Coaching and Concussions
Session 2



Introductions

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Agenda

~~Session 1:~~

- ~~Define the injury~~
- ~~Emergency management~~

Session 2:

- Clinical evaluation
- Identifying risk factors
- Non-emergent management

Session 3:

- Safe return to sport
- Prevention



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Learning Objectives: Session 2

- *Understand how a Sports Medicine professional (physician or athletic trainer) assesses a concussion.*
- *Identify risk factors for sustaining a concussion as well as risk factors that will affect recovery time.*
- *Articulate care recommendations for non-emergency concussion.*



Clinical Evaluation

- Multi-tool Assessment
  - Detailed History
  - Graded Symptom Score
  - Cognitive Assessment (Sway)
  - Vestibular Oculomotor Screening (VOMS)
  - Balance Assessment
  - Neurologic Exam



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Concussion Evaluation Tools

CRT6 vs SCAT6 vs SCOAT6

CRT6

- Intended to be used by non-medically trained personnel to identify a suspected concussion.

SCAT6

- Intended to be used within 72 hours
- No special tools required

SCOAT6

- For use in physician office setting >72 hours post injury
- Includes Orthostatic Blood Pressure measurements (need cuff and stethoscope)





Available online through British Journal of Sports Medicine

Concussion Risk Factors



- High Risk Sports:
  - Contact Sports
    - Football
    - Lacrosse
    - Ice Hockey
    - Soccer
    - Boxing
    - Cheerleading

- Blow to the chin
  - Rapid acceleration
  - Rapid rotation
- Defenseless/Blind Side hit
- Multi-hit mechanism

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Recovery Timeline

- Average recovery
  - Up to 4 weeks to full clearance
- Protracted Recovery (Persistent Symptoms)
  - >4 weeks of symptoms



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Risk Factors for Protracted Recovery

- Primary Risk Factors
  - What is the patient bringing to the table?

Constitutional Risk Factors for More Complicated Concussion Recovery Following Concussion	
Younger Age	• Field, Lovell, Collins et al. J of Pediatrics, 2003. • Pellman, Lovell et al. Neurosurgery, 2006.
Female Gender	• Colvin, Mullen, Lovell, et al. AJSM, 2009. • Covassin et al. JAT, 2003. • Mucha, Collins et al. AJSM, 2014.
LD/ADHD	• Collins, Lovell et al. JAMA, 1999. • Elbin, Kontos, et al. Clinic Neurosurg, 2013.
Migraine History & Symptoms	• Mihalik, et al. AJSM, 2013. • Kontos, Elbin, et al. AJSM, 2013
Motion Sickness	• Kontos, Sufrinko, et al. AJSM, 2016.
Sleep Problems	• Sufrinko et al. AJSM, 2015.
Somatization	• Root et al. J Peds, 2016.

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Risk Factors for Protracted Recovery

- Secondary Risk Factors
  - What happened during or closely after the injury?

Symptom & Injury Risk Factors for More Complicated Recovery Following Concussion	
On-Field Dizziness	• Lau, Kontos et al. AJSM, 2011.
Sub-Acute Fogginess	• Lau, Lovell, et al. AJSM, 2009. • Lau, Collins, et al. AJSM 2012
Acute High Symptom Score	• Meehan, Mannix et al. Neurologgy, 2014. • Meehan, O'Brien, et al. J Sci Med Sport, 2016.
Post Traumatic Migraine Symptoms	• Lau, Collins, et al. Neurosurgery. 2011. • Kontos, Elbin, et al. AJSM. 2013.
Vestibulo-Ocular Dysfunction	• Ellis, Cordingley, et al. J Neuro Ped, 2017 • Ellis, Cordingley, et al. J Neuro Ped, 2015.
Continuing to Play	• Elbin RJ, Sufrinko, et al. Peds, 2016. • Asken, McCrea, et al. JAT, 2016

