

## Memory, thinking and understanding after stroke

Most people are aware that a stroke can affect you physically, but stroke can also cause difficulties that are harder to see. After a stroke, you may have difficulty with your memory, your attention, with making decisions and with understanding. This factsheet explains these effects, the help available and suggests some tips to help you cope.

Every day, your brain needs to process a huge amount of information from the world around you. Your brain has to interpret, organise and store the information so that you can carry out your day-to-day activities. **A stroke can affect any part of this process, from picking up the information, to planning how to respond.**

Imagine you are making a cup of tea; you need to be able to recognise the kettle and how it works. Next, you need to make a decision to switch it on. You also have to remember and understand what to do in the right order (put a tea bag in the cup, pour in water, remove the tea bag and add milk and/or sugar). Making a cup of tea is something that most of us can do without even thinking about it. However, your brain needs to do a lot of processing to complete this simple task.

Problems with memory, thinking or understanding after stroke are very common and most people who have had a stroke have some kind of difficulty. The effects can be very mild or severe. This will depend on how severe your stroke was and where in your

brain it happened. You might hear doctors refer to these as **cognitive problems**.

If you have cognitive problems after stroke, **it does not mean you have dementia**.

Dementia gets worse over time, but cognitive problems after stroke often get better. Also, after a stroke, you will usually only have problems in some areas. Dementia, on the other hand, affects all the cognitive parts of your brain (see our factsheet *F29, Dementia after stroke* for more information).

This factsheet covers the following areas:

- memory
- attention
- perception
- planning (apraxia)
- making decisions
- social cognition.

Difficulties with **speech and language** are also very common, but these are covered separately in our factsheet *F3, Communication problems after stroke*.

## Memory problems

Memory is **your ability to take in, store and retrieve information**. Memory is not one single system. You may remember people or things you have seen, like what your physiotherapist looks like, or where you left your keys. This is called visual or spatial memory. You might also remember things that have been said, like your doctor's name or a conversation you had with a family member. This is called verbal memory.

We can also remember things for different lengths of time and you might hear doctors talking about short-term and long-term memory. Your short-term memory recalls information from the recent past, whilst your long-term memory can recollect information from years ago. Finally, we usually talk about remembering past information, but your memory can also go forwards. For example, you might remember that you need to go to the doctor tomorrow or that you need to take your medication later.

### How can stroke affect my memory?

Most people have some problems with memory after a stroke. You might have difficulty with certain types of memory but not others. Many different parts of your brain are involved in the different types of memory. Damage to any of these areas will probably have an impact.

Although every stroke is different, **it is very common for your short-term memory to be affected**. Remembering new information can also be very difficult for many people.

Here are some examples of common memory problems after stroke:

- forgetting conversations you have had with family members or health professionals
- forgetting what you did in your last therapy session
- forgetting to keep appointments
- forgetting where you have put things, like your reading glasses
- forgetting how to do everyday things, like cooking.

The help that is available and tips for coping with memory problems are covered later in this factsheet.

## Difficulty with attention

**Attention is your ability to concentrate on something**. To do this, your brain needs to decide what to focus on and what to ignore.

Our attention can be drawn towards particular sights, sounds and feelings. We can also direct our attention inwards towards our own thoughts or memories.

Sometimes we choose to focus on things, while at other times something might catch our attention despite our best efforts to ignore it.

For example, if you are talking to your physiotherapist on a busy stroke ward, you will need to focus on what they are saying and ignore other people's conversations around you. If someone else asks you a question at the same time, you may feel overloaded.

## How can a stroke affect my attention?

Problems with attention are very common after a stroke, especially in the first few weeks. You are more likely to have difficulty with concentrating if your stroke affected the right side of your brain (and so the left side of your body).

Your ability to concentrate is a key part of many of the other tasks covered in this factsheet. For example, you need to be able to pay attention to your doctor before you can remember what they said. Therefore, **if you have difficulty concentrating, you will probably have difficulty with your memory as well.** Likewise, struggling to remember things might make it harder for you to concentrate.

