

APPENDIX 1. GLASGOW COMA SCALES (GCS)

For Adults

“Alert” patients have a total score of 15

Eye Opening:

- 4 – spontaneous
- 3 – to voice
- 2 – to pain
- 1 – none

Verbal Score:

- 5 – oriented
- 4 – confused but answers questions
- 3 – inappropriate words: recognises words but random and inappropriate
- 2 – incomprehensible
- 1 – none

Motor Score:

- 6 – obeys commands
- 5 – localises: changing location of a painful stimulus causes the patient to have purposeful movement toward the stimulus
- 4 – withdraws: pulls away from painful stimulus
- 3 – abnormal flexion: decorticate
- 2 – abnormal extension: decerebrate
- 1 – none

Source: Teasdale B, Jennett B. Assessment of coma and impaired consciousness. A practical scale. Lancet 1974;2(7872):81-4. PMID: 4136544

Modified GCS for children: Total 15 = “alert”

	> 1 year old		< 1 year old
Eye Opening			
4	spontaneous		spontaneous
3	to verbal command		to loud shout
2	to pain		to pain
1	none		none
Motor Response			
6	obeys		spontaneous
5	localises pain		localises pain
4	withdraws to pain		withdraws to pain
3	abnormal flexion to pain		abnormal flexion
2	abnormal extension to pain		abnormal extension
1	none		none
	> 5 years	2–5 years	0–2 years
Verbal			
5	oriented and converses	appropriate words	babbles, coos
4	confused	inappropriate words	cries but inconsolable
3	inappropriate	cries or screams to pain (persistently)	cries or screams to pain (persistently)
2	incomprehensible	grunts or moans to pain	grunts or moans to pain
1	none	none	none

Source: Schutzman SA, Barnes P, Duhaime AC, Greenes D, Homer C, Jaffee DE, et al. Evaluation and management of children younger than two years old with apparently minor head trauma: proposed guidelines. Pediatrics 2001;107(5):983-93. PMID: 11331675



APPENDIX 2. NATIONAL ORGANISATIONS PROVIDING SUPPORT FOR PATIENTS WITH MODERATE TO SERIOUS HEAD INJURIES

Brain and spine foundation

7 Winchester House, Cranmer Road, Kennington Park, London, Sw9 6Ej

Tel: 020 7793 5900 • Fax: 020 7793 5939 • Helpline 0808 808 1000

Email: helpline@brainandspine.org.uk www.brainandspine.org.uk • Email: info@brainandspine.org.uk

The Brain and Spine Foundation develops research, education and information programmes aimed at improving the prevention, treatment and care of people affected by disorders of the brain and spine and to stimulate the greater allocation of resources across all neurological disorders.

Brain and spinal injury Charity (BasiC)

The Neurocare Centre, 554 Eccles New Road, Salford, Manchester, M5 5AP

Tel: 0161 707 6441 • Fax: 0161 206 4558 • Helpline: 0870 750 0000 www.basiccharity.org.uk

BASIC provides a specialist resource at the Neurocare Centre for people and their families in crisis following a traumatic brain injury or neurological diagnosis.

Brain injury rehabilitation trust (Birt)

60 queen Street, Normanton, wakefield, WF6 2BU

Tel: 01924 896100 • Fax: 01924 899264 www.birt.co.uk • Email: director@birt.co.uk

The Brain Injury Rehabilitation Trust provides community based rehabilitation and support for people with acquired/traumatic brain injury.

Child Brain Injury Trust

Unit 1, The Great Barn, Baynards Green Farm, Nr Bicester, Oxfordshire, OX27 7SG Tel: 01869 341 075

Helpline: 0845 601 4939 • Email: helpline@cbituk.org www.cbituk.org • Email: info@cbituk.org

The Child Brain Injury Trust (CBIT) supports children, young people and families affected by an acquired brain injury

Headway

Scotland Office, Astley Ainslie Hospital, Grange Loan, Edinburgh EH9 2HL

Tel: 0131 537 9481 • Helpline: 0808 800 2244 • Email: helpline@headway.org.uk www.headway.org.uk

Email: headway.scotland@lineone.net

Headway is a charity set up to give help and support to people affected by a head injury. A network of local groups throughout the UK offer a range of services including rehabilitation programmes, carer support, community outreach and respite care.

Momentum

Pavilion 7 watermark Park, 325 Govan Road, Glasgow, G51 2SE

Tel: 0141 419 5299 • Fax: 0141 419 0821 www.momentumsotland.org • Email: headoffice@momentum.org

Momentum is a voluntary organisation offering a range of support and rehabilitation programmes to those who have had a head injury.

Scottish Acquired Brain Injury Managed Clinical network

MCN Office Administration Building, Astley Ainslie Hospital, 133 Grange Loan, Edinburgh, EH9 2HL

Tel: 0131 537 9092 www.sabin.scot.nhs.uk/ • Email: cflannery@nhs.net



Symptoms of concussion

- Headache
- Dizziness
- Confusion
- Visual problems
- Nausea or vomiting
- Fatigue
- Drowsiness
- Pressure in head
- Sensitivity to light or noise

Questions to ask

- Where are we now?
 - What time of day is it?
 - How did you get here today?
 - Where were you on this day last week?
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IF IN DOUBT, SIT THEM OUT.

