Exercise is medicine

You are reading this leaflet because you have developed a critical illness. It may be that something has happened suddenly, such as a heart attack or a stroke. You may have had a diagnosis of cancer or a neurological condition such as Multiple Sclerosis or Parkinson's. You may have one of the many other long-term conditions that can't be cured, but can be managed with medication or therapy, such as lung or kidney disease or rheumatoid arthritis.

The most common symptoms people with long-term conditions report are that they feel unwell and have excessive fatigue. For many years, advice has been to limit activity and to take more rest so that symptoms should not get worse. But we now know that inactivity leads to a sedentary lifestyle and that a sedentary lifestyle holds an increased risk of developing other health problems. It also leads to people becoming unfit and less able to do the things they wish to do.

New research evidence is showing that for many long term conditions

'Exercise is Medicine'

What this means is that regular exercise and activity can slow or prevent a condition deteriorating and in some cases it can even reverse the disease process.

Regular, moderate physical activity improves health because it:

- Improves mental health and wellbeing
- Helps you maintain a healthy weight
- Keeps you able to do things you value – if you don't use it you lose it!
- Improves function, mobility and health-related quality of life

Regular, moderate physical activity reduces the risk of ill health:

- Reduces the risk of getting heart disease, Type 2 diabetes, high blood pressure
- Reduces the risk of recurrence of cancer (breast, bowel and prostate)
- Reduces the risk of further heart problems for people with heart disease by more than 50%

What is physical activity?

Physical activity includes all forms of daily activity, such as walking, cycling going to work, gardening, doing the housework or DIY activities. It's anything where you are on the move while going about your normal daily activities.

What is exercise?

We refer to exercise as activity you are doing to improve your fitness. This could be through playing active games, going for a jog or a swim or playing sport.

Physical Activity

Everyday Activity	**Active Recreation**	**Sport & Exercise**
Housework	Walking or cycling	Nordic walking
Gardening	Playing games	Rambling
DIY	Dancing	Swimming
Active travel – walking or cycling		Cycling for sport
Work done on your feet		Gym
		Exercise classes
		Sport

Physical inactivity

Today's lifestyles mean that many people spend more and more time each day sitting down. The average adult sits for 13.5 hours a day. It's hard to avoid as modern life involves lots of sitting; at a work desk, using a computer, watching the TV, travelling by car, bus or train, sitting to read, to listen to music or watch films. Add to this 8 hours a day spent lying down or sleeping, and many adults are only on their feet for a couple of hours each day.

We know that two thirds of the UK adult population do not manage to meet the recommended minimum exercise level of 150 minutes moderate activity a week. Moderate activity is when you are working hard enough to get slightly out of breath. Even more worrying is that half of adults who start an exercise programme drop out within 6 months.

The general benefits of exercise

Exercise lowers blood pressure

Physical activity reduces your pulse rate and blood pressure and is now believed to have a strong anti-inflammatory effect.

Regular physical activity makes your heart stronger. A stronger heart can pump more blood with less effort. If your heart can work less to pump, the force on your arteries decreases, lowering your blood pressure.

Becoming more active can lower your systolic blood pressure - the top number in a blood pressure reading - by an average of 4 to 9 millimeters of mercury (mm Hg). That's as good as some blood pressure medications. For some people, getting some exercise is enough to reduce the need for blood pressure medication.

If your blood pressure is at a desirable level - less than 120/80 mm Hg - exercise can help keep it from rising as you age. Regular exercise also helps you maintain a healthy weight, another important way to control blood pressure.

To keep your blood pressure low, you need to keep exercising. It takes about one to three months for regular exercise to have an impact on your blood pressure. The benefits last only as long as you continue to exercise.

Exercise reduces inflammation

Chronic inflammation is key player in most long term conditions. The anti inflammatory effect of exercise is thought to be the most important benefit of physical activity.

Muscle contractions that happen during exercise result in the release of large amounts of chemicals (Inter-Leukin6) from the contracting muscles. These chemicals are good for the body. They reduce inflammation, improving sensitivity to insulin, and burn fat. The chemical levels increase by up to 200 times during exercise and continue to be produced in muscles for 24 hours after a bout of exercise. The levels remain high in people who do regular exercise.

