



# Advanced heart failure and transplant prehabilitation

– prepare for your heart transplant or treatment

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Version 1

## ➤ About this leaflet

This purpose of this leaflet is to provide patients with information about safe levels of activity and how to improve or maintain health and levels of fitness while living with heart failure.

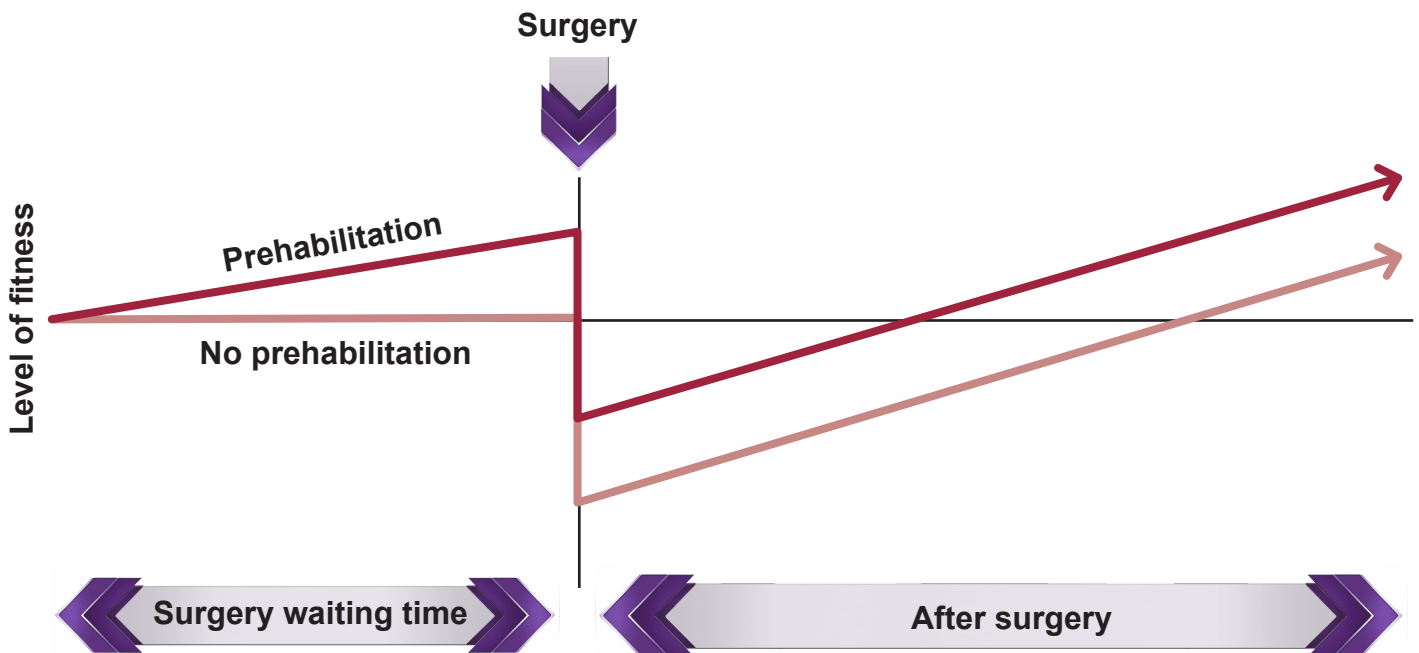
The information in this leaflet is applicable to those who may or may not be on the heart transplant waitlist.

## ➤ What is prehabilitation and why is it important?

Prehabilitation is designed to optimise an individual's overall general health and levels of fitness, enabling them to cope with the effects of surgery and the steps you can take to help when living with heart failure.

Taking action now can help you recover quicker, reduce complications and reduce the time spent in hospital.

Small changes can make a big difference, with prehabilitation benefits seen within 7-10 days.



