- Unusual feeling of cold and clamminess.
- Notice of decreased alertness or even confusion (by care givers).

When these later symptoms and signs of heart failure occur, you will need to call for an early appointment or go to the Accident and Emergency Department for further management.



Heart Failure Treatment Summary



Excessive fluid, sodium and fat intake add burden to the heart. Dietitian will advise you on a suitable diet.

Muscles need extra blood and oxygen when you are stressed or anxious; increasing the demands on your weak heart. Occupational therapist will teach you stress management techniques.

Exercise helps to improve your cardiovascular fitness and strengthens your muscles, thus reducing the demand on the heart. Your Physiotherapist will prescribe a suitable exercise programme so that you can exercise safely.

Doctor will treat existing heart disease with medication and /or surgery.

Engaging in daily activities may make you feel tired. However, it is necessary to do activities as they may help in strengthening the heart muscles. Engaging in purposeful activities also increase the sense of well-being as well as increase quality of life. The Occupational Therapist will teach you energy conservation tips to decrease energy demands of the heart.

You will also have follow-up care to maintain your health and address any problems you have. Nurses will advise you on the follow-up plan.

IMPORTANT FOR YOU!

1. Accept the condition for what it is.
2. Realise that this is part of your life.
3. Listen to your health care professionals.
4. Control your fluid, sodium and fat intake.
5. Avoid cigarettes and excess alcohol.
6. Take your medications as prescribed.
7. Stay as active as possible and exercise safely.
8. Control stress.
9. Recognise feelings of hopelessness and depression.
Get psychological support if needed.

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and subject to revision without prior notice.