

Physical effects of stroke

Stroke Helpline: 0303 3033 100
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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 options for treatment and rehabilitation.

What are the physical effects of stroke?

Muscle weakness

If your muscles are weak after a stroke, you could have difficulties with sitting, standing, 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 called hemiplegia. If you have weakness or paralysis, you may need help with everyday activities.

If you have weakness in your hand and arm, it might make things like picking up and holding objects and other everyday tasks harder. 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.

Muscle weakness on one side can also make it harder to coordinate movements and to balance. You might find sitting up or standing difficult. For more information about falls and balance problems, see our guide 'Balance problems after stroke'.

Foot drop

Foot drop is caused by muscle weakness in the foot and ankle, which makes it harder to lift your toes and the front part of your foot. This causes your toes to catch on the ground when walking. You may lift your foot higher than usual or swing your leg out to the side to make up for the weakness in your ankle. Foot drop can lead to difficulty walking and an increased risk of falling.

Fatigue

Fatigue is common after a stroke. You may feel exhausted or lack energy and find that tiredness does not get better with rest. You might find you cannot do as much as usual or that physical activities become tiring more quickly. For instance, you may struggle to use your cutlery towards the end of a meal or drop things you were holding after a while.

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. See our guide 'Fatigue after stroke' for more information.

Loss of fitness

Many people find that they lose cardiovascular fitness because they become less active after a stroke. Physical activity and exercise can help you improve your cardiovascular fitness and your stamina. Being physically active can help to reduce further risk of a stroke and improve your wellbeing. See our guide 'Getting active after a stroke' for more information.

Pain

Pain is a common problem following stroke and it can have different causes. Some people have spasticity, or muscle tightness, which can cause pain (see below). Shoulder pain can be due to muscle stiffness or because of weak muscles leading to a partial dislocation.

Some people can also have painful or unusual sensations like tingling, cold or burning sensations, which may be due to damage to the nervous system. Headaches are also common after a stroke. For further information on pain, 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.

With spasticity, muscles have increased tone and become very tight. People with spasticity might have difficulty moving their arms or hands, or might find that tight leg muscles affect their walking. Spasticity affects around a quarter 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 below). See 'Treatments for spasticity' on Page 5 for more information.

Contractures

Sometimes spasticity can cause a permanent shortening of the muscles, known as a contracture. If this happens, it 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 in your arm or hand, it might remain in a bent position. It may cause difficulties with things such as getting dressed. If you have a contracture in your leg, you might find it difficult to walk. The effect of a contracture will depend on a number of factors, including the joint affected and the severity of the contracture.

Changes in sensation

A stroke can affect your sensation in various ways.

- Feeling less sensitive to touch. This is called hypoaesthesia. 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. This is another example of hypoaesthesia. 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 unaffected hand if having a shower or washing up.

- Feeling more sensitive to stimuli. This is called hyperaesthesia 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 it can seem too loud and feel overwhelming.
- 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. You may have difficulty moving around. You might need to look at your limbs to know where they are. Some people feel as if their limbs (or part of them) 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 dysaesthesia or paraesthesia. Common sensations include 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 member of your stroke team.

Every stroke is different. 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.

Rehabilitation

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. The National Clinical Guideline for Stroke at strokeguideline.org provides practice guidance for rehabilitation after a stroke.

Rehabilitation starts when you are in hospital and should continue for as long as you need it after leaving hospital. Rehabilitation 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 or occupational therapy. If you have movement difficulties, physiotherapy should carry on until you are more independent, or able to move with the help of others.

Your rehabilitation therapy should be delivered by a healthcare professional. It may be carried out one-to-one or in a group.

You may have exercises to practise in your own time. Practising activities regularly in between therapy sessions can help you reach your goals. You could ask family or friends to support and encourage you. Try to work movement and exercises into your everyday tasks.

If you need help with a physical effect of a stroke after you leave hospital, contact your GP. They can give advice and refer you to specialists such as a physiotherapist or occupational therapist.

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

Some people pay for private therapy, sometimes to get faster access to treatment or to supplement their treatment. You are entitled to have private treatment as well as NHS care, but you should tell your therapist or doctor. For more details, see our guide 'Private treatment'.

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 to improve your strength, stamina and flexibility. Physiotherapists use a variety of ways to help you to do this. For example, you might do activities to help you with sitting, 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 practicing activities in between sessions can help you make progress.

To access physiotherapy after leaving hospital, you can ask your GP for a referral at any time.

Occupational therapy

Occupational therapists can help you to find ways to carry out everyday activities and maintain your independence. They can assess how the stroke has affected your life, including how difficulties with movement, balance and sensation are affecting your everyday activities. They will work with you to find solutions. This may involve movements and activities you can practise to regain skills and build your strength. They may also suggest special equipment or alternative ways to do an activity.

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

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 keeps your ankle and foot in one position, to reduce the risk of tripping or falling. It 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 physiotherapist. You'll be assessed to check you can put on the AFO 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 onto 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's 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 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 and occupational therapy, treatment with botulinum toxin type A and muscle relaxant medication.

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

Physiotherapy

If you have spasticity, a physiotherapist and occupational therapist may assess you for stretching and splinting. Your physiotherapist will be able to teach you stretching exercises to avoid contractures. They should also show your family or carers how to help you with exercises. An occupational therapist may provide a splint to wear, to help keep a good position and range of movement in your limbs. 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. It 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, brace or electrical stimulation, 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. Visit stroke.org.uk/pain for more information about the types of medication used.

Treatment for changes in sensation

Therapy exercises may 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 do not injure yourself. An occupational therapist can help with this.

Changes in sensation may improve with time. 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. Visit stroke.org.uk/effects-of-stroke for more information about changes to taste and smell.

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

Log onto stroke.org.uk where you can find easy-to-understand information, videos and an online community to support you. You can also call the Helpline to ask for printed copies of our guides.

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 (CSP)

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 to 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.

Dysaesthesia or paraesthesia: abnormal and unpleasant sensations.

FES: functional electrical stimulation.

Hemiparesis: weakness of one side of the body.

Hemiplegia: paralysis of one part of the body.

Hyperaesthesia: an increased sensitivity that can affect a range of senses.

Hypoaesthesia: 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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