



HO 4.1

# Cognitive Changes – Workshop Outcomes

At the end of this session, participants should be able to:

- define Neuropsychology and the role of the Neuropsychologist (optional)
- recognise normal difficulties that may occur with memory, attention, and concentration
- identify some of the frequently occurring cognitive changes resulting from traumatic brain injury
- list possible strategies to compensate for cognitive changes
- identify how impaired cognitive functions might be misunderstood or misinterpreted by other people.



HO 4.2(a)

# Consequences of Traumatic Brain Injury

The consequences of a traumatic brain injury are diverse. After acute recovery and intensive rehabilitation, the individual, their family and friends have to adjust to the changed situation and face the long-term future.

When someone suffers traumatic brain injury, a number of problems may arise as a result of physical damage to the brain. The problems will vary from individual to individual, and will depend on a number of factors. These include:

- the person's pre-injury cognitive strengths and weaknesses
- the person's pre-injury personality and coping style
- the extent, location and nature of damage to the brain
- the extent of spontaneous recovery which takes place

TBI's from motor vehicle accidents often causes a generalised pattern of cognitive impairments. This type of injury often involves twisting, stretching, bleeding and bruising of the brain as opposed to a localised or penetrating type of injury like a stab wound where the resulting impairments are usually more specific to the location of damage.

However each individual is likely to display a different pattern of cognitive changes and few people exhibit all possible consequences. One type of impairment may be severe, another mild, and another absent. A person may, for example, have a poor memory, minor problem-solving difficulties but no change in their personality.

Apart from the brain injury itself, there are other factors that will affect the person's behaviour. The circumstances they find themselves in is quite different to their pre-injury lives. Some of the changes include:

- spending large amounts of time in hospital and attending appointments
- loss of social contacts and often friends
- loss of income and the financial uncertainty of the future
- physical impairments
- loss of independence and the need to rely on others for previously simple, day-to-day activities.



## HO 4.2(b)

### *Consequences of Traumatic Brain Injury (continued)*

#### **Cognitive Changes**

##### **1. Information processing**

- slowed processing
- poor mental tracking
- fatigue

##### **2. Attention**

- short attention span
- poor concentration
- poor attention to detail
- easily distracted

##### **3. Memory**

- difficulty learning and remembering new information

##### **4. Problem solving**

- difficulty working out how to do things

##### **5. Flexibility**

- unable to shift to or think of a new solution/method
- may perseverate (repeatedly refer to the same topic or keep returning to that topic)

##### **6. Planning and organising**

- poor preparation, eg. starting something without considering options
- difficulty understanding or recognising the steps involved

##### **7. Reasoning**

- thinking is often rigid and concrete
- tendency to take things literally

##### **8. Self monitoring**

- poor use of feedback and breaking rules
- not picking up on cues

##### **9. Insight**

- unaware of own limitations
- unrealistic goals or expectations

The information provided here is a guide and doesn't reflect hard and fast divisions. For example, a person having difficulty learning new information may have a poor memory and/or attention impairments or poor organisational skills.

Each individual is likely to show a different pattern of cognitive changes, often combined with some preserved abilities.



HO 4.3a

# Understanding and Managing Cognitive Changes following a Traumatic Brain Injury

Impairment	Problems Arising	Management Strategies
	The person may:	You and others can:
<b>Information Processing</b> Speed of information processing	<ul style="list-style-type: none"><li>– take longer to complete tasks</li><li>– take longer to get ideas together and answer someone</li><li>– be unable to keep track of lengthy conversations and instructions</li></ul>	<ul style="list-style-type: none"><li>– make allowances and give the person extra time</li><li>– speak clearly and evenly</li><li>– present only one thing at a time</li><li>– try not to interrupt or answer for the person</li><li>– check that the person is keeping up with the conversation</li></ul>
<b>Fatigue</b>	<ul style="list-style-type: none"><li>– tire quickly during mental effort</li><li>– have reduced tolerance and ability to cope</li><li>– become irritable easily</li><li>– have their other problems exacerbated</li></ul>	<ul style="list-style-type: none"><li>– encourage the person to take rest breaks</li><li>– schedule more demanding or essential tasks when the person is at their best (often morning)</li><li>– arrange activities to be shorter where there is an achievable goal</li></ul>
<b>Mental tracking</b>	<ul style="list-style-type: none"><li>– have difficulty following instructions</li><li>– lose track of what they are thinking/doing</li><li>– get information mixed up or become confused</li></ul>	<ul style="list-style-type: none"><li>– keep activities and instructions short and uncomplicated</li><li>– ask specific or direct questions</li><li>– provide reminders to the next step in a task</li></ul>



## HO 4.3b

### ***Understanding and Managing Cognitive Changes following a Traumatic Brain Injury (continued)***

<b>Impairment</b>	<b>Problems Arising</b>	<b>Management Strategies</b>
	The person may:	You and others can:
<b>Attention</b>	<ul style="list-style-type: none"><li>– appear not to listen</li><li>– miss details</li><li>– forget what people have said</li><li>– have difficulties concentrating</li><li>– be unable to cope with more than one thing at a time</li><li>– be easily distracted</li><li>– change the subject often</li><li>– not complete what they start</li><li>– get bored easily</li></ul>	<ul style="list-style-type: none"><li>– use short, simple sentences</li><li>– shorten activities so they can be completed</li><li>– ensure the person writes important information down</li><li>– assist the person to check what they are doing</li><li>– encourage the person to engage in only one activity at a time</li><li>– reduce external distractions (noise, other people)</li><li>– if the person has been distracted, interrupt and bring their focus back to task</li><li>– alternate activities to maintain interest</li></ul>
<b>Memory</b>	<ul style="list-style-type: none"><li>– have difficulty learning new things</li><li>– be forgetful (what people say, names, appointments)</li><li>– lose things</li><li>– have difficulty recalling what they have learnt</li></ul>	<ul style="list-style-type: none"><li>– repeat information if necessary</li><li>– encourage rehearsal of new information</li><li>– encourage use of external memory aids; diaries, calendars, time tables</li><li>– maintain 'special places' for belongings</li><li>– give reminders or prompts to assist recall</li></ul>