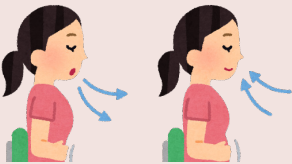
Prehabilitation means your journey to recovery starts before your surgery has even begun through physical, nutritional and psychological support.

## Benefits of prehabilitation

- Reduce length of stay in hospital
- Reduce complications after surgery
- Improve physical function
- Improve overall fitness
- Improve emotional wellbeing
- Improve nutritional health
- Provide a sense of control and purpose
- Enhance quality of life
- Promote long-term positive health behaviour

Prehabilitation is not a standalone treatment, it consists of many key components to help you 'Get READY' for surgery:

## Get **READY**



**R**espiratory exercises



**E**at well



**A**ctivity



**D**ental and oral hygiene



**Y**our lifestyle and wellbeing

## Respiratory exercises

Below are step by step instructions for using your Incentive Spirometer and Inspiratory Muscle Trainer.

It is recommended to use your Incentive Spirometer once a week to record a measurement of your inspiratory breath.

It is recommended to use your inspiratory muscle trainer twice a day.

### **Chest training: Incentive Spirometer**

Step 1: Sit upright

Step 2: Hold the device in an upright position

Step 3: Put the mouthpiece in your mouth and close your lips around it

Step 4: Breathe in slowly through your mouth for as long as you can. The green piston should rise the middle column. The green button should stay between the arrows.

Step 5: Keep the green button floating for as long as you can and then breathe out slowly.

Step 6: Rest for a few seconds and repeat steps 1-5 for 3-5 breaths. Record your highest breath once a week in the diary provided.



[Scan the QR code to view the incentive spirometer video](#)



## Inspiratory Muscle Training (POWER®breathe)

Inspiratory Muscle Training (IMT) is a form of resistance training for the muscles that we use to breathe.

The resistance from the device makes the intercostal muscles (between the ribs) and the diaphragm (under the lungs) work harder for short periods of time. This makes them stronger and can make breathing easier.

Doing IMT before an operation can reduce the risk of breathing complications after surgery.

1. Make sure you are in an upright sitting position or standing.
2. Hold the hand grip and put the mouthpiece in your mouth, sealing it with your lips.
3. Breathe out if you can then take a fast, hard breath in through your mouth. Try and take as much air into your lungs as possible.
4. Breathe out slowly, relaxing your shoulders.
5. Take 2 relaxed breaths to recover and repeat steps 3 and 4.
6. If you feel lightheaded, stop and take time to settle before continuing. If this does not settle, stop using the device and seek medical advice.

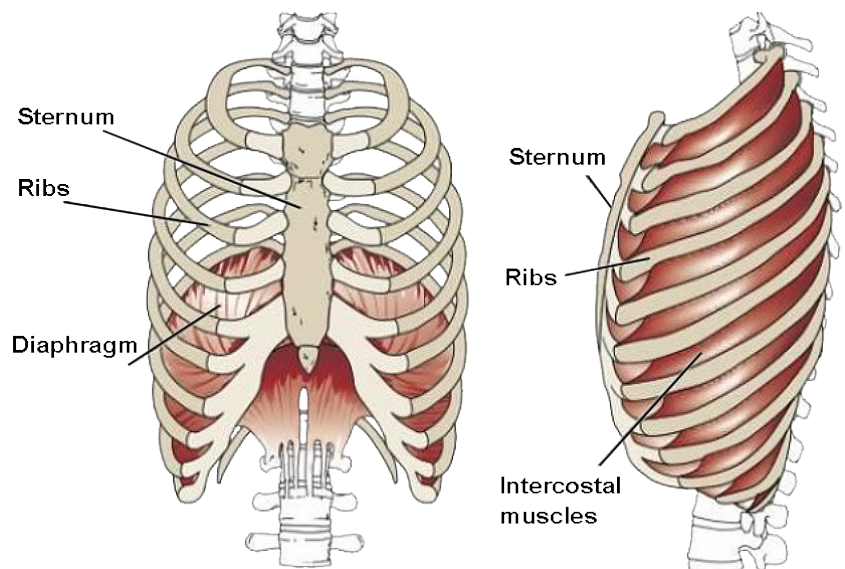
The aim is to complete 2 sets of 10 deep breaths with the device twice a day and build up the resistance level over time. You can rest as much as you need until you become comfortable using the device.

