

Sports-Related Concussions in Youth

QUESTIONS & ANSWERS



INSTITUTE OF MEDICINE *AND*
NATIONAL RESEARCH COUNCIL
OF THE NATIONAL ACADEMIES

The National Academy of Sciences, the National Academy of Engineering, the Institute of Medicine (IOM), and the National Research Council (NRC) are private, nonprofit institutions that provide unbiased expert advice to decision makers and the public on some of the most pressing challenges facing the nation and the world.

Sports-related concussions are a complex medical problem. They concern not only health care providers, but also youth athletes and their parents, coaches, school officials, and teachers. Every individual is different, and all who sustain a concussion should be evaluated by a health care provider.

Drawing from the Institute of Medicine/National Research Council report *Sports-Related Concussions in Youth: Improving the Science, Changing the Culture* (2013), this booklet explores questions pertaining to concussion prevention, recognition, management, and short- and long-term health consequences.

WHAT IS A CONCUSSION?



A concussion is a form of traumatic brain injury that is most commonly brought on by a blow to the head, neck, or face. Concussion is associated with physiological changes throughout the brain and is identified by physical, cognitive, behavioral, and emotional signs and symptoms.

WHAT ARE THE SIGNS AND SYMPTOMS OF A CONCUSSION?

A young athlete may exhibit a variety of signs and symptoms.

SIGNS OBSERVED

	Appears dazed or stunned		Answers questions slowly
	Is confused about assignment or position		Loses consciousness (even briefly)*
	Forgets an instruction or play		Shows mood, behavior, or personality changes
	Is unsure of score or opponent		Can't recall events prior to hit or fall
	Moves clumsily or has poor balance		Can't recall events after hit or fall

SYMPTOMS REPORTED

	Headache or "pressure" in head		Feeling sluggish, hazy, foggy, or groggy
	Nausea or vomiting		Concentration or memory problems
	Balance problems or dizziness		Confusion
	Double or blurry vision		Feeling more emotional, nervous, or anxious
	Sensitivity to light or noise		Does not "feel right" or is "feeling down"

SOURCE Centers for Disease Control and Prevention, 2012. Heads Up Concussion in Youth Sports: A Fact Sheet for Coaches. http://www.cdc.gov/concussion/pdf/coaches_EngL.pdf

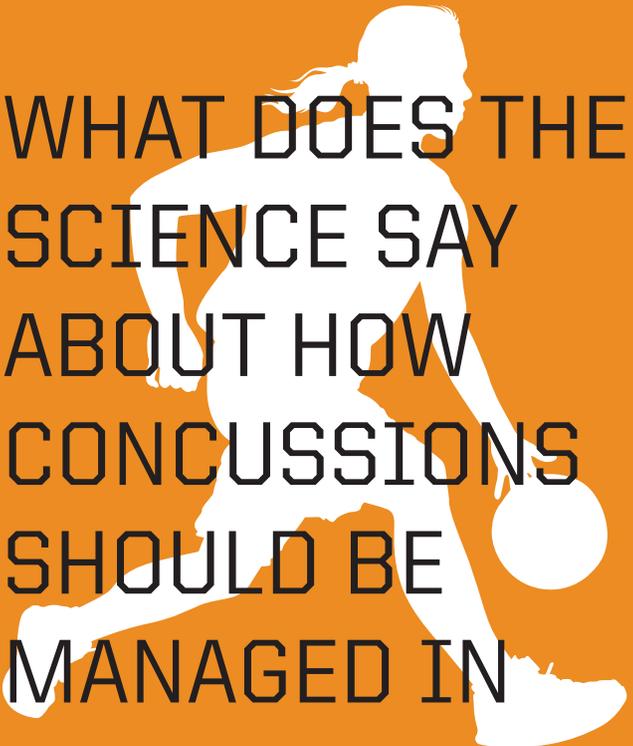
* Although a concussion may involve loss of consciousness, the great majority of them do not.

