

# Sports-related concussion

## Truth be told

Brian Hainline, MD, FAAN, FACSM

William W. Dexter, MD, FACSM

John DiFiori, MD

There has been a considerable developing consensus that sports-related concussion must be addressed comprehensively at the youth, collegiate, and professional level. Forty-eight states have adopted legislation that mandates concussion education and management in youth sport, spearheaded by the Lystedt Law in Washington. The hallmark of this legislation states: (1) athletes, parents, and coaches must be educated about the dangers of concussion; (2) athletes with suspected concussion must be removed from a game or practice and cannot return to play; and (3) a licensed health care professional must clear the athlete before return to play. The National Collegiate Athletic Association (NCAA) has a comprehensive concussion management plan that includes (1) student-athlete education; (2) mandatory removal from practice or play for student-athletes who exhibit signs or symptoms of concussion; (3) no same-day return to play following diagnosis of concussion; and (4) no return to play without physician or physician-designee clearance. Notably, the culture minimizing the importance of concussion has changed considerably in professional sports, especially through rapidly evolving education and management plans in the National Football League.

Despite remarkable progress, athletes continue to underreport concussions, as noted in this simple and eloquent study by Torres et al.<sup>1</sup> Should we be concerned? Absolutely. Concussion is not a singular event, but rather a pathophysiologic process that can threaten the physical and mental health of the involved athlete, with varying and uncertain long-term consequences. There are many potential reasons for underreporting that need to be addressed comprehensively by all governing bodies of sport in a consistent and enforceable manner, including the following:

1. Consistent and reliable education for all athletes, coaches, officials, stakeholders, and parents who are associated with any contact or collision sport.
2. Removal of any conflict of interest in the medical management team. This means that a medical decision by the athletic trainer or physician must be driven only by the medical interest of the injured athlete, and there should be no influence by coaches or other nonmedical staff.
3. An ongoing evaluation and implementation of the rules of sport that help assure student-athlete safety and fair play.
4. Greater involvement of officials in concussion management through consistent training and application of rules that pertain to safe play. This does not mean that officials need to be medically trained; rather, since officials have no stake in the outcome of the game or match, they are in a unique position to act as an agent of “moral authority” that demands helping to ensure athlete safety on the playing field and appropriate evaluation for any athlete with a suspected concussion.

National Collegiate Athletic Association (BH); American College of Sports Medicine (WWD), Indianapolis, IN; and American Medical Society for Sports Medicine (JD), Leawood, KS.

Funding information and disclosures are provided at the end of the editorial. Full disclosure form information provided by the authors is available with the **full text of this editorial at [Neurology.org/cp](http://Neurology.org/cp)**.

**Correspondence to:** bhainline@ncaa.org

See page 279

5. Coaching decisions that reflect best practices for all athletes with concussion. Because coaches have the greatest influence on student-athletes,<sup>2</sup> they need to act in a unified and convincing manner with regard to concussion management. Student-athletes truly need to understand that they are not commodities, but rather competitors who are surrounded by a team that places safety, excellence, and wellness above all else.
6. Student-athletes need to embrace a culture that demands that their safety, excellence, and wellness are always the top priority.

If neurologists and sports medicine physicians are to become part of the solution, they must be at the forefront of understanding the problem. This includes the following:

1. Neurologists should demand that formal concussion education be part of all neurology residency programs. Neurologists cannot help to solve a problem for which they have received no formal training.
2. Neurologists interested in concussion management should become members of organizations that foster concussion research, education, and advocacy, such as the following:
  - a. American Academy of Neurology Sports Neurology Section
  - b. American College of Sports Medicine
  - c. American Medical Society for Sports Medicine
3. Neurologists should keep current with pivotal consensus and evidence-based concussion overview articles that provide recommendations on diagnosis, management, and return to play. Three such articles have been published this year.<sup>3-5</sup>
4. Neurologists and other “unofficial sideline physicians,” i.e., parents who happen to be physicians while attending youth sporting events, should be willing to intervene if they see that a player is exhibiting signs or symptoms of concussion and there are no designated medical personnel available. Remember, the Good Samaritan Law allows one to offer reasonable assistance to those who are injured, and we must be willing to protect our youth from an overzealous sporting environment.

We have made considerable progress, and must not lose momentum. Torres et al. soberly remind us that we still have much work ahead of us.

## REFERENCES

1. Torres DM, Galetta KM, Phillips HW, et al. Sports-related concussion: anonymous survey of a collegiate cohort. *Neurol Clin Pract* 2013;3:279–287.
2. US Anti-Doping Agency. *What Sport Means in America: A Study of Sports' Role in Society*. Silver Spring, MD: Discovery Education; 2011.
3. Harmon KG, Drezner JA, Gammons M, et al. American Medical Society for Sports Medicine position statement: concussion in sport. *Br J Sports Med* 2013;47:15–26.
4. McCrory P, Meeuwisse WH, Aubry M, et al. Consensus statement on concussion in sport: the 4<sup>th</sup> International Conference on Concussion in Sport held in Zurich, November 2012. *Br J Sports Med* 2013;47:250–258.
5. Giza CC, Kutcher JS, Ashwal S, et al. Summary of evidence-based guideline update: evaluation and management of concussion in sport. *Neurology* 2013;80:2250–2257.

## STUDY FUNDING

No targeted funding reported.

## DISCLOSURES

B. Hainline reports no disclosures. W.W. Dexter serves as Web Alert Editor for *Current Sports Medicine Reports* and on the editorial board of the *Clinical Journal of Sports Medicine*, receives publishing royalties from UpToDate, is the Director of Sports Medicine at Maine Medical Center, and serves on the advisory board for Cambria Health. J.P. DiFiori serves as an Associate Editor of the *Clinical Journal of Sports Medicine* and as a Section Editor for *Current Sports Medicine Reports*. Full disclosure form information provided by the authors is available with the **full text of this article at [Neurology.org/cp](http://Neurology.org/cp)**.