



the brain injury
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Coma after Brain Injury

Whether it lasts for a few seconds or a few weeks, the usual immediate effect of brain injury is a loss of consciousness. Coma can be defined as a state of depressed consciousness where a person is unresponsive to the outside world. It is not fully understood, but is thought to be associated with activities in the brainstem.

Levels of coma

There are different levels of coma, ranging from very deep coma where the patient shows no response to pain, to more shallow levels, where the patient responds to pain by movement or opening eyes. Still shallower levels can occur, where the patient is able to make some response to speech.

Glasgow Coma Scale (GCS)

The GCS is a very simple, easy to administer technique which is used to rate the severity of coma. It assesses the patient's ability to open their eyes, move and speak. The total score is calculated by adding up the scores from the different categories, shown in the table below, and ranges from a minimum of 3 to a maximum of 15.

Best motor response

6	Obeying commands
5	Movement localised to stimulus
4	Withdraws
3	Abnormal muscle bending and flexing
2	Involuntary muscle straightening and extending
1	None

Verbal responses

5	Orientated response
4	Confused conversation
3	Inappropriate words
2	Incomprehensible sounds
1	None

Eye opening

4	Spontaneous
3	To speech
2	To pain
1	None

factsheet

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Recovery from coma

Recovery from coma is a gradual process, starting with the person's eyes opening, then responding to pain, and then responding to speech. People do not just wake up from a coma, and say, 'Where am I?' as is sometimes portrayed in films. The length of coma is one of the most accurate predictors of the severity of long-term symptoms. The longer the coma, the greater the likelihood of residual symptoms, particularly physical disabilities.

Behaviour on emergence from coma

After a coma, during a period known as Post Traumatic Amnesia (PTA), the patient's behaviour may well be restless, disinhibited and agitated. Uncharacteristic behaviour such as swearing, shouting and masturbating are not unusual, but these are best ignored, as seeing other people's distress may only increase the patient's agitation or distress. An individual cannot be held responsible for their behaviour during this period. This is a difficult time for relatives, but it is important to remember that the patient will come out of it.

Length of Post Traumatic Amnesia (PTA)

Length of PTA, as with length of coma, is important. This is the best indicator of severity of brain injury. PTA is assessed by asking the patient a number of questions at regular intervals. The first group of questions is concerned with awareness of time, place and person, for example, 'What is your name?', 'What day of the week is it?' A second group of questions relates to the patient's awareness of the accident, e.g. 'What was your last memory before the accident?' A patient deep in PTA will not be able to answer these questions correctly. As the patient emerges from PTA, the answers will become more accurate and more sensible. For more information on PTA, see our factsheet 'Post Traumatic Amnesia explained'.

Persistent Vegetative State (PVS)

A small number of people sustain a brain injury so severe that they remain in a state of coma for months and years. They do not recover sufficient consciousness to make any form of communication, but can breathe without mechanical assistance. When this is the case, despite application of rehabilitation measures for at least three years, a person may be described as being in a Persistent Vegetative State, or PVS. There are normally just less than 100 people in the UK in PVS at any one time.

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Locked-in syndrome

Locked-in syndrome is a rare diagnosis which is applied to people who are conscious and able to see and possibly hear but are paralysed and unable to speak because of damage to the brain stem. Often those patients can move their eyes voluntarily in response to stimuli.

Useful websites

www.headway.org.uk - Headway – the brain injury association's website
www.comarecovery.org - a US support organisation for coma survivors
www.waiting.com - a website dedicated to those with a loved one in a coma
www.rhn.org.uk - website of the Royal Hospital for Neuro-disability
Www.braininjury.com – American resource on brain injury including information on coma

Further reading

The following books are available from Headway and provide a good introduction to brain injury and its effects, including sections on coma.

Daisley, A., Tams, R. and Kischka, U. (2008) *Head Injury: The Facts*. Oxford University Press: Oxford.
Powell, T. (1994) *Head Injury: A Practical Guide*, Speechmark Publishing Ltd: Bicester.

Headway also produces an extensive range of booklets and factsheets covering the range of problems that brain injury can cause. Booklets that may be of particular interest include:

- *Hospital Treatment and Early Recovery after Brain Injury*
- *Effects of Brain Injury and How to Help*
- *Rehabilitation after Brain Injury*

To obtain a complete publications list or to order copies of books and booklets please visit our website at www.headway.org.uk, or telephone 0115 924 0800.

Factsheets are free to download from the website and copies can also be obtained from the Headway helpline on 0808 800 2244 or helpline@headway.org.uk.

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