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Treating Concussions

A VERY brief overview

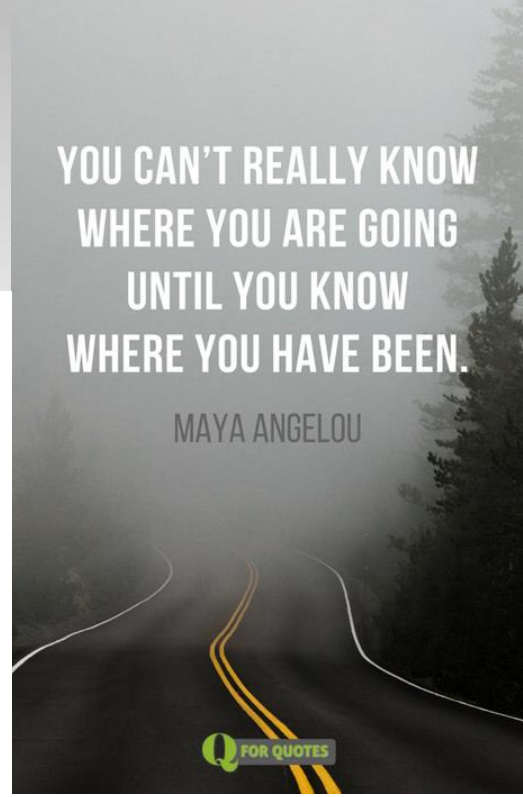


Then…

Table 2. Guidelines for the Management of Sport-Related Concussion. These guidelines reflect the latest consensus opinion and are not evidence based. Adapted from the American Academy of Neurology guidelines[24] where newer guidelines are expected to be published in the future. (http://www.aan.com)

Symptoms	First Concussion	Second Concussion
Grade 1: No loss of consciousness, transient confusion, resolution of symptoms and mental abnormalities in <15 min See also Appendix.	Remove from play. Examine at 5-min intervals. May return to play if symptoms disappear and results of mental-function exam return to normal within 15 min	Allow return to play after 1 week if there are no symptoms at rest or with exertion.
Grade 2: as above, but with mental symptoms for >15 min	Remove from play and disallow play for rest of day. Examine for signs of intracranial lesion at sidelines and obtain further exam by a trained person the same day. Allow return to play after 1 week if neurological exam is normal.	Allow return to play after 2-week period of no symptoms at rest or with exertion. Remove from play for season if imaging shows abnormality.
Grade 3: any loss of consciousness	Perform thorough neurological exam in hospital and obtain imaging studies when indicated. Assess neurologic status daily until post-concussive symptoms resolve or stabilize. Remove from play for 1 week if LOC lasts seconds; for 2 weeks if it lasts minutes; must be asymptomatic at rest and with exertion to return to play.	Withhold from play until symptoms have been absent for at least 1 month.

LOC, loss of consciousness.



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… and Now

Consensus statement

Consensus statement on concussion in sport: the 6th International Conference on Concussion in Sport–Amsterdam, October 2022

Jon S Patricios ,[1] Kathryn J Schneider ,[2] Jiri Dvorak ,[3] Osman Hassan Ahmed ,[4,5] Cheri Blauwet ,[6,7] Robert C Cantu,[8,9] Gavin A Davis ,[10,11] Ruben J Echemendia ,[12,13] Michael Makdissi,[14,15] Michael McNamee,[16,17] Steven Broglio ,[18] Carolyn A Emery ,[2] Nina Feddermann-Demont,[19,20] Gordon Ward Fuller ,[21] Christopher C Giza,[22,23] Kevin M Guskiewicz,[24] Brian Hainline ,[25] Grant L Iverson ,[26,27] Jeffrey S Kutcher,[28] John J Leddy ,[29] David Maddocks,[30] Geoff Manley ,[31] Michael McCrea ,[32] Laura K Purcell,[33] Margot Putukian ,[34] Haruhiko Sato ,[35] Markku P Tuominen,[36] Michael Turner ,[37,38] Keith Owen Yeates ,[39] Stanley A Herring,[40,41] Willem Meeuwisse[42]

