

Physical effects of stroke

Stroke Helpline: 0303 3033 100
or email: helpline@stroke.org.uk

A stroke can cause problems with physical activities like walking and using your hands and arms due to muscle weakness, stiffness, and changes in sensation. This guide looks at the physical effects of stroke, and the options for treatment and rehabilitation.

What are the physical effects of stroke?

Muscle weakness

Nearly three quarters of stroke survivors in the UK have leg weakness, and over three quarters have arm weakness. If your muscles are weak you could have difficulties with walking, moving your arms or holding things.

Weakness on one side of the body is often referred to as hemiparesis. Paralysis on one side of the body is known as hemiplegia. If you have weakness or paralysis, you may need help with everyday activities.

If you have weakness in your leg you may be more likely to slip, trip or fall. For example, your ankle might turn over when you put weight on it. For more information about falls and balance problems, see our guide 'Balance problems after stroke'.

Foot drop

This is a condition where your toes catch on the ground when you step forward, and you may lift your foot higher than usual when walking, or swing the leg outwards. It is due to weakness in muscle groups in the foot and ankle that lift your foot. It can lead to difficulty walking, and a higher chance of falling.

Fatigue

After a stroke, some people have fatigue, or tiredness that does not get better with rest. You can also find that physical activities become tiring more quickly. For instance, you may find that objects slip from your grasp, or you may struggle to use your cutlery towards the end of a meal.

You might also find that despite walking safely at the start of a shopping trip, you become tired and more likely to trip towards the end. Many stroke survivors find that they lose cardiovascular fitness, because they become less active after a stroke.

Exercise and stamina training can help you to improve your cardiovascular fitness and your stamina. Being physically active can also help you reduce your risk of a stroke. See our guide 'Fatigue after stroke' for more information.

Pain

Pain is another common physical problem. Some people have spasticity, or muscle tightness, which can lead to pain – see below. Shoulder pain can be due to muscle stiffness, or because of weak muscles leading to a partial dislocation. Some people have painful or unusual sensations like tingling, cold or burning sensations, which may be due to damage to the nervous system. Headaches are common after a stroke. For further information on pain, please see our guide 'Pain after stroke'.

Spasticity

A stroke can damage the way the nerves control your muscles. This can lead to muscles contracting for long periods or going into spasm, known as spasticity, or hypertonia.

Muscle tone is the amount of resistance or tension in the muscles which enables you to move and stay in position. Muscles never completely relax: they keep some resistance even when they are not contracted, and feel springy to the touch.

In spasticity, muscles have increased tone, and are very tight. Spasticity affects around a third of stroke survivors.

Spasticity can develop within a week of a stroke, or some time later. It can be treated to help avoid problems like contractures. See the Treating the physical effects of stroke section for more information.

Contractures

Sometimes spasticity can cause a permanent shortening of the muscles, known as a contracture. (10) If this happens, the muscle and joints become fixed in position. This can mean that the joint cannot be fully bent or straightened and the muscles cannot be stretched to their full length.

If you have a contracture, your arm might remain in a bent position. If you have a leg contracture you might find it difficult to walk, although some people will be affected more severely than others.

Changes in sensation

A stroke can affect your sensation in various ways.

Feeling less sensitive to touch – this is called hypoesthesia. Your limbs may feel numb and this can cause difficulties. For example, if you are unaware of pressure on your skin, such as tight clothing or shoes, they might rub and damage your skin without you noticing.

Feeling less sensitive to temperature. If you experience this you could be at risk of burning yourself or becoming too cold, so you may need to take extra measures to look after yourself. For example, you might need to carefully test water temperatures with your good hand if having a shower or when washing up.

Feeling more sensitive to stimuli. This is called hyperesthesia and can affect a range of your senses such as your taste, hearing or touch. After a stroke, some people find watching television or being in crowded places difficult as they seem too loud.

Feeling unaware of the position and movement in your limbs. Your body has a system which makes it aware of its position and movement. Some people have problems with this after a stroke.

If this is the case for you, you may have difficulty moving around, and you might find that you need to look at your limbs to know where they are. Some people feel as if their limbs (or part of them) feel like they do not belong to them, or like they have altered size or shape.

Having unusual sensations on your skin or in your limbs – this is sometimes called dysesthesia or paresthesia. Common sensations are pins and needles or tingling in your affected limbs. Sometimes these sensations can be unpleasant, such as burning, pressure or feeling like something is running over your skin.

Treating the physical effects of stroke

This guide can only give general information. You should always get individual advice about your own health and any treatment you may need from a medical professional such as a GP or pharmacist.

Rehabilitation

Every stroke is different, and your stroke team will support you to make the best recovery possible for you. Recovery is fastest in the first few months after a stroke, but many people carry on making improvements for months or years after a stroke.

