

# PEDIATRIC CONCUSSION UPDATE: WHAT ED NURSES SHOULD KNOW AFTER “HUMPTY DUMPTY” FALLS

**Authors:** Patricia A. Normandin, DNP, RN, CEN, CPN, CPEN, and Stacey A. Benotti, PharmD, Boston, MA

**Section Editor:** Patricia A. Normandin, DNP, RN, CEN, CPN, CPEN

Pediatric concussion is also known as traumatic brain injury (TBI). Severe concussion is a major cause of disability worldwide. The Centers for Disease Control and Prevention (CDC) estimates that, in 2013, TBIs resulted in approximately 2.8 million ED visits, hospitalizations, and deaths in the United States.<sup>1</sup> “Concussion” is the word commonly used to describe mild traumatic brain injury (mTBI).<sup>1</sup> According to the CDC, traumatic brain assault injury is the leading cause of death in children 0 to 4 years of age and in adolescents aged 15 to 19 years.<sup>1</sup> In children younger than 15 years of age, hospitalizations and deaths were caused by being struck by—or against—objects, which resulted in more than 1 in 5 (22%) of TBI-related ED visits.<sup>1</sup> Motor vehicle crashes were found by the CDC to be the leading cause of death for children aged 5 to 24 years.<sup>1</sup> Children who have sustained TBIs may have lingering effects that range from a few days to the rest of their lives. Some persistent effects of TBI may include impaired memory or thinking, sensations related to vision or hearing, emotional instability, sleep disturbances, personality changes, or depression.<sup>1</sup> This article will focus on mTBI in children, which is frequent in sports-related concussions (SRCs).

The CDC estimates 3.8 million annual sports-related TBIs.<sup>2</sup> TBI international experts on SRCs developed the 2017 Concussion in Sport Group (CISG) consensus statement, which addresses the evolving science of current knowledge related to management and return-to-play decisions by health care professionals.<sup>3</sup> They still emphasize

that clinical judgment is the driving force regarding individual management and return-to-play decisions, and this should only be used to guide SRC clinical practice.<sup>3</sup> A significant problem in defining concussion is whether it is part of the TBI spectrum, which is linked to smaller degrees of diffuse structural change observed in TBI, or if the concussion injury has reversible physiologic changes (Figure).<sup>3</sup>

New research related to long-term neuropsychiatric and cognitive concerns confirms that when a child’s first exposure to American football is before age 12, the odds of neuropsychiatric and executive function difficulties are increased.<sup>4</sup> Repeated exposure to head injury, whether there was or was not a symptomatic concussion, altered structure and brain function, which may cause cognitive, behavioral, and mood problems.<sup>4</sup> Increasing apprehension related to chronic traumatic encephalopathy (CTE), a neurodegenerative disease, has been seen in persons with repetitive head impacts.<sup>4</sup> CTE can only be diagnosed postmortem.<sup>4</sup>

## Definitions of Concussion

Concussion can be defined as a TBI after a biomechanical force.<sup>2,3</sup> Additional definitions of concussions include injuries caused by direct blows to the head, upper body, or other body areas that result in a transmitted force to the head; rapid onset with brief impairment of neurologic function that spontaneously resolves or lasts minutes to hours; and neuropathologic changes, resulting in functional acute signs and symptoms that do not demonstrate neuroimaging abnormalities. A wide range of signs and symptoms can result from concussion. Concussions can result with or without loss of consciousness. Improvement of cognitive and clinical symptoms of concussion follow a progression that can be short or long term.<sup>2,3</sup> Prior to a diagnosis of a sports-related concussion, it is important that other causes—such as drugs, alcohol, medications, additional injuries, or medical conditions—have been ruled out as reasons for the clinical signs and symptoms.<sup>2,3</sup>

Pediatric emergency nurses need to be aware that the Academy of Neurology Revised Position Statement on Concussion in Sports no longer uses a grading scale to

Patricia A. Normandin, *Member, Massachusetts ENA Beacon Chapter*, is Emergency Department Staff Nurse, Tufts Medical Center, Boston, MA, and Adjunct Nursing Faculty, Northeastern University, Boston, MA.

Stacey A Benotti is Clinical Pharmacy Specialist, Pediatric and Adult Emergency Department, Tufts Medical Center, Boston, MA.

For correspondence, write: Patricia A. Normandin, DNP, RN, CEN, CPN, CPEN, 7 Bowl Road, Chelmsford, MA 01824;

E-mail: [pnormandinrn@aol.com](mailto:pnormandinrn@aol.com).

J Emerg Nurs ■  
0099-1767

Copyright © 2017 Emergency Nurses Association. Published by Elsevier Inc. All rights reserved.

<https://doi.org/10.1016/j.jen.2017.12.010>

## CONCUSSION RECOGNITION TOOL 5<sup>©</sup>

To help identify concussion in children, adolescents and adults

Supported by

### RECOGNISE & REMOVE

Head impacts can be associated with serious and potentially fatal brain injuries. The Concussion Recognition Tool 5 (CRT5) is to be used for the identification of suspected concussion. It is not designed to diagnose concussion.