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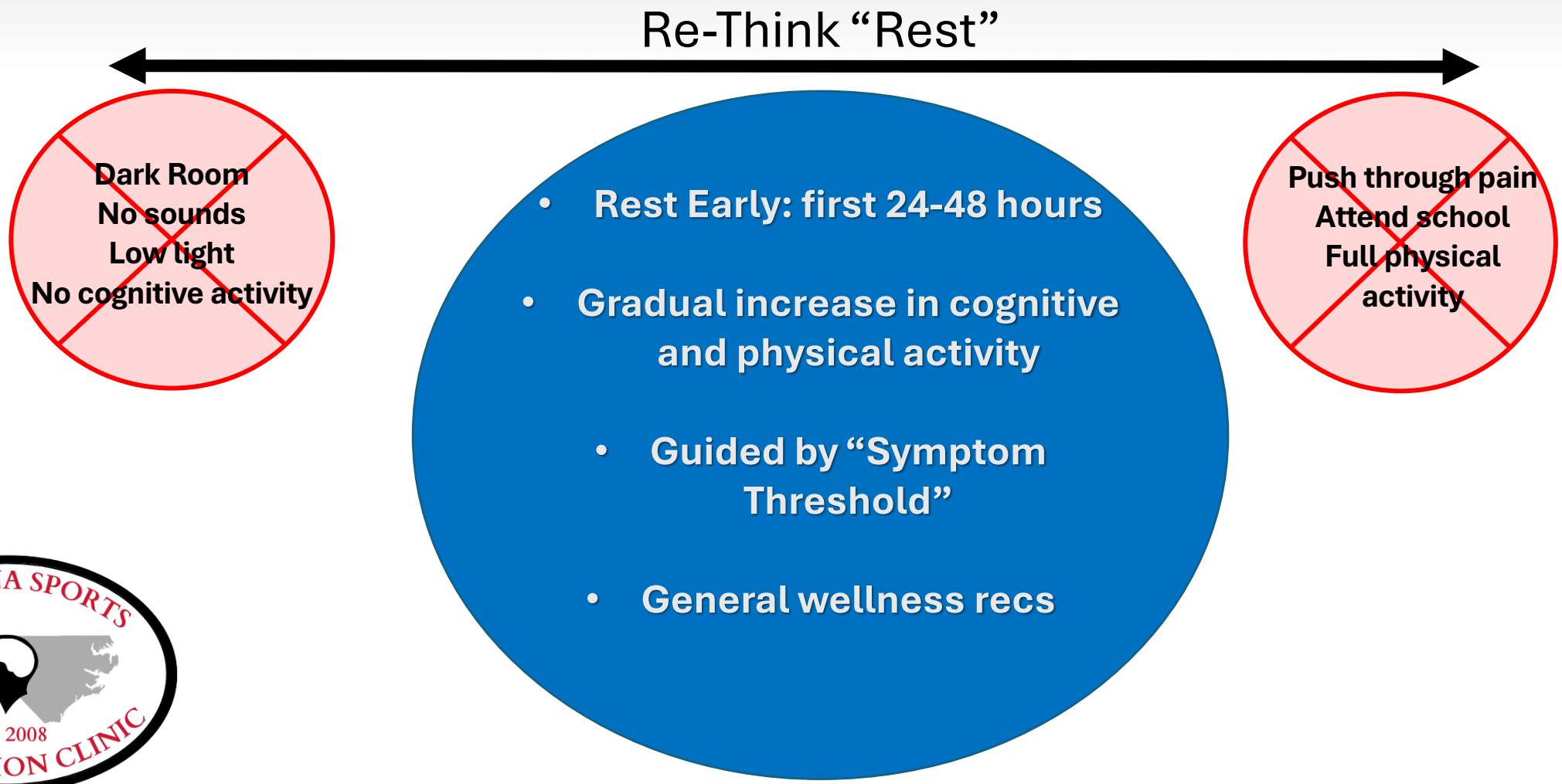
Concussion Treatment



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Treating Concussions

- By area of difficulty
  - Cognitive
  - Vestibular
  - Visual
  - Balance



- By lifestyle of patient
  - School/Work
  - Exercise/Sport
  - Hobbies
  - Driving
  - Sleep
  - Nutrition



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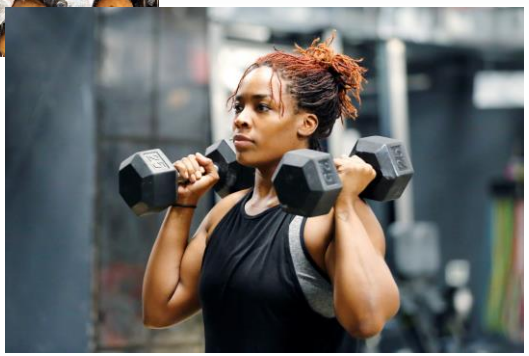
Treating Concussions





- General health recommendations
  - Focus on good sleep, good nutrition and hydration
- Gradual progression
  - Overload principle
- Don’t be afraid of symptoms, be aware of them
- Try to integrate into normal routine without compromising safety

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Questions?

Next Session:

- Safe return to sports
- Prevention strategies