

Perception

When a stroke has damaged the parts of the brain that deal with perception (the way we process the information coming from our senses, and see and understand things), a huge number of abilities that we normally take for granted can be turned topsy-turvy. Often the person with stroke can't describe or explain the 'tricks of the brain' they are experiencing, or doesn't realise they are experiencing a disability or lack.

It is important that caregivers, family/whānau and friends understand that such problems are caused by the stroke and that it is not the person's 'fault' if they seem to be behaving foolishly or recklessly.

Information processing

The two sides of the brain have functions that are different in character – the left side processes the bits and pieces from the information provided by the senses, the right side puts the data together to make the whole picture. Having some understanding of this can give insight into why and how different problems are manifesting in a person with stroke, depending on which side of their brain is affected.

Examples of functions of the two sides of the brain

LEFT side

INDIVIDUAL PIECES

Words

Notes / beats

Basic colours (red, blue, green)

Numbers / digits

Pieces of jigsaw

Units of time (seconds / minutes)

RIGHT side

WHOLE PICTURE

Total communication

Music / rhythm

All shades of colour

Mathematical processes

Whole jigsaw

Time in general (an hour a day)

Ignoring one side

The person is unaware of the environment to one side. The problem will always be on the same side:

- the **LEFT** side if the *right side of the brain* was damaged
- the **RIGHT** side if the *left side of the brain* was damaged.

The problem is more common when the stroke has damaged the right side of the brain (i.e. when the left side is affected):

- dressing/undressing only one side (putting on one sleeve of a cardigan, getting into the bath with one sock on)
- shaving only one side of the face (the other half is 'absent')
- eating only the food on one half of the plate
- 'losing' things which might be nearby, but on the affected side
- bumping into things (furniture, railings on one side appear not to be there)
- getting lost (because if there is a choice of direction the person always turns the same way, right or left only, never paying attention to the affected side)
- writing on only one side of a page
- difficulty reading (because only seeing half the text)
- knocking things over (because they appear not to be there)
- not shutting the door after getting into a car (because the door is on the side that 'doesn't exist')
- letting the ignored arm dangle into the spokes of a wheelchair

I noticed that all the patients in the ward had a locker beside their bed except me, so I called for the ward manager and demanded that I be given a locker. A bright doctor solved the problem immediately by moving my locker from the left (affected) side round to the right side of my bed.

What helps

- Wear a watch on the affected arm as a reminder to look for that arm
- A suitably placed full-length mirror, e.g. in the living room, will allow you to see for yourself both the unaffected and affected side
- Make visual checks that the affected arm or leg is not caught on the furniture or dangerously placed
- Frequently remind the person about the side they ignore – touch it, talk about it
- When talking to the person, stand in front or on the unaffected side.
- Place things the person may need – a drink, box of tissues – near the unaffected side
- Place a tray, or a plate at the table, toward the unaffected side instead of straight in front.

Interpreting shapes and patterns

Difficulty may be experienced with written words, or symbols, shapes or designs that need to be interpreted to make sense, for example:

- books, newspapers
- a clock or watch face
- the images on a television screen
- signs and diagrams

Distinguishing objects from their background

- Not being able to find the sleeve of a dress when it is lying on top of the rest of the dress
- Not seeing a white cake of soap on a white sinktop.

What helps

- Keep the living environment or workspace as free of clutter as possible

- Try to arrange frequently needed objects so they stand out from their background.

Seeing how things fit together

- Putting on clothes the wrong way round or out of order (inability to relate the shape of clothing to the body, to recognise inside/outside, top/bottom)
- Difficulty with doing a puzzle such as a jigsaw
- Difficulty with setting a table with the correct arrangement of knives, forks, spoons
- Difficulty with kitchen tasks, e.g. pouring drink *into* a cup.

Judging distance and dimensions

- Putting down a cup and missing the table
- Starting to cross the road when an oncoming car is too near
- Stepping over the edge of a step instead of onto the step.

Judging position

- Putting a jug on the bench at an angle, so it falls over.

Direction

- Not having a clear idea of above, below, left, right
- Getting lost, even in familiar surroundings.

Touch

- Being unable to distinguish textural differences, e.g. not knowing whether something is made of wood or plastic, or is soft or hard
- Being unable to recognise the size and shape of an object held in the hand, e.g. not knowing whether it is a coin or a key.

Body image

- An affected arm or leg may appear to the person to be too small, too large, not belonging to them, deformed, or having a life of its own
- The person may not be aware that a limb is paralysed, or not realise the severity of the paralysis
- A paralysed limb may seem to the person to be moving
- The person may feel there is an extra, phantom limb
- The person may be unrealistic about their physical abilities.

Recognising objects and their use

- Using a comb to brush the teeth
- Drinking shampoo
- Not recognising a familiar face
- Walking on the road instead of the footpath.

What helps

- Ensuring safety is important – the living environment must be kept free of dangerous objects or poisonous substances
- Frequently remind or demonstrate to the person the correct way to use various objects.

Sense of time

- Difficulty in estimating how much time has elapsed – even in dividing the day into morning/afternoon/night
- Difficulty in coping with changes in routines or schedules
- Difficulty in starting tasks.

I went off for about 5 minutes to speak to the nurse and when I got back he told me off for staying away for hours.

What helps

- Consider using a daily timetable, clocks or alarms as indicators of time.

Memory

- Difficulty remembering things that happened recently (although some memories from before the stroke may be quite clear)
- Filling in memory gaps with imagined events
- If the stroke damaged the right side of the brain, visual memory is more likely to be affected, so there will be problems remembering faces, shapes, e.g. houses, routes through streets and similar non-factual information
- The person may be able to repeat something just learned, e.g. a telephone number, but after an interval, with other things happening in between, not be able to recall it
- Difficulty in learning anything new.

I find it hard with the exercises because I can't keep the sequence in mind.

What helps

- Use pictorial reminders for exercise programmes
- Flow charts are useful for difficult to remember sequences, e.g. programming the video recorder
- Learning and memory can be improved by repetition
- Concentrate on the subject at hand – do just one thing at a time. Don't try to talk about one thing and think about something else; minimise distractions.

- Encourage the person to use memory aids, e.g. list of things to do, appointments diary, daily schedule – it may be necessary to show and remind them how to use these aids
- Repeat instructions slowly and clearly, as often as necessary
- Talk about past family/whānau events, look at photographs with the person, to help their recall.

Attention

We constantly receive signals from our surroundings, through our senses, and normally are constantly picking out the ones we need to act on while keeping the others in the background. Attention enables us to respond selectively, e.g. to listen to the voices and yells of children playing, yet be aware of a sudden distress call.

After a stroke it needs practice to cope with distractions. The person can have several kinds of attention problems:

- being able to focus only on something immediate, like a discomfort, and ignoring background factors, such as the house being on fire
- inability to concentrate on the task in hand (the attention wanders) – in conversation this gives the impression they are not interested
- inability to filter out background distraction, e.g. to listen to the person next to them when several people are talking
- inability to shift attention quickly from one task to another, e.g. to stop the potatoes boiling over when they are setting the table
- inability to give attention to two things at the same time, e.g. to peel potatoes while talking to someone

Attention problems become worse when the person is tired or stressed.

What helps

- Try to ensure that the person doesn't have too much to attend to at once

- During activities and conversations keep background noise (radio, TV) to a minimum
- Give instructions simply and clearly, one step at a time.