WHEN DO SYMPTOMS OF A CONCUSSION APPEAR?

Symptoms of concussion may not be immediately apparent but rather may develop over time, particularly within the first hours following injury.

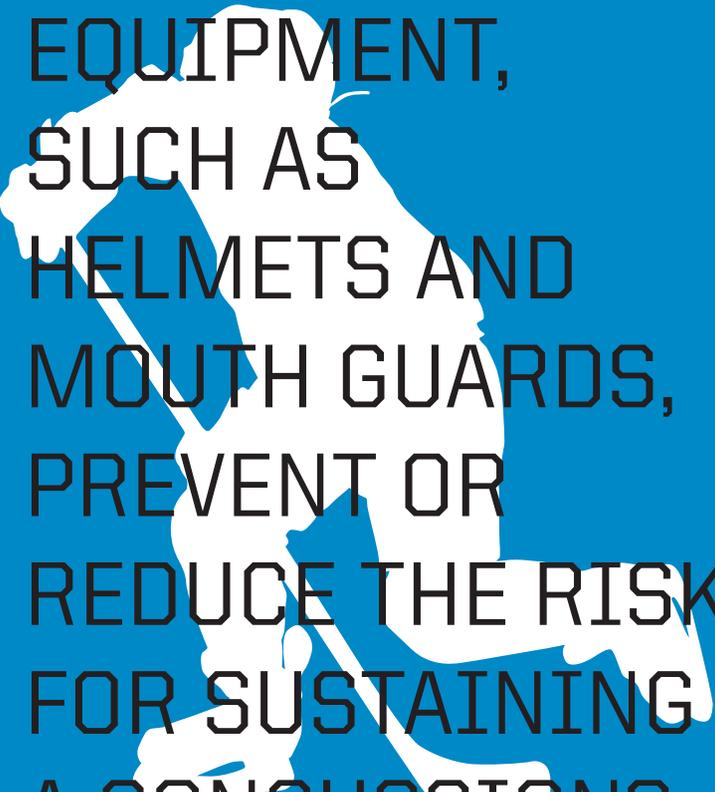
HOW LONG DOES A CONCUSSION LAST?

The time it takes to recover from a concussion varies among individuals. In 80 to 90 percent of high school and college aged patients, concussion symptoms resolve within 2 weeks. In 10 to 20 percent of individuals, however, symptoms may last for a number of weeks, months, or even years. These individuals may be said to be experiencing post-concussion syndrome.



WHAT DOES THE SCIENCE SAY ABOUT HOW CONCUSSIONS SHOULD BE MANAGED IN YOUTH?

As the IDM/NRC report notes, current guidelines recommend that an athlete suspected of having sustained a concussion be immediately removed from play for the remainder of the day and evaluated by a health care professional trained in concussion diagnosis and management. Their recovery should be monitored by a health care provider who can advise on when to return to physical and cognitive activity—such as reading, studying, or taking an exam.

A white silhouette of a person wearing a helmet, positioned behind the main text on the left page. The person appears to be in a dynamic, possibly athletic, pose.