The anti-inflammatory effect of exercise keeps the cell layer that lines blood vessels healthy and regular exercise can reverse changes that are present in blood vessels.

Exercise improves the way your body uses sugar (glucose)

Having insulin resistance is a sign that your body is having difficulty metabolising glucose. Insulin resistance increases the risk of diabetes and cancer Regular exercise increases insulin sensitivity by improving the way the way skeletal muscle uses glucose for up to 12 hours after the exercise.

If fact, people are saying that if exercise had just been invented it would be prescribed for all and would be hailed as a miracle cure!

Exercise strengthens your immune system

Physical activity and exercise can improve the number and the function of natural killer cells in our body. These stop tumours growing and fight infections.

Bouts of exercise have been shown to result in sharp increases in cells involved in your immune system. These are called neutrophils, monocytes, eosinophils, and lymphocytes. The rise is followed by a dip to below pre-exercise levels for 1 to 3 hours. This explains why people who do excessive exercise or over-train can experience reduced immune function and become more susceptible to coughs and colds.

Exercise helps you to stay sharp

People who exercise are less likely to develop problems linked with cognitive decline or dementia that is often associated with ageing and disease. Exercise gets your heart pumping, which helps keep your brain cells supplied with oxygen, nutrition and energy. It's been shown that physically active people have more receptors in the brain's neural network, which makes for better mental processing. Active people also have less brain shrinkage as they age and have a greater ability to build new brain cells well into their senior years. Physical activity boosts brain health as well as physical health.

Moving More: How do I put exercise into my life?

You need to take a stepped approach. Start out gently and build up slowly so that taking more activity each day becomes a habit and your fitness gradually improves.

First of all think out how much activity you do in a day. The first step is simply to spend more time on your feet and less time sitting and resting.

All that is required to start improving your health and wellbeing is low-impact movements that keep your metabolism humming and your circulation flowing.

The key is to move around as often as you can. Focus on reducing overall sedentary time. Do things you enjoy as this makes it easier to stick at it.

A pedometer is a simple device that clips on your belt or goes in your pocket. It allows you to measure the number of steps you take each day. The first step is to wear it for a few days to work out what your baseline is. How many steps do you do on a normal day? Then you can make a plan to increase your steps a day and measure how you are getting on. If walking is not a problem for you a target for health is 10,000 steps a day.

Make a plan

Some people with long term health conditions find it helpful to think through the pros and cons about taking more exercise.

Here are some reasons other people with long term conditions have given to explain why they don't exercise. Some people find it helpful to look at the list and to think of the pro's and con's

- I feel too tired to exercise
- I don't have time to exercise as things take me so long these days
- There are always more pressing things to do than to exercise
- It's hard work and I will get hot and sweaty
- It takes a long time to see the benefit
- There is always something more important to do
- It hurts to exercise

Once you have done this consider whether the benefits outweigh the downside for you.

Pros and cons

Pros	Cons
I will feel better and less tired	I am already tired and it's hard to find the motivation

How do I stick to an exercise plan?

Lots of people make a plan to be active or to exercise but don't actually do it. If this is you, think about the excuses you make to yourself. Write them down. Then for each excuse, write down the benefit you would gain if you did manage to do your planned activity.

Use your pros and cons, excuses and counter arguments to remind you why you want to stick to your activity plan. Once you have got into a habit and start to feel the benefits of regular exercise, it's much easier to stick to a programme. This usually takes around six weeks so don't expect an instant fix.

It's normal to have times when you can't stick to your programme. You may be too busy, you may be unwell, have visitors, or the weather is too bad ... though some people say there's no such thing as bad weather, just the wrong clothing! Expect setbacks; they are quite normal. If you expect to have some, it will make it easier to get going again afterwards. Some people find it helpful to make a plan for a setback.

Setback plan

Stepping up your exercise

Once you have built up your 'moving more' time the next step is to add some form of general exercise you can do that gets you slightly out of breath. Walking is a great exercise, as is cycling and swimming or exercises in a chair if you are unable to walk. It's the movement that counts not what you do.