#### STEP 1: RED FLAGS – CALL AN AMBULANCE

If there is concern after an injury including whether ANY of the following signs are observed or complaints are reported then the player should be safely and immediately removed from play/game/activity. If no licensed healthcare professional is available, call an ambulance for urgent medical assessment:

- Neck pain or tenderness
- Double vision
- Weakness or tingling/ burning in arms or legs
- Severe or increasing headache
- Seizure or convulsion
- Loss of consciousness
- Deteriorating conscious state
- Vomiting
- Increasingly restless, agitated or combative

**Remember:**

- In all cases, the basic principles of first aid (danger, response, airway, breathing, circulation) should be followed.
- Assessment for a spinal cord injury is critical.
- Do not attempt to move the player (other than required for airway support) unless trained to do so.
- Do not remove a helmet or any other equipment unless trained to do so safely.

If there are no Red Flags, identification of possible concussion should proceed to the following steps:

#### STEP 2: OBSERVABLE SIGNS

Visual clues that suggest possible concussion include:

- Lying motionless on the playing surface
- Slow to get up after a direct or indirect hit to the head
- Disorientation or confusion, or an inability to respond appropriately to questions
- Blank or vacant look
- Balance, gait difficulties, motor incoordination, stumbling, slow laboured movements
- Facial injury after head trauma

© Concussion in Sport Group 2017

#### STEP 3: SYMPTOMS

<ul style="list-style-type: none"> <li>• Headache</li> <li>• "Pressure in head"</li> <li>• Balance problems</li> <li>• Nausea or vomiting</li> <li>• Drowsiness</li> <li>• Dizziness</li> </ul>	<ul style="list-style-type: none"> <li>• Blurred vision</li> <li>• Sensitivity to light</li> <li>• Sensitivity to noise</li> <li>• Fatigue or low energy</li> <li>• "Don't feel right"</li> </ul>	<ul style="list-style-type: none"> <li>• More emotional</li> <li>• More Irritable</li> <li>• Sadness</li> <li>• Nervous or anxious</li> <li>• Neck Pain</li> </ul>	<ul style="list-style-type: none"> <li>• Difficulty concentrating</li> <li>• Difficulty remembering</li> <li>• Feeling slowed down</li> <li>• Feeling like "in a fog"</li> </ul>
---	---	--	--

#### STEP 4: MEMORY ASSESSMENT

(IN ATHLETES OLDER THAN 12 YEARS)

**Failure to answer any of these questions (modified appropriately for each sport) correctly may suggest a concussion:**

<ul style="list-style-type: none"> <li>• "What venue are we at today?"</li> <li>• "Which half is it now?"</li> <li>• "Who scored last in this game?"</li> </ul>	<ul style="list-style-type: none"> <li>• "What team did you play last week/game?"</li> <li>• "Did your team win the last game?"</li> </ul>
---	--

**Athletes with suspected concussion should:**

- Not be left alone initially (at least for the first 1-2 hours).
- Not drink alcohol.
- Not use recreational/ prescription drugs.
- Not be sent home by themselves. They need to be with a responsible adult.
- Not drive a motor vehicle until cleared to do so by a healthcare professional.

The CRT5 may be freely copied in its current form for distribution to individuals, teams, groups and organisations. Any revision and any reproduction in a digital form requires approval by the Concussion in Sport Group. It should not be altered in any way, rebranded or sold for commercial gain.

**ANY ATHLETE WITH A SUSPECTED CONCUSSION SHOULD BE IMMEDIATELY REMOVED FROM PRACTICE OR PLAY AND SHOULD NOT RETURN TO ACTIVITY UNTIL ASSESSED MEDICALLY, EVEN IF THE SYMPTOMS RESOLVE**

© Concussion in Sport Group 2017

FIGURE

The CRT5<sup>©</sup> table presented here is primarily for use by non-health care providers. The CRT5<sup>©</sup> is reprinted with permission from CISG Group 2017. Concussion Recognition Tool, 5th Ed. *Br J Sports Med.* 2017;51:872.

describe the severity of a concussion because research evidence demonstrates that a brief loss of consciousness with concussion does not forecast the clinical progression or long-term cognitive injury.<sup>3</sup> Also, just because athletes do not lose consciousness does not mean that they are able to return to play.<sup>3</sup>

### Signs and Symptoms of Concussion

Children and adolescents who have concussions may demonstrate a wide range of acute clinical signs and symptoms. Acute symptoms of concussion are confusion and amnesia, with or without loss of consciousness.<sup>2</sup> Seizures can occur early after the traumatic head injury or within a week. Some symptoms include headache, difficulty with memory, confusion, blank stare, or shocked appearance. Other symptoms include fatigue; nausea; vomiting;

inattentiveness; vision problems; sensitivity to light or noise; sleep disturbances; difficulty following directions or maintaining focus; disorientation; slow or disjointed speech; balance problems; dizziness; and emotional lability including irritability, sadness, untimely laughing or crying, and other cognitive deficiencies.<sup>2</sup>

### Differential Diagnoses of Concussion

Pediatric patients presenting to the emergency department with signs and symptoms of concussion should have additional differential diagnoses considered to identify other life-threatening injuries. Emergency nurses should be prepared to take an immediate history and perform a physical examination. Critical interventions include performing rapid assessment for the presence of multiple trauma to rule out any potential life-threatening injuries.

Download English Version:

<https://daneshyari.com/en/article/8557221>

Download Persian Version:

<https://daneshyari.com/article/8557221>

[Daneshyari.com](https://daneshyari.com)