You might also have **difficulty deciding what to pay attention to** and what to filter out. This could mean that you are easily distracted. You might also feel as though you 'switch off' from conversations or events happening around you.

Your ability to **multi-task** could be affected, too. Tasks like food shopping, which many of us take for granted, actually involve doing and thinking about lots of things at the same time (such as walking, reading labels and making decisions).

Difficulty with attention and concentration can affect daily activities like washing and dressing, as well as other parts of your life such as work and hobbies.

**Other problems related to your stroke** can also get in the way of paying attention. If you are in pain for any reason, this can make you feel drained and distracted. If you feel tired this will make concentrating difficult. Feeling

anxious or depressed can also make it more difficult to concentrate.

Thankfully, most people find their attention improves and there are ways of adapting to any long-term problems. These are covered later in this factsheet.

## Difficulty with perception

Perception means **making sense of the world around you.** Your brain receives information from each of your five senses: sight, hearing, touch, smell and taste. So that you can understand (perceive) all this, your brain has to organise the information. We match what we can sense or feel to information stored in our memory. For example, to recognise your house, your brain picks up information from your eyes and matches this to your memory of what your house looks like.

A stroke can affect any part of this process – from picking up information in the first place through to interpreting that information or accessing memories about it. For example, you might have blurred vision so be unable to see your house or you may be able to see it but not recognise that it is yours.

## How can a stroke affect my perception?

After a stroke **you may be unable to recognise things. This is sometimes called agnosia.** Usually, agnosia only affects one of your senses. For example, if you are shown a cup you might have no idea what it is. However, when it is placed in your hand you know that it is a cup straightaway. This is called visual agnosia. You might also have trouble recognising particular types of things. Having difficulty recognising familiar faces, like family members, can be one of

the most upsetting effects of stroke. This is called prosopagnosia and it is very rare. You also might not recognise the effects of your stroke. For example, you might deny that you have weakness in one leg. This is called anosognosia.

Your brain may also have **difficulty processing information from your body**. If your stroke has caused loss of movement in one arm or leg it might feel like this is not part of your body. Some people dislike their affected side, think that it belongs to someone else or give it a nickname. Losing awareness of one side is called **neglect**.

As well as awareness of your body, neglect can affect how you respond to the world around you. You might not notice things on one side, usually the left side. For example, if your doctor approaches you from your affected side you might not realise they are there.

If you have neglect, you may find that you bump into objects more than before because you are not aware of things on one side. This can put you at risk of accidents. You might also have difficulty washing, dressing or reading on your own. For more information about coping with these difficulties, see the tips section at the end of this factsheet.

Many problems with perception also involve vision. For more information, see our factsheet *F37, Visual problems after stroke*.

### Other cognitive problems

#### Planning (apraxia)

If you are having trouble **planning and carrying out complicated actions** you might have what doctors call 'apraxia' (also called

dyspraxia). For example, you might be unable to dress or make a cup of tea because you cannot follow all the steps needed to do the task in the right order. You may have difficulty remembering what you were asked to do or selecting the right object at the right time. For example when getting dressed, you may put your shoes on before your socks.

#### Making decisions

This area is sometimes called executive functioning. It is thought to involve a combination of the skills we have discussed so far as well as the speed of your thinking and your ability to adapt to new information. If your stroke has affected your executive functioning you may find it hard to think through all the options and come to a reasoned decision.

#### Social cognition

Social cognition is our understanding of social situations, for example being able to see someone else's point of view, or being patient and knowing when to talk and when to listen in a conversation.

If your social cognition is affected by a stroke, it can be difficult for you to understand how you should behave socially. Many people who have had a stroke can seem **impulsive**. They have difficulty delaying what they do long enough to consider the consequences. You may be less concerned about other people because you don't understand how they are feeling. This area overlaps with personality changes, which are covered in more detail in our factsheet *F36, Emotional changes after stroke*.