After a stroke, you should be assessed to find out what your difficulties are. You should get all the rehabilitation you need to help with your recovery, and to enable you to be as independent as possible.

You can start having rehabilitation from 24 hours after a stroke. You should get 45 minutes a day of any therapy you need, for at least five days a week. The therapy should have clear goals, agreed between you and the therapist. If you have physical effects like problems with movement, balance or sensory disturbances, you may be offered physiotherapy. If you have movement difficulties, physiotherapy should carry on until you are more independent, or able to move with the help of others.

After you leave hospital, if you need help with a physical effect of a stroke, you can ask your GP for help at any time. They can refer you to a specialist such as a physiotherapist.

If you have difficulty getting the rehabilitation you need, contact our Helpline for advice and information.

Some people pay for private therapy, sometimes to avoid a waiting list, or to supplement their treatment. You are entitled to have private treatment while having NHS care, but you should tell your therapist or doctor. The treatment should be carried out in a separate time and place. For more details see our guide 'Private treatment'.

Your rehabilitation therapy should be delivered by a qualified professional. It may be carried out on a one-to-one basis or in a group. You may have exercises to practise on your own, and with the help of your family or carers.

Treatment for muscle weakness

Physiotherapy

A physiotherapist will assess your difficulties, and work with you to set your goals. They will recommend activities and movements you can do to improve your strength, stamina and flexibility. Physiotherapists use a variety of interventions to help you to do this. For example, you might do activities to help you with standing, walking and reaching for objects.

You can work to strengthen your muscles to make them work more efficiently. You can also learn to move and use your muscles in a different way to make up for weak muscles. Rehabilitation begins with help from therapists, but you can continue on your own and with help from family and friends.

To access physiotherapy after leaving hospital, you can ask your GP for a referral at any time. In some areas of the UK you can self-refer.

Occupational therapy

Occupational therapists play an important role in helping you to find ways to carry out everyday activities and help you maintain your independence. For example they may make sure that you have any special equipment that you require at home. They assess any difficulties you have, including problems with movement. They might suggest movements and activities you can practise to regain skills and build your strength. They often work with other professionals, like physiotherapists and speech and language therapists.

To access occupational therapy after leaving hospital, you should ask your GP for advice. Depending on your physical problems and where you live, you may receive treatment via the NHS or via the local council. Your GP can refer you for assessment.

Treatments for foot drop

Physiotherapy can sometimes help foot drop, by strengthening ankle and lower leg muscles.

Ankle-foot orthosis

An ankle-foot orthosis (AFO) is a type of brace that controls your ankle and foot in a straightened position, to reduce the risk of tripping or falling. They can help to improve your walking speed, stability and balance. Your AFO should be fitted by a qualified professional, and you may be referred to an orthotist by a GP or a physiotherapist. You'll be assessed to ensure you can put the AFO on yourself, or have help if you need it.

Functional electrical stimulation

Functional electrical stimulation (FES) can be used to improve walking ability. It can help you walk more quickly, avoid falls, and gain independence. It uses small electrical signals to directly stimulate the weak muscles to work. These electrical signals replace the nerve impulses that have been interrupted by damage to the brain. The electrodes can be applied to the skin to deliver electrical stimulation. Electrodes may be implanted directly on to the affected nerve, although this service is not widely available. Having FES on the skin can cause redness, and can have an effect on spasticity, so it is advisable to be assessed at a specialist FES centre after consulting with your therapists. Your doctor can refer you to a specialist FES centre or therapist for assessment and fitting, if it is a suitable treatment for you.

Treatments for spasticity, muscle stiffness and contracture

If you have weakness after your stroke you will be assessed for changes in your muscle tone, including spasticity. There are several ways to try to reduce spasticity and contractures. While you are in hospital, your medical team will make sure that you are positioned carefully so that your arms and legs are supported and your muscles are stretched. They will also encourage you to move about as much as possible to make sure that your muscles and joints do not become tight.

Your therapy and nursing team may also do stretches, exercises and massage techniques with you. They will aim to keep your muscles supple to prevent spasticity and contractures from developing.

If you do develop spasticity or contractures after your stroke you should be assessed to find the best treatment for you. This may include a combination of physiotherapy, treatment with botulinum toxin type A and muscle relaxant medication.

If you develop spasticity some time after leaving hospital, ask your GP to refer you for specialist help.

Physiotherapy

If you have spasticity you should have physiotherapy regularly to move your joints. Your physiotherapist will move and hold your affected limb in different positions. This stretching should be taught to your family and carers so that they can help you to practise your exercises. See our guide 'Physiotherapy after stroke' for more information.