## HO 4.3c

### ***Understanding and Managing Cognitive Changes following a Traumatic Brain Injury (continued)***

<b>Impairment</b>	<b>Problems Arising</b>	<b>Management Strategies</b>
	The person may:	You and others can:
<b>Problem Solving</b>	<ul style="list-style-type: none"><li>– have difficulty working out solutions to problems</li><li>– be unable to generate new ideas</li><li>– have a disordered approach to problem solving</li></ul>	<ul style="list-style-type: none"><li>– help to identify an achievable outcome for the task, ensure there is a purpose</li><li>– avoid giving open-ended tasks</li><li>– help the person to approach tasks in a more systematic manner</li><li>– assist the person to break a task down into smaller components</li><li>– reduce the demands made upon the person (one thing at a time, start simple)</li></ul>
<b>Flexibility</b>	<ul style="list-style-type: none"><li>– be unable to accommodate for, or adapt to, change</li><li>– become 'stuck in a rut' unable to develop new strategies</li><li>– persist with erroneous methods in spite of feedback</li><li>– repeatedly refer to the same topic or return to that topic when doing something else (perseverate)</li></ul>	<ul style="list-style-type: none"><li>– assist the person to identify initial signs of frustration and recognise that is a time to stop what they are doing</li><li>– provide alternative ways of completing a task so a choice is available</li><li>– distract the person to another activity if they are continually making errors</li><li>– if they are talking repeatedly off topic, direct the person back to task by asking specific questions</li></ul>
<b>Planning and Organising</b>	<ul style="list-style-type: none"><li>– difficulty preparing for a task</li><li>– be unable to work out the steps or sequence involved in a task</li><li>– not consider the consequences of their actions</li><li>– have problems with organising their own thoughts and explaining things to others</li></ul>	<ul style="list-style-type: none"><li>– encourage the person to consider what they are about to do before commencing an activity</li><li>– provide a written structure or guideline outlining the steps in order</li><li>– give prompts for following steps</li><li>– help develop a timetable (weekly, daily) to establish a routine of activities</li><li>– keep the environment organised so items are always kept in the same place</li><li>– encourage the person to take time to think about what they want to say</li></ul>



## HO 4.3d

### ***Understanding and Managing Cognitive Changes following a Traumatic Brain Injury (continued)***

<b>Impairment</b>	<b>Problems Arising</b>	<b>Management Strategies</b>
	The person may:	You and others can:
<b>Reasoning</b>	<ul style="list-style-type: none"><li>– have a rigid and concrete thinking style</li><li>– take statements literally</li><li>– fail to “put themselves in another’s shoes”</li><li>– be resistant to change</li><li>– have a simplistic understanding of emotions</li><li>– show poor judgement and poor decision making skills</li></ul>	<ul style="list-style-type: none"><li>– use simple and direct language and avoid talking in abstract terms</li><li>– explain changes in routine in advance, giving reasons</li><li>– try not to get into arguments with the person</li><li>– avoid using emotional undertones</li><li>– provide real life examples (preferably the person’s) when offering explanations</li></ul>
<b>Self-monitoring</b>	<ul style="list-style-type: none"><li>– show poor adherence to rules</li><li>– not realise they have made errors because they have not checked their work</li><li>– ‘hog’ conversations</li><li>– be verbose and keep talking when others are no longer interested</li></ul>	<ul style="list-style-type: none"><li>– reinforce specific requirements of an activity</li><li>– encourage the person to check over their work</li><li>– immediately indicate, or provide feedback, when errors occur or when the person talks too much</li><li>– use signals, which have been agreed to in advance, to let them know they are talking too much</li><li>– encourage turn taking in conversations</li></ul>
<b>Insight</b>	<ul style="list-style-type: none"><li>– be unaware of cognitive and physical limitations</li><li>– set unrealistic goals, plans, and expectations</li><li>– be resistant to the effort of carers/ staff</li></ul>	<ul style="list-style-type: none"><li>– provide explanation why proposed action (not the person’s own plan) is useful, and reason through the steps (small steps, start gradually etc)</li><li>– help to identify realistic goals – these may be smaller components of a larger plan, but more achievable</li></ul>



## HO 4.4

# Consequences of Personality and Behavioural Changes

Changes in personality and behaviour can be extremely disruptive, affecting how an individual manages general day-to-day interactions, with non-specific people, right through to their ability to maintain an established relationship.

After a traumatic brain injury a person may present with maybe one or a combination of the following features:

- disinhibition, impulsiveness and poor self control (rude, immature, intimidating, angry)
- egocentricity and self absorption (insensitive, selfish, obsessive)
- apathy – lack of interest or feeling (insensitive)
- emotional lability (over reactive, superficial)
- inertia – lowered drive, poor motivation, poor initiation (lazy)
- restlessness and increase in energy (agitated)
- reduced social skills (difficult, inappropriate)

Others can misunderstand these changes as the person being deliberately difficult, which in turn can make it challenging and frustrating to spend time with them.

Personality and behaviour changes are likely to occur in combination with cognitive impairments with considerable overlap between many of the different impairments.