

Prevention of Subsequent Concussions

Canadian Concussion Centre - Zoom Webinar Series

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Disclosures

- None

Objectives

- To share some thoughts and evidence regarding prevention of concussions

Definitions

- Primary prevention
 - Prevention of the condition before it occurs
- Secondary prevention
 - Reduces the impact of the condition after it occurs through early detection and management.
- Tertiary prevention
 - To reduce the impact of an ongoing condition that may have long-term effects to help minimize impact, improve function and quality of life.

Examples in relation to concussions

- Joey is an important player on the rugby team. They had good concussion education, trained well, did their pre-game warmup and wore their personal protective equipment. This is **primary prevention**.
- Joey was injured while playing. They sustained a hard hit to the head and were knocked out for a few seconds. The coach and medical team assessed Joey immediately and suspected they had a concussion. Joey was taken off the field and placed in concussion protocol. This is **secondary prevention**.
- Six weeks after the injury, Joey still has persistent post-concussive symptoms. Joey is working with a multidisciplinary team to manage symptoms and help recovery and RTS / RTP. This is **tertiary prevention**.

Primary prevention

- Already very well addressed.

Secondary prevention

- Joey sustained a hard hit to the head and was knocked out for a few seconds.
 - The mechanism of injury and Joey's response were suggestive.
- The coach and medical team assessed them immediately and suspected Joey had a concussion.
 - The team was well educated and knew what to look for when their player was injured.
- Joey was taken off the field and placed in concussion protocol.
 - The team had a plan to address the injury and prevent it from worsening.
 - "Second impact syndrome".

- Simple, right?
- How could this have gone wrong?

What if:

- the coach didn't see how the injury occurred?
- Joey didn't hit their head?
- Joey said they felt fine and wanted to keep playing?
- the coach felt Joey was too important for the team to be taken off the field?
- there were only 5 minutes left to the game?
- Joey also dislocated their shoulder?

Concussion Recognition Tool Fifth Edition

- Observable signs of concussion include:
 - Lying motionless,
 - Clutching the head,
 - Unsteadiness
 - Appearing dazed or confused immediately after the impact
 - *Loss of consciousness is not necessary for the diagnosis of concussion*
- **Symptoms could be delayed**
- Concussion protocol – remove from play, reassess then reintegrate

Challenges to secondary prevention

- Lack of resources for primary prevention
 - PPE, training and therapy
- Lack of knowledge
 - Not understanding the injury (invisible injury)
 - Not understanding the consequences of the injury
 - Delayed onset of symptoms
- Motivators
 - Positive and negative drivers
- Distracting injuries (visible injuries).

Generalization

While the case presented is sports related, many concussions occur outside of sports. For example:

- Jude hit their head at work on an open locker door when getting up from a bent position.
- Mark fell down 2 stories at the construction site landing on the back of his head. His helmet was cracked.
- Sandra was stopped at a red light and rear-ended by a distracted driver.
- Al was dropped on their head by their partner while doing a dance move.
- James bumped his head on a low ceiling at home.

Generalization

- Work-related injuries
- Motor vehicle accidents
- Recreational injuries
- Everyday accidents
- Lack of resources/preinjury health
- Lack of knowledge (invisible injury)
- Motivators
- Distracting injuries (visible injuries)
- Delayed onset of symptoms

Generalization

- Secondary prevention is a team sport
 - The injured – self-advocacy and utilization of resources
 - The coach: school / family / workplace / case manager / adjustor
 - The healthcare system
 - Governing bodies / Governments – legislation

Generalization

- Knowledge and education is paramount
 - Important to know what to do if you have a concussion
 - Cognitive/physical “symptom-limited” rest for 24-48 hours, then gradual resumption of activities as tolerated
 - Too much rest is not good
 - Vast majority improve within 1 – 3 months.

Tertiary prevention

Tertiary prevention

- Six weeks after the injury, Joey still has persistent post-concussive symptoms.
- Joey is attending a multi-disciplinary program to address their symptoms
- Given the complexity of concussion symptoms, the program is customized to Joey taking into consideration their:
 - Preinjury health
 - Symptoms
 - Physical examination findings

Tertiary prevention

- Special emphasis is made on:
 - Improving symptoms (physical, cognitive, mood, sleep)
 - Improving balance / vestibular function
 - Improving core strength and endurance
 - Supporting a graduated return to school / sport / work following the widely available recommended guidelines.

Challenges to tertiary prevention

- Lack of resources/access to care
- Lack of knowledge
 - Not understanding the injury
 - Not understanding the symptoms
- Motivators
 - Positive and negative drivers
- Associated injuries

Outcome

- Joey is recovering well with their hard work and assistance of their coach and medical team
- They are progressing as anticipated with their return to school and return to play protocol
- Joey really loves rugby, but this is their third concussion and they have decided to engage in a different sport they enjoy that involves less contact.

Resources

[CLINICAL COMMENTARY]

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Adapting the Dynamic, Recursive Model of Sport Injury to Concussion: An Individualized Approach to Concussion Prevention, Detection, Assessment, and Treatment

*Journal of Orthopaedic & Sports Physical Therapy |
Volume 49 | Number 11 | November 2019 | 799*

Resources



: parachute.ca/concussion

Injury Topics > Concussion

Concussion

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See professional resource collection

- Concussion
 - Signs and symptoms of a concussion
 - What to do if you suspect a concussion
 - Concussion treatment
 - Concussion healing time varies
 - Concussion prevention
 - Mandatory baseline testing not recommended

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A concussion is a brain injury that can't be seen on routine X-rays, CT scans or MRIs. It affects the way a person may think and remember things, and can cause a variety of symptoms. Any blow to the head, face or neck, or a blow to the body that jars your head, could cause a concussion.



Parachute's "CheckForConcussion" awareness campaign features champion Canadian athletes Scott Moir, Marie-Philip Poulin, Cindy Ouellet and Steve Podborski.

Resources

- Concussion Awareness Training Tool (CATT)
cattonline.com
- Abused & Brain Injured Toolkit
abitoolkit.ca