



# Sensory and perceptual problems

**Sensory and perceptual problems can arise from damage to the right side of the brain or the parietal and occipital lobes of the brain.**

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## What causes sensory and perceptual problems?

Damage to the right side of the brain or the parietal and occipital lobes of the brain can cause sensory and perceptual problems. .

These areas of the brain process the input from our senses. For example, when eating an apple our brain will report on the following:

- touch (round and smooth)
- sight (red)
- sound (crunchy)
- smell (fresh)
- taste (sweet and ripe).

Brain disorders such as traumatic brain injury (TBI) can disrupt our senses, and also our perception of what our senses tell us. Our sensory and perceptual systems include:

- auditory (sound)
- visual (colour, shape, size, depth and distance)
- tactile ( touch relating to pain, pressure and temperature)
- olfactory (smells)
- gustatory (taste).

## Visuospatial skills

While problems can occur with our sensory systems, visuospatial problems are often more noticeable. Possible issues include:

- drawing objects
- recognising objects (agnosia)
- telling left from right
- mathematics (dyscalculia)
- analysing and remembering visual information
- manipulating or constructing objects
- awareness of the body in space (e.g. climbing stairs)
- perception of the environment (e.g. following directions).

## Neglect

A well-known problem is neglect, where the brain ignores one side of all it perceives - usually the left hand side. For example, a person may ignore food on the left side of a plate or fail to copy aspects on the left side of a picture.

## Case study - Elsie

Elsie was a 52-year-old woman who had a stroke three years ago and since then had problems with sideswiping parked cars and posts on the left side of her car. Elsie visited her doctor to have her eyesight checked. She was referred to a neuropsychologist who diagnosed the problem as left-sided neglect. When asked how she managed to drive, Elsie said she stayed in the left lane and would know to steer right when she heard her tires going off the road.



### **Prosopagnosia (face blindness)**

Prosopagnosia is a less common example of neglect. The ability to recognise faces is affected, or even lost completely. In extreme cases, there is an inability to distinguish one face from another or read facial expressions (aperceptive prosopagnosia). These people must rely on signifiers like the voice, hairstyle or clothing to identify others.

#### **Case Study - Lincoln**

After a car accident Lincoln could not even recognise a photo of himself. If separated from his family in a large crowd he was unable to find them again. One of the biggest problems he faced was that others could not understand his ability to see and recognise objects, but not other faces.

### **Managing visuospatial problems**

As shown with Elsie, neglect can be undiagnosed despite safety issues. A person with neglect might be unaware of their problems, or blame the problem on something else. It is important to identify problems like neglect during rehabilitation and educate the person so they know the impact of the problem in everyday living.

Retraining skills is one way to manage visuospatial problems until the person regains the required skill as far as possible. Retraining usually involves repetitive and intensive exercises for a specific skill or task. This could be practice at drawing an object while receiving feedback. It tends to be more effective with specific skills.

Changing the environment or expectations involves modifying the environment to provide more support, or reduce the demands of a particular skill. For example, support could be fitting a handrail to make climbing stairs at home easier.

Reducing the demands of a skill can be as simple as shifting furniture at home so that walking around the house is easier. The person may also learn to adjust their expectation and educate other people about their difficulties.

### **Compensatory strategies and rehabilitation**

Compensatory strategies are very important in rehabilitation. These strategies compensate for what a person has trouble doing after a TBI or similar brain disorder. For example, Elsie may be taught to turn her head or body to scan the environment properly due to her neglect of things on her left side.

A range of specialised equipment is available to fit into a person's home or assist with community access.

External prompts are things like:

- colour stickers for object recognition
- bright lights on the floor
- musical or sound prompts
- stencils or transparent paper for copying
- handrails and other safety devices.

A compensatory strategy for failing to recognise objects could involve the person shutting their eyes and relying more on other senses like touch, hearing and smell.

The rehabilitation strategies described may be developed by a neuropsychologist, occupational therapist or physiotherapist. The eventual goal of any rehabilitation program is greater independence and the use of self-management strategies. However, family members, friends and support workers can still provide valuable support.

### **References and further information**

For a dynamic view of the brain take a look at InformED's Brain Map  
<http://www.opencolleges.edu.au/informed/learning-strategies/>