Sport-Related Concussions in Youth Ice Hockey Players

Concussion Bombardment

- **Concussions are in the media**

ESPN WALL STREET JOURNAL CNN

- **Concussion Protocols**

NHL NFL NCAA NATIONAL FEDERATION STATE HIGH SCHOOL ASSOCIATIONS NFHS

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Objectives

- Better understanding of concussions
- Identification & Management
- Neurocognitive Testing
- Return to activity protocol & Protective equipment

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What is a concussion

- ***Concussion*** Latin word: means to shake violently
- "A transient alteration in brain function caused by trauma"
  - Direct or Indirect
    - Direct Trauma - a blow to the head, face or neck
    - Indirect Trauma – a blow to the body that sends a force up to the head (i.e. whiplash)

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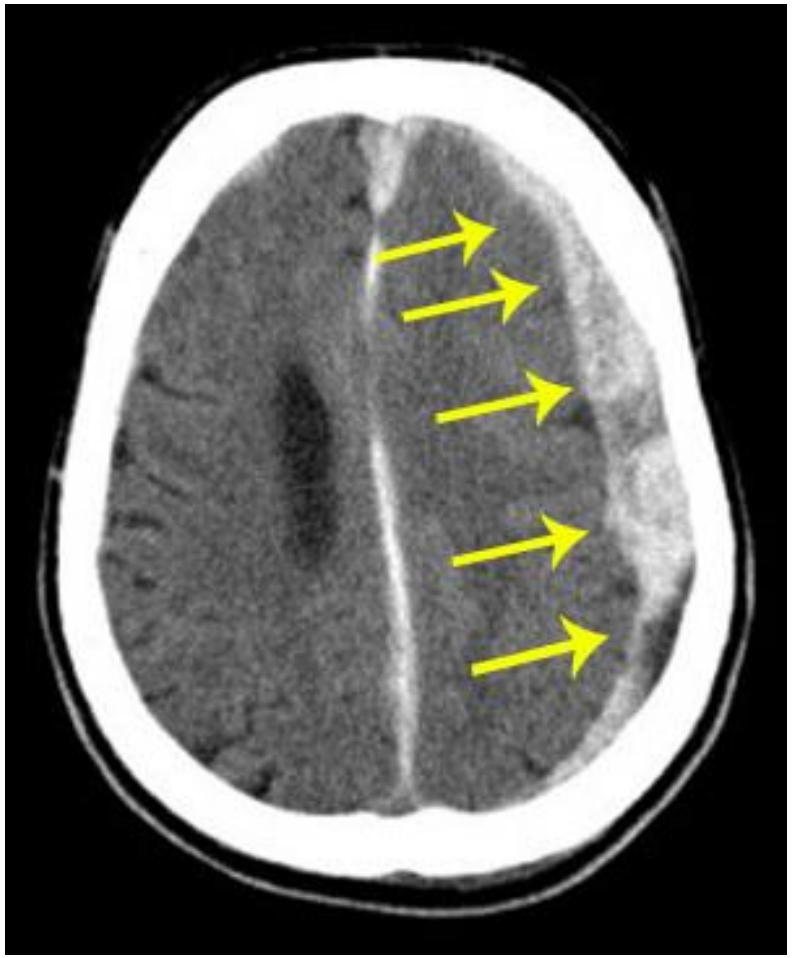
Concussion affects brain function…

- Injury to brain cells…
- Results in problems with brain functioning…

…and is not a structural injury



- Concussions are <u>not</u> "bruises" of the brain, and do not result in injury to the structure of the brain
- CT & MRI identify bleeding or other injury in the brain

Clinical Signs

Things you will observe

- ✓ Confused about position or assignment
- ✓ Forgets instructions
- ✓ Appears dazed or stunned
- ✓ Answers questions slowly
- ✓ Shows mood or personality changes
- ✓ Can’t recall events after hit or fall

