

# Evaluation and Treatment of the Concussed Athlete - Update



Marla S. Kaufman, MD<sup>a</sup>, Leah G. Concannon, MD<sup>b,\*</sup>,  
Stanley A. Herring, MD<sup>c</sup>

## KEYWORDS

- Concussion • Sports injuries • Neuropsychological testing
- Sport Concussion Assessment Tool

## KEY POINTS

- Any athlete suspected of sustaining a concussion must be removed from play and evaluated by a health care professional. There is no same day return to play.
- Athletes with persistent symptoms for greater than 10 days should be managed in a multi-disciplinary clinic.
- Current research does not allow us to determine a cause and effect relationship between a history of concussions and development of chronic traumatic encephalopathy (CTE).

## INTRODUCTION

Each year in the United States there are an estimated 3.8 million concussions that occur as a result of sports and recreational injuries<sup>1</sup>; however, many more may go unreported because athletes may not recognize or report their symptoms, or there may be a lack of proper diagnosis. Motor vehicles remain the leading cause of concussions among individuals aged 15 to 24 years, with sports the second most common.<sup>2</sup> Although this topic has drawn massive media attention, solid data are certainly lacking in many aspects of the management of adolescent athletes with concussions.

The passage of the Zackery Lystedt Law in Washington State on May 14, 2009 marked the beginning of a new era in the management of concussions, especially in youth athletes. Although clinicians strive for patient management based on empirical

---

<sup>a</sup> Department of Rehabilitation, Orthopaedics and Sports Medicine, University of Washington, 325 Ninth Avenue, Box 359721, Seattle, WA 98104, USA; <sup>b</sup> Department of Rehabilitation Medicine, Sports and Spine Division, University of Washington, 325 Ninth Avenue, Box 359721, Seattle, WA 98104, USA; <sup>c</sup> Departments of Rehabilitation Medicine, Orthopaedics and Sports Medicine, and Neurological Surgery, University of Washington, 325 Ninth Avenue, Box 359721, Seattle, WA 98104, USA

\* Corresponding author.

E-mail address: [lgconcan@uw.edu](mailto:lgconcan@uw.edu)

data, in actuality clinical practices are based on a combination of scientific evidence, recommendations provided by the Fourth International Consensus Conference on Concussion most recently held in Zurich in 2012, and anecdotal evidence derived from direct experience in patient care. As such, the goal of this article is to provide an updated review of the management of youth sports concussions. However, this is certainly a moving target as much work is currently under way to provide a structure for more evidence-based care.

## DEFINITION, DEMOGRAPHICS, EPIDEMIOLOGY, PATHOPHYSIOLOGY

A concussion is a mild traumatic brain injury (mTBI) that occurs as a result of a direct impact to the head or an impact to the body that causes transmission of forces to the head and brain. Although every patient with a concussion presents differently, common features of a concussion typically include:

- Rapid onset of symptoms that evolve within minutes to hours
- Short-lived neurologic impairment
- Functional, rather than structural, process
- Only 10% of patients present with loss of consciousness (LOC)<sup>3</sup>
- Spontaneous resolution of symptoms (85% within 7–10 days)<sup>4</sup>

The diagnosis of a concussion is based on the recognition of certain symptoms following an impact. These symptoms can be divided into 4 different categories: cognitive, somatic, affective, and sleep. The first 3 can be evaluated at the time of the initial injury, and the fourth category, sleep, should be included in subsequent evaluations (Table 1).<sup>5</sup> Serial evaluations are imperative because of the dynamic nature of concussion presentation, with possible emergence of symptoms minutes to hours after concussion.

According to the National Federation of State High School Associations, more than 7.7 million high school students (more than 3.2 million girls and 4.4 million boys) participated in sports during the 2012–2103 school year, which accounts for more than 50% of all high school students.<sup>6</sup> In a recent study by Marar and colleagues,<sup>2</sup> concussions represented more than 10% of all reported injuries, which is greater than rates reported in previous studies.<sup>7–9</sup> Rates of concussion remain highest in football, followed by girls' soccer, boys' wrestling, and girls' basketball.<sup>2</sup> In all activities except for cheerleading, the rate of concussion is reported as higher in competition than in practice.<sup>2</sup>

**Table 1**  
Selected signs and symptoms associated with concussion

Cognitive	Somatic	Affective	Sleep
Confusion	Headache	Emotional lability	Sleep pattern changes
Amnesia	Fatigue	Irritability	Drowsiness
Loss of consciousness	Disequilibrium	Depression	Awakening at night
Delayed verbal/motor responses	Dizziness	Anxiety	Difficulty initiating sleep
Feeling "in a fog"	Nausea		
Vacant stare	Vomiting		
Inability to focus	Blurry/double vision		
Disorientation	Photophobia		
Slurred/incoherent speech	Phonophobia		

Download English Version:

<https://daneshyari.com/en/article/4084110>

Download Persian Version:

<https://daneshyari.com/article/4084110>

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