The target for maintaining your health is to exercise for 30 minutes, 5 times a week, at a moderate pace. This can be done all in one go or in short bursts of 10 minutes at a time. A moderate pace means that you are working hard enough to be slightly out of puff but can still hold a conversation with someone.

Start out gently and build up slowly is the rule. Moderation is the key here. It's worth thinking a bit about how you pace yourself.

Pacing is about being able to do everyday activities without making your condition worse. The concept behind pacing is that, if you manage your energy wisely, it will gradually increase.

To pace yourself well you need to think about what you can do and how long you can do it for before you become overly tired. Always try to stop an activity before you are tired – do 20% less than that. Use this as your baseline and stick with this level for a few days. Once you are confident you can achieve the baseline without any adverse effects, then gradually increase it by no more than 10%. Err on the cautious side - if you do too little, you can always add a bit more next time. If it feels too much drop back again for a few days before you try to increase again.

You will find your tolerance gradually builds up over the weeks and months until you are able to do a reasonable amount of exercise or activity without undue fatigue.

If you have things on, don't be afraid to take a day or two off here and there. This needs to be a plan for the long term so make sure you do the things you are going to enjoy in life on the way.

Once you have achieved 150 minutes of exercise a week of moderate exercise you are ready to move on to a harder programme. In some conditions you may be able to do regular exercise that makes you hot, sweaty and out of breath. If you have a neurological condition, it's better to stick to short spells of moderate exercise that add up to the 150 minutes in a week and to make sure you stay cool when exercising.

There are some great apps and online exercise programmes or you may benefit from a personal trainer to work out a programme with you.

Types of exercise

What is aerobic exercise?
Aerobic exercise involves moving large muscle groups quite quickly, causing you to breathe more deeply and your heart to work harder to pump blood. It's also called cardiovascular exercise. It improves the health of your heart and lungs, but will also strengthen and tone big muscles.

Examples include *walking, jogging, running, aerobic dance, bicycling, rowing, swimming and cross-country skiing.*

What is weight-bearing exercise?
Weight-bearing exercises work against the force of gravity. Weight-bearing exercise is important for building strong bones. Having strong bones helps prevent osteoporosis and bone fractures later in life.

Examples include *walking, jogging, hiking, climbing stairs, dancing and weight training.*

What is strength training?
Strength training exercise requires you to work against resistance. The resistance can be created by gravity, water, weights and pulleys. Repetitive movement against resistance builds muscle strength and endurance. Weight resistance training is shown in many studies to be an important part of a training regime and you should aim to do some resistance work twice a week.

Flexibility exercise
All exercise helps to keep you supple as it provides nutrition to your muscles and joints. Exercises such as stretching and yoga are very good for increasing flexibility. Regular full-range movements keep joints healthy by improving the flow of nutrients to the joint surfaces.

Exercise for balance and coordination
All exercise will improve your coordination and balance. However if this is a particular problem you should make sure your workout includes specific activities that challenge your balance and coordination. Physiotherapists teach this type of exercise. Exercise classes such as yoga, tai chi and martial arts are also particularly good for this.

What is the best exercise?
The best exercise is the one that you can and will do. Many people say walking is one of the best choices because it's easy, safe and cheap. Brisk walking can burn as many calories as running, but is less likely than running or jogging to cause injuries. It doesn't require any training or special equipment, except for good shoes. Walking is an aerobic and weight-bearing exercise, so it is good for your heart and helps prevent osteoporosis.

Ideas to help you keep fit

The W2W researcher will have found out what is available in your area to help you keep fit and active.

Make exercise a habit

- Chose exercise you enjoy and that suits you physically
- Stick to a regular time every day.
- Exercise with a friend. It makes it more fun and you are less likely to let them down.
- Put 'exercise appointments' on your calendar.
- Vary your routine so you don't get bored
- Keep a log or diary of your activities.
- Check your progress. Can you walk a certain distance faster now than when you began? Or is your heart rate slower now?
- Forget no pain no gain - while a little soreness may be normal when you start exercising, pain is not, so stop if it hurts
- Don't feel guilty if you miss a day or two. It's keeping going in the long term that counts.