### What help is available?

Some cognitive problems get better in time. However, other problems may last longer. They may improve a little, but not fully. No two strokes are the same and it is very difficult to predict how much recovery you will make. Although there is no cure for cognitive effects of stroke, many people find ways to cope with any lasting difficulties.

### Help from healthcare professionals

There are different healthcare professionals that might be involved in helping you with the cognitive effects of your stroke.

The first step is to work out what your difficulties are. After a stroke you should have a **routine test to assess your cognition**. There are several different tests available such as the Montreal Cognitive Assessment (MoCA) and the Mini Mental State Examination (MMSE). An occupational therapist or speech and language therapist will carry out these tests. This might sound a bit daunting but it will probably just be part of a relaxed conversation.

Your therapist will check things like whether you know what time and day it is and where you are. They will also check your attention, memory, language and your awareness of yourself in the environment around you. More detailed tests may be done later if your rehabilitation is not going as well as hoped for. Then medical staff can plan how best to help you.

If your stroke has affected your thinking, this will need to be assessed before you return to demanding activities like driving. Please see our factsheet *F2, Driving after stroke* for more information.

An **occupational therapist (OT)** can help you with daily activities such as getting dressed or making a cup of tea. They can also help with other activities such as work or hobbies.

An occupational therapist can also provide **equipment to help you cope with memory problems**. This might be as simple as a large noticeboard to put in your home. However, you might benefit from a memory aid that you can wear on a wristband or cord around your neck. These can play messages recorded by you at set times.

If your cognitive problems are more severe, you may be referred to a **clinical psychologist**, who can assess you, identify your specific problems and suggest practical ways to cope with them. A speech and language therapist may also be involved if you have difficulty with communication.

If you have severe memory problems, your GP or therapist may refer you to a **memory clinic** or arrange for someone who is a specialist in memory difficulties to visit you at home. However, these services are not available in all areas.

**Your occupational therapist or psychologist can talk to you about things you can do to improve your thinking and memory.** They are also experts in finding ways to cope with the difficulties you have by making use of what you can do. For example, if you often miss things on one side, but have good memory and speech skills, your occupational therapist might teach you to say to yourself 'look left' each time you take a step. This could help you remember and avoid bumping into things. There are other general techniques which we go into in the next section.

Your healthcare team should also look at minimising any other problems that might affect your thinking. This might include helping you with emotional changes and tiredness.

### Can memory exercises help?

It is difficult to say for certain whether practising exercises will improve your memory and thinking in the long term. This is probably because there are so many things that might affect the way you think. However, we have known for some time that physiotherapy can help the brain to re-organise itself so that more movement is possible. This is called plasticity. Memory training may work in a similar way.

Recent research has shown that a computer training program improved memory and concentration one year on for people who have had a stroke. Another recent study has found that a memory training strategy helped people with mild cognitive damage to remember where they had left objects. It increased activity in a part of the brain that forms new memories. More research is being carried out in this area.

### What can I do to help myself?

Keeping in contact with other people will help to keep your mind active. Meeting new people in a similar situation can also be a great way to gain support and increase your confidence. **Stroke clubs** – informal support groups for people who have had a stroke are an excellent place to start. Contact us for details of clubs in your area.

It is natural to feel anxious, upset or angry after a stroke. Depression is common and can add to your problems. If your stroke has affected your thinking, you may have to

adapt to a different role within your family. You may feel frustrated by not being able to do things you did before. All of this can put a strain on your relationships, which can make you feel worse. Try to **keep talking to your friends and family**. You may also want to speak to someone independent, like a counsellor, who can help you explore how you are feeling. Your GP can refer you to a counsellor, or you can arrange to see one privately.

Stress can also have an impact on your thinking, especially if you are stressed for a long time. **Finding ways to relax will help**. For example, if you feel stressed, try breathing slowly in through your nose and out through your mouth while counting from one to five. Yoga and tai chi are also good for breathing and relaxation.