It may take you some time to build up and you should only increase the resistance if you have built up to 2 sets of 10 twice per day and are finding this easy.

Record the level of IMT in the diary provided so you can see your progress.

Caring for the device: Cleaning advice and sterile solution is included with the device.

[Scan the QR code to view the inspiratory muscle trainer video](#)



Eating a balanced diet is an important part of maintaining good health to help prepare for your surgery. The Eatwell Guide shows you how much of what you eat should come from each food group.

**Fruit and vegetables:** Aim to eat at least 5 portions of a variety of fruit and vegetables each day.

**Bread, rice, pasta or other starchy carbohydrates:** Starchy food should make up just over a third of the food we eat. Choose higher fibre wholegrain varieties, such as wholewheat pasta and brown rice, or simply leave skins on potatoes.

**Milk and dairy products:** Good sources of protein and vitamins. They are an important source of calcium too. Try to choose low fat varieties to limit your intake of saturated fat.

**Meat, fish, eggs and beans:** These foods are good sources of protein, vitamins and minerals. Pulses, such as beans, peas and lentils are good alternatives to meat because they are lower in fat and higher in fibre and protein too. Choose lean, low fat, cuts of meat and mince, and eat less red and processed meat like bacon, ham and sausages. Aim for at least 2 portions of fish every week, 1 of which should be oily, such as salmon or mackerel.

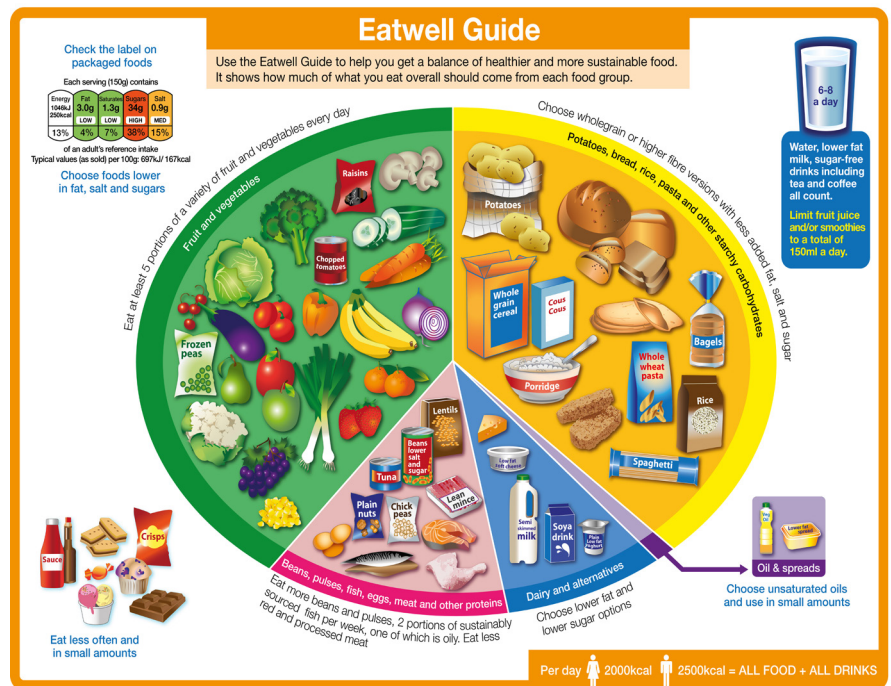
**Choose unsaturated oils and spreads, and eat in small amounts:** Unsaturated fats are healthier fats and include vegetable, rapeseed, olive and sunflower oils. Remember all types of fat are high in energy, but should be eaten sparingly.

