2023 Sports Related Concussion Update

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Goals and Objectives

- At the end of this talk, the attentive learner will be able to:
  + Highlight the major changes to activity recommendations immediately following sports related concussion.
  + Discuss strategies to return student-athletes to their normal learning environment after a sports related concussion.
  + Discuss updated return-to-play guidelines after a sports related concussion.

Disclosures

- I have no relevant financial disclosures.

- In a few instances I talk about what I do in my practice which is not necessarily discussed in the Consensus Statement.
  + I will do my best to point out when I am discussing this.

The Amsterdam 2022 International Consensus Statement on Concussion in Sport

- Published in June 2023.
- This is the sixth version of this document.
- The document is available for free online at https://bjsm.bmj.com/content/57/11/695

- Emphasis today on outpatient management of sports-related-concussion (SRC).
- Specifically focusing on SRC’s today; other guidelines may be more appropriate for concussions sustained in other settings.

Return to ADL's, Learning, and Play
Overview of New Recommendations

- Brief limitations (up to 48 hours) on most ADL's.

- There is an emphasis on minimizing the amount of school time missed after a SRC.
  + Students do NOT have to be asymptomatic to return to school.

- It is now recommended to have the student complete some physical activity while still symptomatic.

Return to Daily Activity

- Relative (not strict) rest for up to the first 48 hours after SRC.
  + Unlikely to be helpful beyond this.
- Limiting screen time may not be warranted beyond 48 hours.
- After 48 hours, it is reasonable to recommend return to light aerobic activity.
  + Walking first, then gradually add duration and intensity.
  + More on this shortly.

- Mild and brief exacerbation of symptoms (MABES): no more than a 2 point increase from baseline on a scale of 0-10 with return of symptoms to baseline within 1 hour.

Return to Learn (RTL)

- Not all students will need a formal RTL strategy.
- There are fewer rules/regulations around RTL compared to RTP.
- Progression:
  + 1. Daily activities that do not cause more than a MABES.
  + 2. School activities.
  + 3. Return to school part time.
  + 4. Return to school full time.
- My rule of thumb: A student is ready to return to half days of school when they can tolerate at least 45 minutes of cognitive activity with no more than a MABES.
- Must return to full days of school without issues before returning to play.

Return to Learn –School Strategies

- School Adjustments (be careful with the word “accommodations”)

- No gym/PE class
- Scheduled vs PRN breaks (e.g. 15 minute breaks every hour)
- Avoid noisy environments (cafeteria, music/band class)
- Allow sunglasses and/or ear plugs
- Extra time to complete assignments
- Delay/modify tests

Return to Play Progression

Initial Steps

- After an initial period of rest from athletic activity, athletes may begin the 6-step progression outlined below.
- Athletes must spend at least 24 hours at each step.
- Any symptoms that are worse than MABES should prompt the athlete to stop progression and retry the same step the following day.
- Step 1: Symptom-limited activities of daily living.
- Step 2: Aerobic exercise (stationary cycling or walking) and light resistance training.
  + Step 2A: light aerobic activity (up to 55% of maximum heart rate)
  + Step 2B: moderate activity (up to 70% of maximum heart rate)
- Step 3: Sport-specific exercise away from the team.

Return to Play Progression Continued

- Must have complete cessation of symptoms and physician clearance to progress to Step 4 and beyond.

  + I also require that they be attending full days of school without problems.

- Steps 4-6 can be completed with the team.

- Step 4: Non-contact training drills.
- Step 5: Full contact practice.
- Step 6: Return to sport.

- Return of symptoms during these steps should prompt return to Step 3 until there are no more symptoms with activity.

When to Refer

- Provider discomfort.
- Persistent symptoms > 4 weeks.
  + Consider cervicovestibular rehabilitation if dizziness, neck pain, and/or headaches persist beyond 10 days.
- Unclear if symptoms are due to concussion or another medical condition (e.g. migraines, allergies)

Considerations for Retirement from Contact Sports

- There is no “magic number” of concussions for permanent retirement from sport.
- Complex decision that should be made in a multidisciplinary setting.
- Important! Retirement from contact sports does not mean retirement from exercise or non-contact sports.

- In my practice, I typically initiate the conversation when the patient exhibits one or more of the following characteristics:
  + Worsening symptoms with each subsequent concussion
  + Less force required to trigger concussion symptoms
  + Concussions are occurring frequently

Chronic Traumatic Encephalopathy (CTE) & Traumatic Encephalopathy Syndrome (TES)

- Increased awareness of CTE in the past decade.
- CTE is a post-mortem pathological diagnosis and NOT a clinical diagnosis.
- In 2021, an expert panel published consensus criteria for Traumatic Encephalopathy Syndrome.
  + https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8166432/pdf/NEUROLOGY2020137927.pdf
- Beyond the scope of our limited time today.
- Cohort and case-control studies have shown that:
  + Former amateur athletes are not at increased risk for depression/suicidality.
  + Former professional soccer players are not at increased risk for psychiatric hospitalization.
  + Former professional football and soccer players are not at increased risk of death associated with having a psychiatric disorder or from suicide.

References

- Patricios JS, Schneider KJ, Dvorak J, et al. Consensus statement on concussion in sport: the 6th International Conference on Concussion in Sport – Amsterdam, October 2022. *Br J Sports Med* 2023;57:695-711.
- Halstead ME, McAvoy K, Devore CD, et al. Returning to learning following a concussion. *Pediatrics* 2013;132:948-957.