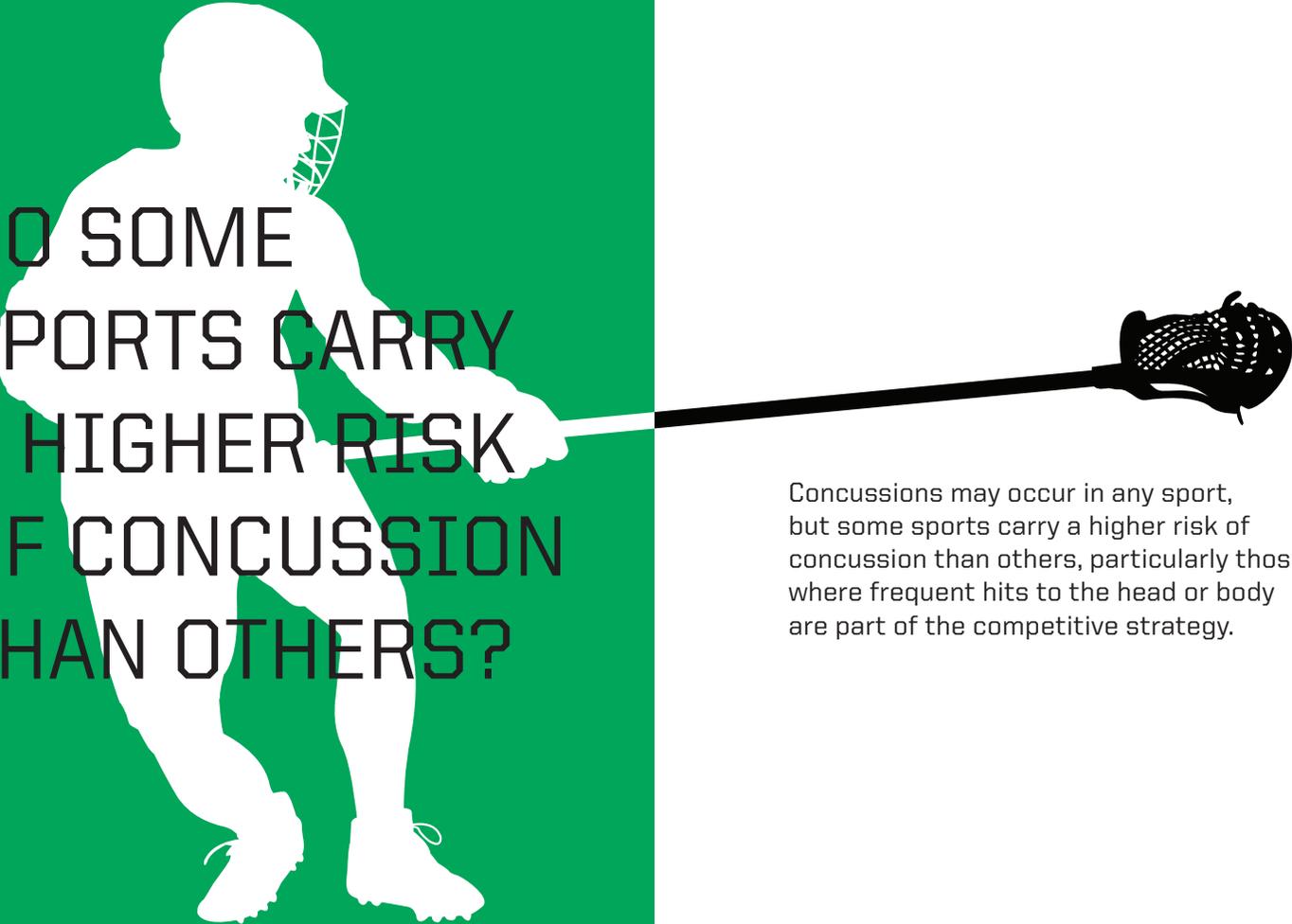
CAN PROTECTIVE EQUIPMENT, SUCH AS HELMETS AND MOUTH GUARDS, PREVENT OR REDUCE THE RISK FOR SUSTAINING A CONCUSSION?

Helmets, facemasks, and mouth guards are known to reduce the risk for injuries such as skull fractures and injuries to the eyes, face, mouth, and teeth—and their use is important for this reason. However, there is currently little evidence that helmets reduce the risk for sports-related concussions in young athletes and no evidence that mouth guards or other devices reduce the risk for concussion.

IF A YOUTH
ALREADY
HAS HAD ONE
CONCUSSION,
ARE THEY
AT GREATER
RISK FOR
SUSTAINING
ANOTHER ONE?