Information source: <https://www.nhs.uk/live-well/eat-well/the-eatwell-guide/>

For people who are underweight, have recently lost weight unintentionally or have a poor appetite, it is important to maintain a stable weight and prevent further weight loss prior to your surgery.

The following ideas may help you to increase your energy and protein intake:

- Eat little and often. Aim to have 3 meals and 3 snacks per day
- Avoid 'low fat', 'sugar-free', or 'diet' products
- Choose the meals you enjoy
- Have a nourishing dessert/pudding – full fat yogurt, rice pudding or sponge and custard
- Have a pint of full fat milk everyday – for example on cereal, milky drinks or in puddings
- Add butter or margarine, cream or cheese to mashed potatoes, vegetables, scrambled eggs and hot pasta
- Have drinks (tea/coffee/juice) with or after meals as these can fill you up if taken just before food.





Evidence shows that physical activity is safe and can improve quality of life in those with heart failure. You should try and do 30 minutes of activity every day. If you cannot manage this in one go, try breaking the activity into smaller, manageable periods. For example, 10-15 minutes activity in the morning and then 10-15 minutes in the afternoon.

Physical activity does not mean a lot of hard work or expense, it could be going out for a walk, gardening, or using your stairs at home. Avoid sitting for long periods of time. Your physiotherapist will issue you with a personalised exercise programme at your appointment. You may notice changes to your breathing when exercising. This can show if you are exercising to an appropriate level.

You should aim to be a little breathless, but still be able to hold a conversation with someone. If you are too breathless, to do this you must stop, catch your breath and then carry on. You should aim to be working to level 3-5 on the Rate of Perceived Exertion (RPE) scale in this booklet.

### **I already exercise and am quite fit. What should I do?**

If you already exercise regularly and your Consultant is happy for you to do so, then please continue with your routine. Keeping up your fitness will help you cope with the effects of your surgery better and exercise may also help you to cope with the worry and anxiety upcoming surgery brings. Please discuss with a healthcare professional involved in your care if you have any concerns regarding activities or exercises.

### **Walking**

Walking is often overlooked as a form of exercise, but it is simple, free and one of the easiest ways to get more active and healthier. A brisk 10-minute daily walk has a range of health benefits and counts towards your recommended 150 minutes of weekly exercise.

You can tell you are walking briskly if you can talk but cannot sing. If you become breathless enough that you cannot talk to someone, stop, catch your breath and carry on. Your physiotherapist will provide you with a Rate of Perceived Exertion (RPE) scale to guide you.

Tips:

- Plan a route in advance.
- Remember wherever you are going, you must be able to get back.
- Take a mobile phone or inform someone you are going for a walk.
- Get others involved!
- Use a walking aid if necessary.
- Wear comfortable, supportive shoes.

You can monitor your daily step count using a pedometer. Most mobile phones have a pedometer or step count function included. It is recommended that you increase your step count by 10% each week. Please fill in the step count diary to monitor your progress.

### **I have noticed a change in my symptoms, what should I do?**

You can also contact the transplant coordinators on the numbers below during office hours, Monday-Friday 8am-4pm.

Transplant coordinators: 0141 951 5472/5023/5491/5868. For non-emergencies outside office hours, please contact NSD 1 on 0141 951 5340. If it is a medical emergency phone 999.

# Rated Perceived Exertion (RPE) Scale

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**0 At rest (no exertion at all)**

**0.5 Very easy (very, very light)**

**1 Easy (very light)**

**2 Not difficult (fairly light)**

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**3**

**4 A little hard**

**5**

**6 Hard**

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**7**

**8 Very hard**

**9**

**10 Extremely hard**

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## Daily diary

Please record the number of steps you have achieved for each day using a pedometer/ phone/ smart watch, record the level your inspiratory muscle trainer (IMT) is set at and record the highest breath achieved on your incentive spirometer.