Keeping active can help to improve your cognitive skills. One study showed that aerobic exercise improved memory after one year. Aerobic exercise causes your heart to beat faster than normal and increases your breathing. Exercising regularly can also stimulate growth of new brain cells, increase your energy, improve your mood and help you sleep better. All of this will improve your thinking and memory.

See our factsheets *F10, Depression after stroke*, *F36, Emotional changes after stroke*, and *R7, Exercise and stroke* for more information on these topics.

## Tips for memory problems

There are a number of things you can do to cope with memory loss.

- Break tasks down into simple steps.
- Try to keep to a routine and do certain tasks (like taking your medication or locking your doors) at set times of the day.
- Use prompts to jog your memory – for example, leave letters that need posting beside the front door so you see them when you go out.
- Leave yourself notes in noticeable places around the house. For example, to remind you to turn the cooker off and lock the door whenever you go out.
- Keep a page-a-day diary or calendar and note the time of even the smallest task, for example when you turn on the oven, feed the cat, or phone someone.
- Try to make a habit of always putting things away in the same place. Add labels to cupboards to remind yourself what should go in them.
- If you wear glasses, put them on a chain around your neck.
- Use a pill box that has separate compartments for each day of the week to organise your medication.
- If something needs doing, make a note of it or do it immediately.
- Put useful telephone numbers into your phone or keep a list near the phone.

- Use repetition to help remember things. For example if you meet a new person, repeat their name to yourself several times.
- Play memory games using cards to practise using your memory.
- Arrange to have a newspaper delivered every day to help you remember which day it is.
- Set up direct debits for bills so you don't forget to pay them.
- Use a tape recorder or dictaphone to record important information.
- Put your name on your things in case you accidentally leave them somewhere.
- Use labels with the date that you open food if you are storing it for future use.
- If you are caring for somebody with memory problems and they ask the same question repeatedly, try putting a dry wipe board in a prominent place and write the question and the answer on it.

## Tips for coping with other cognitive problems

### Tips for attention problems

- Ask anyone who is giving you information to keep it simple and to write down any key points.
- Minimise noise and other background distractions.
- While listening to a television or radio programme, make notes on the key

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points. This may help you to concentrate.

- Pace yourself. These problems can be made worse if you are feeling stressed or tired. Try not to do too much at once.
- Repeat things you have been told in your own words.

### Tips for perception problems

If you have trouble recognising familiar faces, possibly even your own, try the following.

- Explain to as many people as possible your difficulties and what they mean. People will be less likely to feel offended and more likely to help.
- Use other identifying features such as hair, clothes, age, body shape, gender, voice and topics of conversation to help recognise people.
- Practise often – even using photos and studying features can help.

If you are having difficulties with everyday tasks due to a lack of awareness of one side of your body, try the following tips.

- Remind yourself to check that you have washed/dressed both sides of your body.
- Use a checklist or a picture of your body and tick off the limbs that you have washed and dressed as you go.
- Try to use your affected side as much as possible as this may help you to improve awareness of that side.

If you have difficulty accepting you have a disability, try the following tips.

- Although difficult, it may help if other people tell you about the effects of your stroke.
- Take part in therapy, even if you don't want to, as this will help you to recover.
- Try to remember that people have your best interests at heart. Ask people you trust to explain what is happening.

If you find it difficult to recognise common sounds, try the following tips.

- Use visual clues to help you respond to common household noises, for example, use a telephone or door bell with a flashing light system.
- Use your sense of touch to respond to alarms, for example, use a vibrating watch or alarm clock.
- Think about your safety. Use a smoke alarm with flashing lights and a vibration alert system that you can place under your pillow or mattress.

If you are experiencing right/left confusion, it may help to try the following tips.