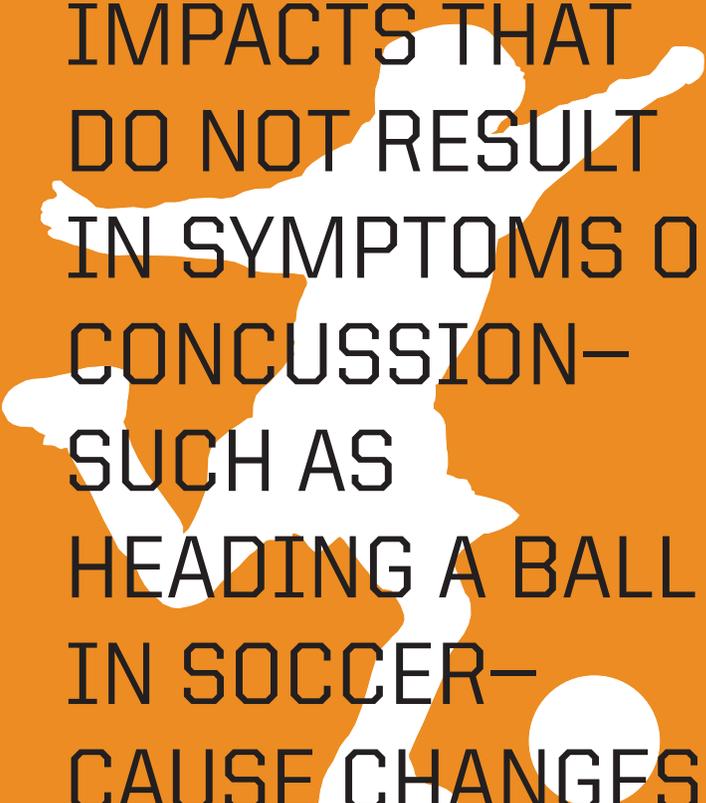


Research suggests that youth who have had a concussion are more likely to sustain another. It is not clear whether this is related to the prior concussion, an athlete's unique physical makeup, a player's position or style, or other factors.



DO SOME
SPORTS CARRY
A HIGHER RISK
OF CONCUSSION
THAN OTHERS?

Concussions may occur in any sport, but some sports carry a higher risk of concussion than others, particularly those where frequent hits to the head or body are part of the competitive strategy.

A white silhouette of a soccer player in mid-air, heading a ball. The player's arms are outstretched, and their head is tilted back. A white circle representing the ball is positioned just below the player's feet. The background is a solid orange color.

CAN HEAD
IMPACTS THAT
DO NOT RESULT
IN SYMPTOMS OF
CONCUSSION—
SUCH AS
HEADING A BALL
IN SOCCER—
CAUSE CHANGES
IN THE BRAIN?

There is some evidence that even impacts to the head that do not result in a concussion may trigger at least temporary changes in the brain, though this may not result in outward symptoms. Research has not yet definitively shown that there are lasting effects from such impacts.

ARE GIRLS AND YOUNG WOMEN MORE LIKELY TO GET A CONCUSSION WHILE PLAYING SPORTS?



Data from sports that are played by both males and females, such as soccer and basketball, suggest that female athletes at both the collegiate and high school level have higher rates of reported concussions. This may be due to physical differences, different rates of reporting concussion symptoms, or other factors.



SHOULD A YOUNG ATHLETE STOP PLAYING CONTACT SPORTS AFTER A CERTAIN NUMBER OF CONCUSSIONS?

There is no evidence of a specific number of concussions that, once sustained by a youth athlete, means that the athlete should no longer participate in a sport. Such decisions should be made on an individual basis with the advice of a health care provider knowledgeable about concussion management.



Every individual is different, and those who may have sustained a concussion should consult with a health care provider concerning their injury and the time it will take for them to recover. A youth athlete should return to sports practice and games or other activities following a concussion only after consulting with a health care provider.

The information contained in this booklet is intended solely as reference material and should not be used as a substitute for the medical advice of or treatment by a health care provider. For additional resources and to download the full report—including all of the committee’s findings, conclusions, and recommendations—visit www.iom.edu/concussions.

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