

The Office of Lifelong Learning

Part 1: Updates to Pediatric Concussion Care: The Living Guideline for Pediatric Concussion Care Pearls for practice

Dr. Jennifer Dawson

Pediatric Concussion Care

The living Guideline for Pediatric Concussion Care is a collaborative effort involving over 45 Head Injury experts:
<https://www.pedsconcussion.com>

Five Clinical Guidelines Updates Summary 2022-2023:

- Prescribing aerobic exercise
- Return-to-school protocol
- Mental health and concussion
- Identify those who benefit from early referral to specialized care
- Screen time usage

1. Returning to Physical Activity

- Rest has a place, but shouldn't be >1-2 days after a concussion
- Complete rest for >2 days may slow recovery and is no longer recommended
- Low-risk exercise (walking or other light aerobic exercise) or supervised treadmill/stationary bike to raise heart rate as early as 1-2 days after injury may improve recovery
- Returning too early to high-risk physical activities may lead to reinjury or slower recovery
- Medical clearance is required to return to high-risk activities or full-contact gameplay and competition

2. Returning to School

- Get kids back to school early!
- Return to partial-day school should begin as soon as possible (ideally within 2 days)
- Returning to safe mental activities is important for recovery
- Identify if extra accommodations might be needed (half-day, quiet environments, etc.)

3. Screen for Mental Health

- Emotional changes are common after concussion
- Mindfulness, exercise, and speaking with trusted people can help
- Refer youth with ongoing or worsening emotional symptoms to interdisciplinary expert team

Part 1: Updates to Pediatric Concussion Care: The Living Guideline for Pediatric Concussion Care Pearls for practice

Dr. Jennifer Dawson

4. Identify who may benefit from specialized care

- Higher risk for delayed recovery (<https://5Pconcussion.com score calculator>)
- Not improving after 2-4 weeks
- Address physiotherapy for balance/vestibular support as needed
- Athletes (or anyone active) wanting Buffalo Protocol (BCTT) to optimize return to sports or activity

5. Use of screened devices (computer/tv/etc.)

- Avoid screened devices for the first 1-2 days
- Gradually resume use if symptoms are tolerated
- Accommodations may be required for school (use of paper materials, breaks between use, etc.)

5P Concussion Score

	0	1	2
AGE	5 to < 8 years	8 to <13 years	13 to <18years
SEX	Male		Female
Length of Patient's previous concussion	No previous concussion OR recovery in <1 week	Recovery took ≥1 week	
History of migraines?	No	Yes	
Answering questions more slowly compared to before injury?	No	Yes	
BESS Tandem stance balance testing errors in 20 seconds	0-3 errors	4 or more errors / could not complete balance testing	
Headache?	No	Yes	
Sensitivity to noise?	No	Yes	
More fatigued?	No		Yes

Scoring:

- ≤3 points = Patient is LOW risk of having persistent symptoms lasting beyond one month.
- 4-8 points = Patient is MEDIUM risk of having persistent symptoms lasting beyond one month.
- ≥9 points = Patient is HIGH risk of having persistent symptoms lasting beyond one month.



The Office of Lifelong Learning

Part 2: Improving Concussion Awareness and Recognition in the Community; Implications for Physicians

Pearls for practice
Stephanie Cowle

Knowledge and Practice Gaps

- Concussion care and study is rapidly expanding and demonstrates a lack of consistency across the sports system (Protocols, recognition, removal, management)
- Exacerbated with limited knowledge and misperceptions among the public alongside outdated clinical practice
- Where to go for credible information:

Concussion Policies and Protocols Development

- [Canadian guideline on concussion in Sport \(2017\) freely available on Parachute website](#)
- Harmonization project: Supported by Public Health Agency of Canada and Sport Canada; 50+ national sport organizations; Protocol template and implementation tools

Helping Raise Concussion Community Awareness:

- Concussion Ed is a tool to prevent, recognize, and manage concussions. Concussion Ed provides a method to track signs and symptoms of concussion, following a diagnosis, enabling the user to track symptom duration and severity for the general public
- Apple: <https://apps.apple.com/ca/app/concussion-ed/id1116134015>
- Android: https://play.google.com/store/apps/details?id=ca.parachute.concussionapp&hl=en_CA&gl=US

Implications for Physicians

- Concussions are more common than previously thought (not just sports, but injuries, domestic abuse, etc.)
- Applicability, scale and spread to different activities and organizations: Canadian Concussion Network-Réseau Canadien des Commotions 3rd Annual Meeting, June 15-16, 2023, **Calgary: www.ccn-rccevent.com**
- There are many ongoing studies, that will bring exciting advancements and new discoveries in concussion research
- University of Calgary is a hub of concussion care
- Important to be aware of language when discussing concussion; focus on social support and things patients can do to reduce anxiety and fear



Part 2: Improving Concussion Awareness and Recognition in the Community;

Implications for Physicians Pearls for practice

Stephanie Cowle

Links and Resources:

- Pediatric concussion living guideline: <https://pedsconcussion.com/>
- 5P Concussion Score: <https://5pconcussion.com/en/scorecalculator>
- BESS (Balance Error Scoring System): <https://theconcussionblog.files.wordpress.com/2011/02/bessprotocolnata09.pdf>
- BCTT (Buffalo Concussion Treadmill Test): https://cdn-links.lww.com/permalink/jsm/a/jsm_2020_01_28_haider_19-313_sdc1.pdf
- Parachute – Concussion resources for health professionals: <https://parachute.ca/en/professional-resource/concussion-collection/concussion-resources-for-health-professionals/>
- Parachute – Concussion information for the general public: <https://parachute.ca/en/injury-topic/concussion/>
- Canadian guideline on concussion in Sport (2017): <https://parachute.ca/en/professional-resource/concussion-collection/canadian-guideline-on-concussion-in-sport/>

Concussion Ed App:

- Apple: <https://apps.apple.com/ca/app/concussion-ed/id1116134015>
- Android: https://play.google.com/store/apps/details?id=ca.parachute.concussionapp&hl=en_CA&gl=US
- Parachute – Popping the Bubble Wrap podcast (concussion episode): <https://www.spreaker.com/user/16820784/s1e9-concussion-its-not-all-in-your-head>

Papers and References for Further Reading:

- Association Between Early Participation in Physical Activity Following Acute Concussion and Persistent Postconcussive Symptoms in Children and Adolescents. Grool, Anne M. et al. JAMA. Dec 2016 Vol 316, Number 23, Pages 2447-2560
- Early Subthreshold Aerobic Exercise for Sports-Related Concussion, A Randomized Clinical Trial. Leddy, John J, et al. JAMA Pediatrics
- Is Early Activity Resumption After Pediatric Concussion Safe and Does it Reduce Symptom Burden at 2 Weeks Post-Injury? The Pediatric Concussion Assessment of Rest and Exertion (RedCARE) Multicentre Randomized Clinical trial. Ledoux, Andrée-Anne et al. BMJ Sports Med. 2021;0:1-8. doi:10.1136/bjsports-2021-105030
- Association Between Early Return to School Following Acute Concussion and Symptom Burden at 2 Weeks Postinjury. JAMA Netw Open. 2023;6(1):e2251839. doi:10.1001/jamanetworkopen.2022.51839
- Risk of Mental Health Problems in Children and Youths following Concussion. JAMA Network Open. 2022;5(3):e221235. doi:10.1001/jamanetworkopen.2022.1235
- Clinical Risk Score for Persistent Postconcussion Symptoms Among Children with Acute Concussion in the ED. JAMA. 2016;315(10). Pages 955-1068
- Early Postinjury Screen Time and Concussion Recovery. Cairncross, Molly et al. Pediatrics. 2022;150(5)
- More care-seeking for concussion; Zemek et al. 2017. doi:10.1016/j.jpeds.2016.10.067