Clinical Symptoms

Things your players will report

- ✓ Headache/pressure
- ✓ Nausea/vomiting
- ✓ Dizziness/balance problems
- ✓ Blurry/double vision
- ✓ Sensitivity to light or noise
- ✓ Feeling sluggish/foggy
- ✓ Concentration/memory problems
- ✓ Just not “feeling right”

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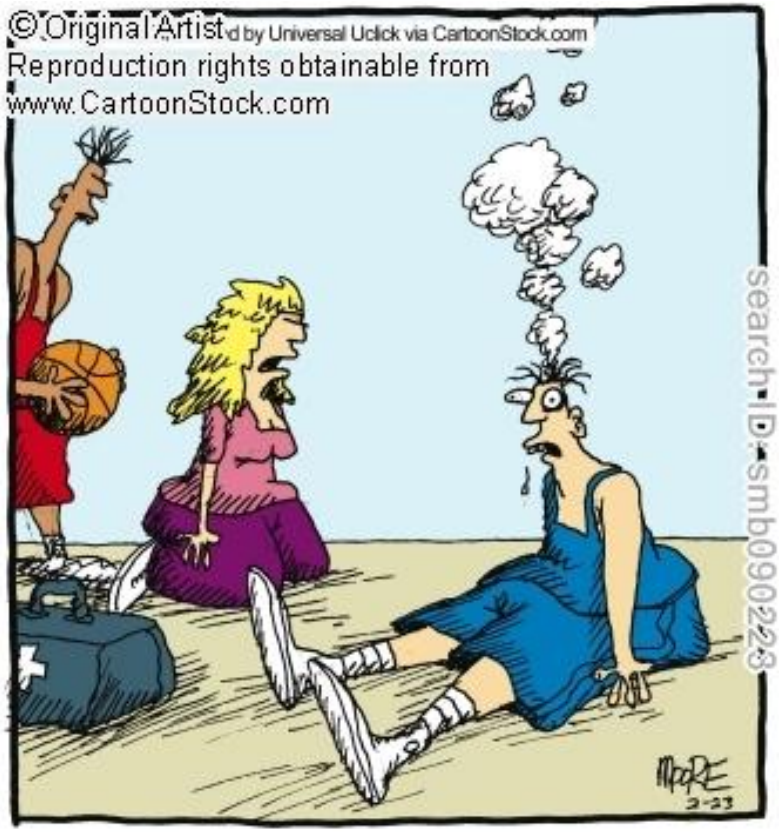
Acute Management

- **Remove from activity immediately!**
- No return to physical activity until symptoms resolve & the individual has been evaluated medically.
- **Remember:** Sometimes symptoms may not be present for 24-48 hours after injury



"I don't think it's a concussion ... although the smoke has me a little concerned."

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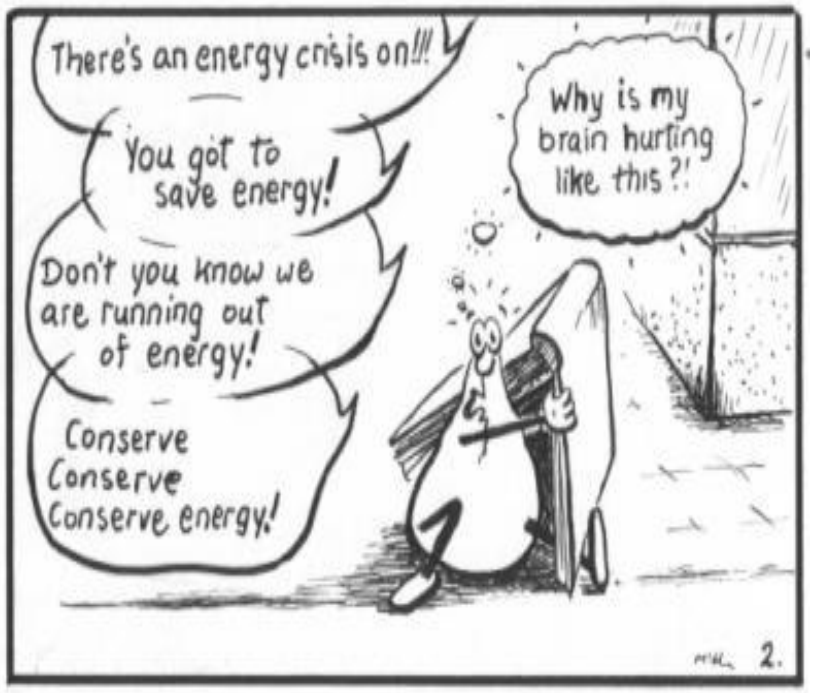
Initial Management

