

Keywords: concussion management

Problem: Concussions can cause significant injury and chemical changes to the brain. Even "mild" concussions, though not life-threatening, can be devastating and life-altering. In October 2022, the 6th International Conference on Concussion in Sport was held in Amsterdam. This sport-specific strategy offers recommendations for prevention, assessment and management.

Solution: Physicians need up-to-date information on managing concussions related to sports injuries. This article summarizes four of the thirteen guidelines in this report.

How to Improve Concussion Management with Updated Guidelines

For many children, sports are the best thing about school. Playing football or basketball with friends makes the grueling work of Algebra and Biology worth it. However, sports can be dangerous, putting youth and adults at risk of concussions. These traumatic brain injuries can lead to short- and long-term changes to the brain. Even "mild" concussions, though not life-threatening, can be devastating and life-altering.

As research advances, concussion management policies and personal protection equipment evolve. In 2022, the 6th International Conference on Concussion in Sport was held in Amsterdam. This sport-specific strategy offers recommendations for prevention, assessment and management. Physicians need up-to-date information on managing concussions related to sports injuries. This article summarizes four of the thirteen guidelines in this report.

Key Takeaways

- The 13Rs, established at the International Conference on Concussion in Sport, provide a research-backed framework for concussion management.
- A concussion causes a complex metabolic and neurotransmitter cascade in the brain. Coaches and onlookers are vital in recognizing the resulting symptoms.
- Concussion management begins with prevention. With evidence-based changes, several sports have seen a decrease in sport-related concussions.
- Complete bed rest is unnecessary for safe rehabilitation. Physicians should encourage players to return to their ADLs early. However, intentional monitoring of symptoms is vital.
- Eliminating activity elongates rehabilitation. Therefore, slowly advancing exercise intensity is recommended.

Updated concussion management guidelines

Some goals of the International Conference on Concussion in Sport were to revise or create clinical assessment tools, produce consensus statements, and provide evidence-based guidelines for concussion prevention, assessment and management. The Concussion in Sport Group comprises research scientists who analyze, evaluate and interpret literature. Their goal is to **develop collective statements about sports-related concussions (SRC)**. The Consensus Statement from the Amsterdam 2022 Conference references 13Rs:

1. **RECOGNIZE**: Defining sport-related concussion
2. **REDUCE**: Mitigating the burden of SRC with prevention
3. **REMOVE**: Removing player for sideline evaluation
4. **REFER**: Referring patients to clinicians specialized in concussion management
5. **RE-EVALUATE**: Assessing player in the office
6. **REST**: Encouraging relative rest, not strict bed rest
7. **REHABILITATE**: Recommending rehabilitation
8. **RECOVER**: Utilizing assessment tools and imaging for recovery
9. **RETURN-TO-LEARN** or **RETURN-TO-SPORT**: Optimizing safe return to sports and school
10. **RECONSIDER**: Continuing to evaluate possible long-term effects
11. **RESIDUAL EFFECTS**: Recognizing potential residual effects of SRC
12. **RETIRE**: Decision-making regarding discontinuance of contact sports
13. **REFINE**: Identifying considerations that could strengthen the process

Scientific understanding of SRCs continues to evolve. However, the 13Rs provide an evidence-based framework for concussion management.

RECOGNIZE

Concussions cause a neurotransmitter and metabolic cascade in the brain. These changes cause blood flow disruption, inflammation and possible axonal injury. Signs of concussion typically present immediately. However, sometimes, people do not experience symptoms for hours or days. Onlookers may observe that the player:

- Cannot recall recent events
- Appears dazed
- Forgets instructions
- Moves clumsily
- Loses consciousness
- Presents with mood, personality or behavior changes

The player may report the following symptoms:

- Headache

- Nausea or vomiting
- Dizziness or blurred vision
- Irritation to light or noise
- Confusion
- "I just don't feel right."

Delaying medical evaluation and continuing as usual elongates recovery time. Prompt recognition of a sports-related concussion is vital to improve SRC outcomes.

REDUCE

The priority of concussion management is prevention, mitigating the burden of concussions. The Concussion in Sport Group seeks to identify and optimize prevention strategies across all sports. Over the past five years, **research on the efficacy of prevention strategies has increased threefold**. Consequently, sports have become safer with policy changes, innovative personal protective equipment, training and management. Here are some advancements that have produced phenomenal results:

- **Ice hockey:** Disallowing body checking in youth hockey reduced concussion rates by 58%. Mandating mouthguards in youth hockey and encouraging them across all ages produced a 28% reduction in concussion rates.
- **Football:** Practice policies limiting collision time produced a 64% reduction in practice-related concussions.

Evidence-based policies and rule changes benefit the players. Safety, rather than tradition, must be the gold standard in sports.

REST

It once was thought that players needed to adhere to strict bed rest until concussion symptoms subsided. However, research indicates otherwise. Physicians should encourage patients to **return to physical activity as tolerated, even during the initial 24-48 hours post-concussion**.

Players should perform activities of daily living (ADLs). The council says these activities encourage blood flow without risking falls or collisions. During the initial 48 hours, players should also reduce screen time.

RETURN-TO-SPORTS and RETURN-TO-LEARN

With evidence-based policy changes, the time from concussion to unrestricted activity is five times longer. Consequently, athletes and coaches wonder how to optimize this time safely. Research shows that eliminating activity elongates rehabilitation. However, **slowly advancing**

exercise intensity is safe and beneficial. As players increase activity intensity, they should be mindful of concussion-related symptoms. Activities that produce mild symptoms for an hour or less are safe and do not delay recovery.

By the tenth day post-concussion, approximately 90% of athletes return to learning without additional support. Teachers and coaches can provide support or learning adjustments to promote safe rehabilitation. The player's HCP should monitor the athletic progression. Some available recovery assessments include the following:

- Cognitive function
- Balance
- Oculomotor function
- Vestibular function
- Biobehavioral assessment
- Physical symptoms and findings

Research indicates that an early return to ADLs with close monitoring is safe and beneficial.

Promoting safety with improved concussion management

Enforcing evidence-based policies promotes concussion prevention and safe play. Complete elimination of SRCs is unlikely, so parents, coaches and players need to know how to return to sports safely after a concussion.

With accessible sports medicine and imaging resources, we are here to help your patients return to their active lives. Our team commits to delivering quality, research-based services. That is why we are here to be your partner in care. Click the "Refer" button to get started today.

Resources

"Consensus statement on concussion in sport: the 6th International Conference on Concussion in Sport—Amsterdam, October 2022." British Journal of Sports Medicine, 2023, Consensus statement on concussion in sport: the 6th International Conference on Concussion in Sport—Amsterdam, October 2022 | British Journal of Sports Medicine.

"What Is a Concussion?" Centers for Disease Control and Prevention (CDC), 2019, What Is a Concussion? | HEADS UP | CDC Injury Center.

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