Botulinum toxin type A

Botulinum toxin type A works by blocking the action of the nerves on the muscle, reducing your muscle's ability to contract. It has several brand names including Botox, Dysport and Xeomin. It reduces muscle tone, which can help you to straighten out your limbs.

Botulinum toxin type A is given as an injection directly into the muscle, and is mainly used in the hands, wrists and ankles. The muscle-relaxing effects usually last for about three months and you should not notice any changes in sensation in your muscles. Treatment with botulinum toxin type A is given along with physiotherapy and other possible techniques like a splint, electrical stimulation or a brace to ensure that any range gained in the muscle is maintained. You should be assessed three to four months after the treatment, and you may be offered further treatments if helpful.

Medication

You may be offered a muscle relaxant medication. This can help if you have spasticity in many areas of your body, or if botulinum treatment does not work for you. Muscle relaxants can reduce the stiffness and the pain that often accompanies muscle spasms. They can make it easier to straighten or bend your affected limbs, and may reduce muscle spasms.

There are different types of drugs available that work in a number of ways. They should only be prescribed by a doctor who specialises in managing spasticity. For more information about the types of medication used read our guide 'Pain after stroke'.

Treatment for changes in sensation

Therapy exercises may be able to help with some types of sensory loss or changes in sensation. For example, moving objects with contrasting textures over your skin, to help you re-learn the sensation. This can be done with an occupational therapist or physiotherapist as part of your rehabilitation programme. If you have lost the ability to sense heat or pain, you should be taught how to take care of your body and limbs so that you don't injure yourself.

Changes in sensation may improve with time, and some people benefit from different techniques like cognitive behavioural therapy (CBT), relaxation and meditation. If you have painful sensation changes you might be able to have medications used to treat central post-stroke pain (CPSP, also known as neuropathic pain). See our guide 'Pain after stroke' for more information about treating CPSP. We have information about changes to taste and smell online at stroke.org.uk.

Where to get help and information

From the Stroke Association

Helpline

Our Helpline offers information and support for anyone affected by stroke, including family, friends and carers.

Call us on **0303 3033 100**, from a textphone **18001 0303 3033 100**
Email helpline@stroke.org.uk.

Read our information

Get more information about stroke online at stroke.org.uk, or call the Helpline to ask for printed copies of our guides.

My Stroke Guide

The Stroke Association's online tool My Stroke Guide gives you free access to trusted advice, information and support 24/7. My Stroke Guide connects you to our online community, to find out how others manage their recovery.

Log on to mystrokeguide.com today.

Other sources of help and information

The Royal College of Occupational Therapists (RCOT)

Website: rcot.co.uk

Tel: **020 3141 4600**

The professional body for occupational therapists in the UK. Has an online directory that you can use to find an occupational therapist and publishes a range of useful leaflets and guides.

Chartered Society of Physiotherapy

Website: csp.org.uk

Tel: **020 7306 6666**

A register of physiotherapists who are recognised by the Chartered Society of Physiotherapy. Search for the 'Physio2u' therapist finder on the website where you can find stroke specialists.

OML

Website: odstockmedical.com

Tel: **01722 439 540**

Sells functional electrical stimulation (FES) equipment and treatment.

Physio First

Website: physiofirst.org.uk

Tel: **01604 684 960**

Association of private physiotherapists, with details of private therapists specialising in neurology.

ARNI Trust (Action for Rehabilitation from Neurological Injury)

Website: arni.uk.com

Tel: **0203 053 0111**

Offers specialist physiotherapy for stroke survivors.

Glossary

AFO: ankle-foot orthosis.

Contracture: permanent shortening of a muscle that stops you moving the limb...

Foot drop: the inability to lift the toes and feet properly when walking.

Dysesthesia or paresthesia: abnormal and unpleasant sensations

FES: functional electrical stimulation

Hemiparesis: weakness of one side of the body

Hemiplegia: paralysis of one part of the body

Hyperesthesia: an increased sensitivity that can affect a range of senses

Hypoesthesia: a dulled sensitivity to touch

Spasticity: a form of muscle tightening

About our information

We want to provide the best information for people affected by stroke. That's why we ask stroke survivors and their families, as well as medical experts, to help us put our publications together.

How did we do?

To tell us what you think of this guide, or to request a list of the sources we used to create it, email us at feedback@stroke.org.uk.

Accessible formats

Visit our website if you need this information in audio, large print or braille.

Always get individual advice

This guide contains general information about stroke. But if you have a problem, you should get individual advice from a professional such as a GP or pharmacist. Our Helpline can also help you find support. We work very hard to give you the latest facts, but some things change. We don't control the information provided by other organisations or websites.

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Every five minutes, stroke destroys lives. We need your support to help rebuild them. Donate or find out more at stroke.org.uk.

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