- "The cornerstone of concussion management is physical and cognitive rest until symptoms resolve"
- **Protect and Rest**
  - **Reduce potential for a second hit to the head**
    - Takes only a minimal impact to cause a catastrophic injury
  - **Reduce physical and cognitive demands**
    - Brain is responsible for managing physical and cognitive functions of the body



Recovery from Concussion

- All concussions are different
- Concussion treatment should be individualized
- Everyone recovers in a different time frame

Adolescents Recovery from a Concussion

- Studies have shown that adolescent and pre-adolescent athletes take **longer** to recover from concussion than adults.

  Lovell MR, et al. 2003

- Not uncommon for adolescents to take 3 weeks to 3 months to recover

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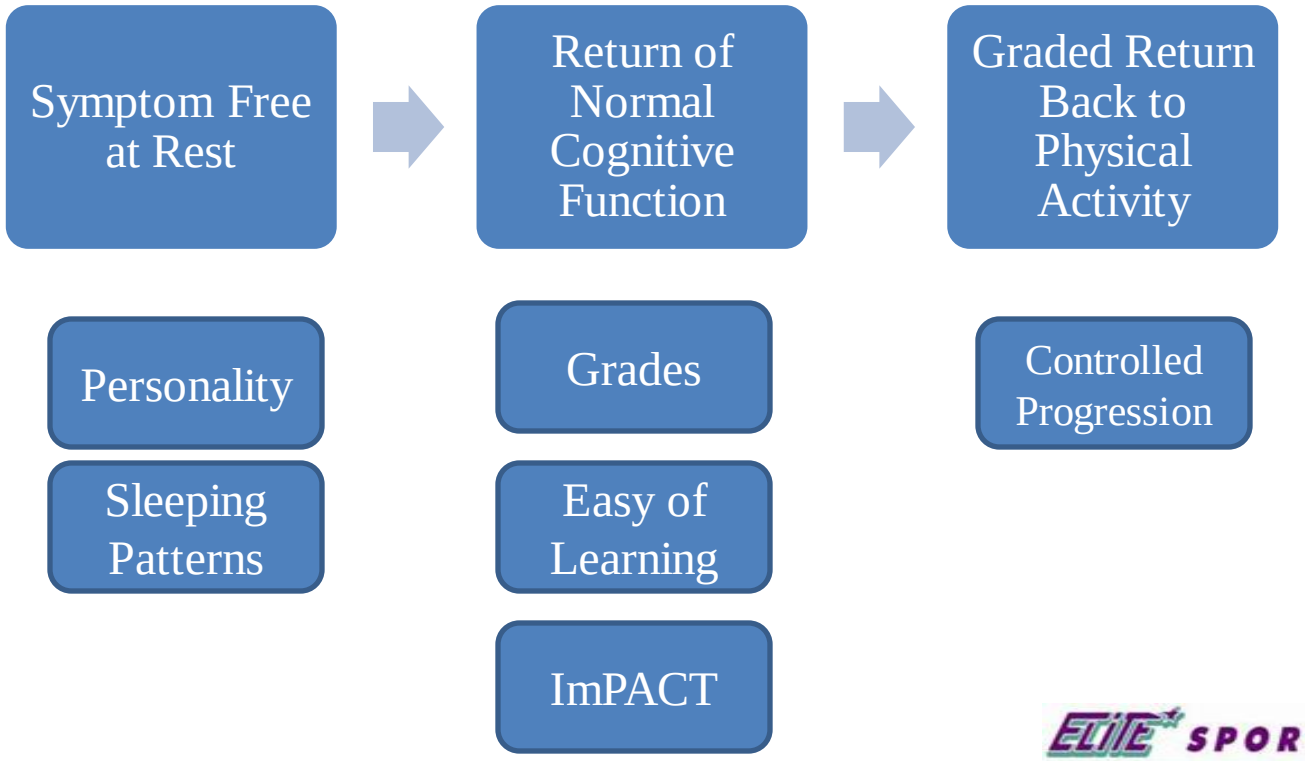
Protracted Recovery