- Take your time – don't rush things.
- Put your hands out in front of you with your thumbs at a right angle to your fingers. Your left fingers and thumb will form the letter L.
- Wear a ring on your right hand to remind you that 'r' is for 'ring' and for 'right'.

If you are having trouble with planning and carrying out a series of actions, the following ideas may help.

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- Seek an assessment from an occupational therapist (OT) or a physiotherapist – your GP can refer you to see one. They can suggest tools that may help you, like adapted scissors or a computer.
- Organise items you use regularly, such as your clothes, in an orderly way. If everything is jumbled together you may find it much harder to identify the individual items you need.
- Avoid doing activities when you are tired.

If you are having difficulty responding correctly to things around you (for example, bumping into objects), try the following tips.

- Make sure the lighting in your room is good. This will make it easier to see things around you.
- Make sure your room is tidy and free from clutter.
- Ask your occupational therapist to assess your living space to make it as safe as possible for you to move around in.

### Tips for other cognitive problems

- Practise doing crosswords, sudokus and other puzzles as often as possible.
- Read poems and newspapers regularly.
- Write down your plans and refer to them often.
- If you don't understand someone, ask them to repeat themselves or to explain what they are saying.
- If you have a mobile phone or computer,

use its organisational tools – like task lists, calendars, reminders and alarms.

- If you have been told you are acting impulsively, try to think before you act or ask someone else for advice.
- Listen to your friends and family – remember they want what is best for you.
- If you have been told that you aren't listening to or understanding others, ask people to be more direct when they are explaining something to you.
- Ask people to tell you gently when you have misunderstood them. Being aware of these difficulties may help you to overcome them with time and practice.

## Useful resources

### ***The Brain Injury Workbook***

By Trevor Powell and Kit Malia (1999), Speechmark Publishing Ltd.

From Headway (see *Useful organisations*).

This is a book of stimulating activities.

It is primarily for professionals to use with their clients but also for people with cognitive problems, their carers or relatives.

Price: £29.95.

### ***Coping with memory problems***

By B A Wilson and L Clare (1997), Pearson.

This book explains memory problems, coping strategies and roles of the specialists.

Price: £13.50.

### ***LifeBook***

By Age UK (see *Useful organisations*)

This is a free book that you can use to record all sorts of important information about your life to help you feel organised and to find information easily.

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## **Coping with memory problems after brain injury – practical strategies**

By Headway – (see *Useful organisations*)  
Free factsheet explaining practical ways to manage memory problems with a list of websites that supply memory aids.

## **Useful organisations**

All organisations listed are UK wide unless otherwise stated.

### **Stroke Association**

**Stroke Helpline:** 0303 3033 100

**Website:** [stroke.org.uk](http://stroke.org.uk)

**Email:** [info@stroke.org.uk](mailto:info@stroke.org.uk)

Contact us for information about stroke, emotional support and details of local services and support groups.

### **Age UK**

**Tel:** 0800 169 6565

**Website:** [www.ageuk.org.uk](http://www.ageuk.org.uk)

Provides information for older people on a wide range of issues.

### **Alzheimer's Society**

**Tel:** 0845 3000 336

**Website:** [www.alzheimers.org.uk](http://www.alzheimers.org.uk)

Gives information about memory loss, memory aids, and the mini-mental state examination (MMSE).

### **Brain & Spine Foundation**

**Tel:** 0808 808 1000

**Website:** [www.brainandspine.org.uk](http://www.brainandspine.org.uk)

Provides information about stroke and memory problems. Their helpline is run by neuroscience nurses and other health professionals.

### **Headway – the brain injury association**

**Tel:** 0808 800 2244

**Website:** [www.headway.org.uk](http://www.headway.org.uk)

Provides information about memory problems, cognition and decision-making.

**Disclaimer:** The Stroke Association provides the details of other organisations for information only. Inclusion in this factsheet does not constitute a recommendation or endorsement.

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For sources used, visit [stroke.org.uk](http://stroke.org.uk)

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