

## Fact sheet

# Cognitive impairment following brain injury

Cognitive deficits are major sequelae of acquired brain injury (brain injury) and have an adverse impact on function and rehabilitation. Cognitive changes vary and depend on many factors which include an individual's personality, pre-injury abilities, and the severity of the brain damage. Many people with brain injury report cognitive impairments to be more debilitating than physical deficits.

## Cognitive impairments

An individual with a brain injury may display the following:

- > memory impairments
- > difficulty with new learning
- > difficulty with attention and concentration
- > reduced speed and flexibility of thought processing
- > impaired problem solving skills
- > problems in planning, organising and making decisions
- > language problems - problems finding words, dysphasia, impaired reading and writing skills
- > impaired judgement and safety skills<sup>1</sup>

## Memory

### Long term memory

People who have a brain injury may experience retrograde and/or anterior grade amnesia. Retrograde amnesia means you have lost memories for events prior to the accident. Anterior grade amnesia means events following the accident have been erased.

As people recover from their head injuries, long-term memories tend to return. In general, the smaller the degree of retrograde amnesia then the less significant the head injury.

### Short term memory

It is common for short term memory to be significantly affected. Problems may include forgetting names, losing train of thought, forgetting past conversations, misplacing objects, getting lost, difficulty learning new skills.

## Attention and concentration

A person with a brain injury may:

- > become easily distracted
- > have difficulty multi-tasking
- > experience information overload
- > be slower at processing information



---

<sup>1</sup> Khan, Baguley and Cameron 2003

## Word finding

People with a brain injury may experience anomia (a form of aphasia in which the patient is unable to recall the names of everyday objects). This means they know the word they want to say but cannot come up with it. A person may not recognise that the wrong word was used until it is pointed out.

Strategies for managing anomia include:

- > circumlocution - describing the meaning of the word
- > going through the alphabet to get the first letter of the word
- > visualise spelling the word

## Planning and organisation

Damage to the frontal lobes may cause problems in planning activities, getting things in the right sequence, and evaluating possible errors.

Strategies for coping with difficulties in planning and organisation include:

- > simplify activities by performing one at a time
- > reduce distractions
- > limit to one activity at a time until the task is mastered
- > start adding a second task - this process can take many months
- > use a daily planner and write things down in the order they need to be done to help in the decision making process
- > practice organisation skills early in the day because fatigue can affect the ability to organise

## Consciousness and vegetative states

Differentiating patients with a minimally responsive state from those with persistent vegetative states can be controversial for both clinical and legal reasons. Clinically determining the cognitive capacity of a person with extreme physical deficits requires extended assessments.

Persistent vegetative state indicates that the person, although showing signs of basic arousal, has been otherwise completely unable to interact with his or her environment for an extended period of time. True permanent vegetative states are now exceedingly rare, due to a reduction in incidence of the condition and improved methods of assessment, and most patients become at least minimally responsive over time<sup>2</sup>.

## Cognitive assessment

Neuropsychological assessments can help to delineate the extent and type of cognitive disability that a person may experience.

Common assessment tools include:

- > Glasgow Outcome Scale
- > Extended Glasgow Outcome Scale
- > Relatives Questionnaire
- > [Level of Cognitive Functioning Scale \(LCFS\)](#)

---

<sup>2</sup> Khan, Baguley and Cameron 2003

## Treatment of cognitive problems

Therapy will focus on regaining lost skills as well as learning ways to compensate for abilities that have been permanently changed because of the brain injury. Most individuals respond best to programs tailored to their background and interests.

Some examples of treatment options include:

- > cognitive behaviour therapy
- > multidisciplinary interventions - physiotherapy, speech pathology, occupational therapy
- > medication
- > exercise
- > virtual reality exercise
- > retraining and re-skilling through supported employment services
- > computer assisted programs<sup>3</sup>

## Relevant journal articles

Carney, N et al, June 1999, [\*Effect of Cognitive Rehabilitation on Outcomes for Persons with Traumatic Brain Injury: A Systematic Review\*](#), Journal of Head Trauma Rehabilitation, vol. 14 - issue 3, p. 277-307

Pettigrew, L E L, Teasdale, G M, and Wilson, J T L, 2000, [\*Emotional and cognitive consequences of head injury in relation to the Glasgow outcome scale\*](#), Journal of Neurology, Neurosurgery, and Psychiatry, vol. 69, p. 204-209

---

<sup>3</sup> NIDCD 2006



---

## For more information

**Hampstead Rehabilitation Centre**  
207-235 Hampstead Rd  
Lightsview SA 5085  
Telephone: (08) 8222 1625  
[www.sahealth.sa.gov.au](http://www.sahealth.sa.gov.au)

Public-I1-A1

*Resources accurate as at 16 February 2015.*

© Department for Health and Ageing, Government of South Australia. All rights reserved.



[www.ausgoal.gov.au/creative-commons](http://www.ausgoal.gov.au/creative-commons)



**Government  
of South Australia**

SA Health