- Adequate rest not implemented
- Athlete pushes through injury

- Previous Medical History
  - Concussion History
  - ADD/ADHA
  - Migraines
  - Hormone
  - Learning Disabilities
  - Gender?

Best Practice Models

- Our brain is responsible for all facets of our life
- Concussion evaluation must be multi-faceted



Return to Activity Following Concussion

Low Aerobic, Non-Pounding Activities

Walking, Stationary bike

↓

Low Aerobic, Pounding Activities

Jogging, Elliptical, Skating

↓

Practice, No Contact

Skills/Drills & Conditioning

↓

Practice, Contact

Controlled Situations / Scrimmages

↓

Full Competition

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Neurocognitive Testing (NCT)

- One more tool in measuring recovery
- Is NOT a standalone tool!
- Objective measure vs. athlete's self-report of symptoms or a random timeline
- Has become a standard of care in sport-related concussion management

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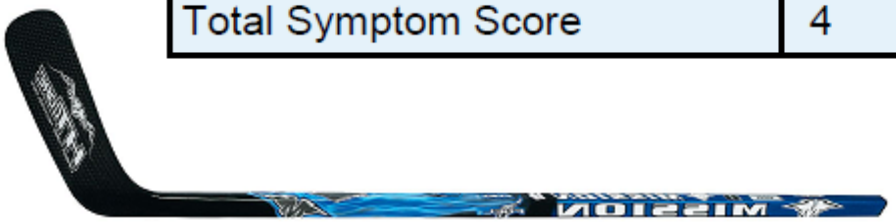
Exam Type	Baseline	Post-Injury 1	Post-Injury 2
Date Tested	06/09/2009	10/14/2009	11/16/2009
Last Concussion	11/05/2006	10/02/2009	10/02/2009
Exam Language	English	English	English
Test Version	2.0	2.0	2.0

Composite Scores	Percentile scores if available are listed in small type.		
Memory composite (verbal)	74 16%	**56** <1%	85 52%
Memory composite (visual)	70 32%	59 11%	63 15%
Visual motor speed composite	40.55 57%	**31.63** 12%	45.9 80%
Reaction time composite	0.54 69%	**0.73** 7%	0.59 44%
Impulse control composite	7	9	2
Total Symptom Score	4	**45**	9



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Protective Equipment

- Helmets are designed to prevent skull fractures
- They will **NOT** prevent concussions
  - Remember: A concussion is the brain "shaking" inside the skull

The BEST helmet on the market…

A helmet that is **FIT AND WORN PROPERLY**

Protective Equipment: Helmets

Helmets

- Millions of dollars go into helmet research and design
- Yet helmeted sports, football and ice hockey, have the highest number of diagnosed concussion
  - Is it because athletes feel invincible?

Look Like

But Feel Like

Prevention

EDUCATION & RECOGNITION

A concussion can occur in any sport

Centers for Disease Control

http://www.cdc.gov/concussion/HeadsUp/youth.html

PROPER MANAGEMENT

Follow a Concussion Protocol prescribed by a doctor for safe return to play

Prevention

- Talk about concussions with your athletes
- Proper understanding of the game
- Being prepared for unexpected hits

Summary

- Concussion is a functional injury to the brain
- REST best treatment
  - Physically and cognitively
  - Decrease change of serious injury
- Incorporate large safety net to prove athlete's cognitive function is normal
- Recovery time is different with every athlete

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