This card is a summary of the Scottish Sports Concussion Guidance report.

To view the full document visit:
sportscotland.org.uk/concussion

IF IN DOUBT, SIT THEM OUT.

How to recognise a concussion

If any of the following signs are suspected, the player should be immediately removed from play:

- Dazed look
- Motionless
- Unsteady
- Unresponsive
- Confused
- Seizure
- Clutching head
- Heightened irritability or emotion

IF IN DOUBT, SIT THEM OUT.

Immediate management

Anyone with a suspected concussion should be immediately removed from play in a safe manner

They must not return to activity that day

If a neck injury is suspected, they should only be removed by a healthcare professional

In all cases of suspected concussion we recommend you seek medical advice early via your GP or NHS24 111

Return to sport, once symptom free, should be graduated. Please refer to Scottish Sports Concussion Guidance for more information

If any of the below suspected please ensure they are urgently taken to hospital:

- Severe neck pain
 - Deteriorating consciousness
 - Increasing confusion or irritability
 - Severe or increasing headache
 - Repeated vomiting
 - Unusual behaviour change
 - Seizure
 - Double vision
 - Weakness or tingling / burning in arms or legs
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APPENDIX 4. INDICATIONS FOR CT SCAN IN CHILDREN³⁹

For children who have sustained a head injury and have any of the following major risk factors, perform a CT head scan within 1 hour of the risk factor being identified:

- suspicion of non-accidental injury
- post-traumatic seizure but no history of epilepsy
- on initial assessment, GCS less than 14, or for children < 1 year GCS (paediatric) less than 15.
- at 2 hours after the injury, GCS less than 15
- suspected open or depressed skull fracture or tense fontanelle
- any sign of basal skull fracture (haemotympanum, 'panda' eyes, cerebrospinal fluid leakage from the ear or nose, Battle's sign)
- focal neurological deficit
- for children under 1 year, presence of bruise, head swelling or laceration of more than 5 cm
- more than one of the following "minor" risk factors:
 - o loss of consciousness lasting more than 5 minutes (witnessed)
 - o abnormal drowsiness
 - o three or more discrete episodes of vomiting
 - o dangerous mechanism of injury (high-speed RTA either as pedestrian, cyclist or vehicle occupant, fall from a height of greater than 3 metres, high-speed injury from a projectile or other object)
 - o amnesia (antegrade or retrograde) lasting more than 5 minutes.

Children have only 1 of the "minor" risk factors above (and no major risk factors) should be observed for a minimum of 4 hours after the head injury. If during observation any new risk factors become apparent, perform a CT head scan within 1 hour.

If none of these risk factors occur during observation, use clinical judgement to determine whether a longer period of observation is needed.



WHAT TO EXPECT AFTER A HEAD INJURY

Head injuries are common. While most head injuries get better on their own in a few days, some may cause more serious, ongoing problems. Careful assessment by a doctor will determine the severity of a head injury, the need for more tests and when it is safe to go home. Once at home, especially during the first 24 hours, it is important to watch for any serious symptoms that may develop.

Usual Symptoms

After a head injury, it is common to have a mild headache, dizziness, nausea (upset stomach), memory problems, poor concentration, irritability and tiredness. Sleep problems can also occur. After several weeks, these symptoms often clear up without any treatment. If they don't, be sure to see your doctor.

Serious Symptoms

If any of the following serious symptoms occur, immediately seek medical help.

- Severe headache that is not relieved by paracetamol or ibuprofen.
- Vomiting (throwing up)
- Confusion (e.g., not knowing where you are)
- Inappropriate (excessive) drowsiness
- Trouble walking or talking
- Seizures or fits
- Fluid coming out of the ears or nose
- Weakness or numbness in legs/arms
- Blurred vision

When children have a head injury, it is wise to check on them once or twice overnight if the injury happened in the evening or during the night. However, there is no need to frequently awaken them overnight. Ensure that they:

- appear to be breathing normally
- are sleeping in a normal posture
- make the expected response when roused gently (e.g., pulling up sheets, cuddling teddy bear)

If you are concerned that your child isn't sleeping normally, waken him/her and seek medical attention.

Other Advice

- It is important for the patient to get plenty of rest, including a break from reading, TV, video games, etc. Children/adolescents may need some time off school or a shorter school day. Adults may need to take time off work. Your doctor can provide advice about the type of rest you need.
- Do not return to sport or regular activity until you have been told it is safe to do so.
- Avoid alcohol, sleeping pills, sedatives or tranquilizers.

Sources: **1)** Head Injury: What to Watch for Afterward. The College of Family Physicians of Canada. 2003; **2)** Example discharge advice leaflet for carers of children who have sustained a head injury. Early management of children with a head injury. Recommendations Online: Clinical Knowledge Evidence Translation (ROCKETS). Scottish Intercollegiate Guidelines Network (SIGN) 2009. <http://www.sign.ac.uk/pdf/rocket110child.pdf> ; **3)** Early management of adult patients with a head injury. Recommendations Online: Clinical knowledge Evidence Translation (ROCKETS). Scottish Intercollegiate Guidelines Network (SIGN) 2009. Both accessed January 3, 2011.