Week 1	<b>Day</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>T</b>	<b>F</b>	<b>S</b>	<b>S</b>
	Daily step count							
	IMT level							
	Highest spirometer							
Week 2	<b>Day</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>T</b>	<b>F</b>	<b>S</b>	<b>S</b>
	Daily step count							
	IMT level							
	Highest spirometer							
Week 3	<b>Day</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>T</b>	<b>F</b>	<b>S</b>	<b>S</b>
	Daily step count							
	IMT level							
	Highest spirometer							
Week 4	<b>Day</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>T</b>	<b>F</b>	<b>S</b>	<b>S</b>
	Daily step count							
	IMT level							
	Highest spirometer							
Week 5	<b>Day</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>T</b>	<b>F</b>	<b>S</b>	<b>S</b>
	Daily step count							
	IMT level							
	Highest spirometer							
Week 6	<b>Day</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>T</b>	<b>F</b>	<b>S</b>	<b>S</b>
	Daily step count							
	IMT level							
	Highest spirometer							
Week 7	<b>Day</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>T</b>	<b>F</b>	<b>S</b>	<b>S</b>
	Daily step count							
	IMT level							
	Highest spirometer							
Week 8	<b>Day</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>T</b>	<b>F</b>	<b>S</b>	<b>S</b>
	Daily step count							
	IMT level							
	Highest spirometer							





Week 9	<b>Day</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>T</b>	<b>F</b>	<b>S</b>	<b>S</b>
	Daily step count							
	IMT level							
	Highest spirometer							
Week 10	<b>Day</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>T</b>	<b>F</b>	<b>S</b>	<b>S</b>
	Daily step count							
	IMT level							
	Highest spirometer							
Week 11	<b>Day</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>T</b>	<b>F</b>	<b>S</b>	<b>S</b>
	Daily step count							
	IMT level							
	Highest spirometer							
Week 12	<b>Day</b>	<b>M</b>	<b>T</b>	<b>W</b>	<b>T</b>	<b>F</b>	<b>S</b>	<b>S</b>
	Daily step count							
	IMT level							
	Highest spirometer							

## **Dental and oral hygiene**

Good dental and oral hygiene reduces the risk of lung complications after surgery and improves your overall general health. You should aim to:

- Brush your teeth for two minutes, at least twice a day
- Use a fluoride mouthwash
- Use dental floss
- Visit your dentist for regular check-ups



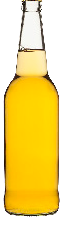




For more information on recommendations for dental and oral hygiene including teeth cleaning guide, please refer to the NHS Inform website: [www.nhsinform.scot](http://www.nhsinform.scot)

## **Your lifestyle and wellbeing**

As well as eating well and exercising, it is important to consider your lifestyle in relation to alcohol.

### **Alcohol**

You should limit the amount of alcohol you drink. It is recommended that you do not exceed national recommendations, which is 14 units per week for both men and women.

						
<b>2.2 units</b>	<b>1.5 units</b>	<b>2.2 units</b>	<b>3.1 units</b>	<b>9.8 units</b>	<b>1 unit</b>	
1 pint of beer/lager/ cider (4% ABV)	330ml bottle of beer/later/ cider (4.5% ABV)	175ml glass of wine (12.5% ABV)	250ml glass of wine (12.5% ABV)	750ml bottle of wine (13% ABV)	25ml measure of spirits (40% ABV)	

For more information on healthy lifestyle choices, visit: [www.nhsinform.scot](http://www.nhsinform.scot)

### What does the programme involve?

The Physiotherapist will complete an assessment where you will be asked questions to understand your current level of fitness. They will create a home exercise programme based on your first assessment which will be made up of cardiovascular, strengthening and lung training exercises as appropriate. We hope you find that Prehabilitation gives you guidance you can use to positively impact the time leading up to your surgery and help you take control of your health and wellbeing.

### ➤ Further information

Your healthcare team are here to support you. Any question that is important to you is important to us. Please contact the prehabilitation physiotherapist on **0141 951 5121** if you need help or advice to discuss any of the information in this booklet.

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: **0141 951 5513**