MANAGEMENT OF CONCUSSIONS

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October 16, 2012

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Towards Independence / Vers l'autonomie

Risk factors for concussion

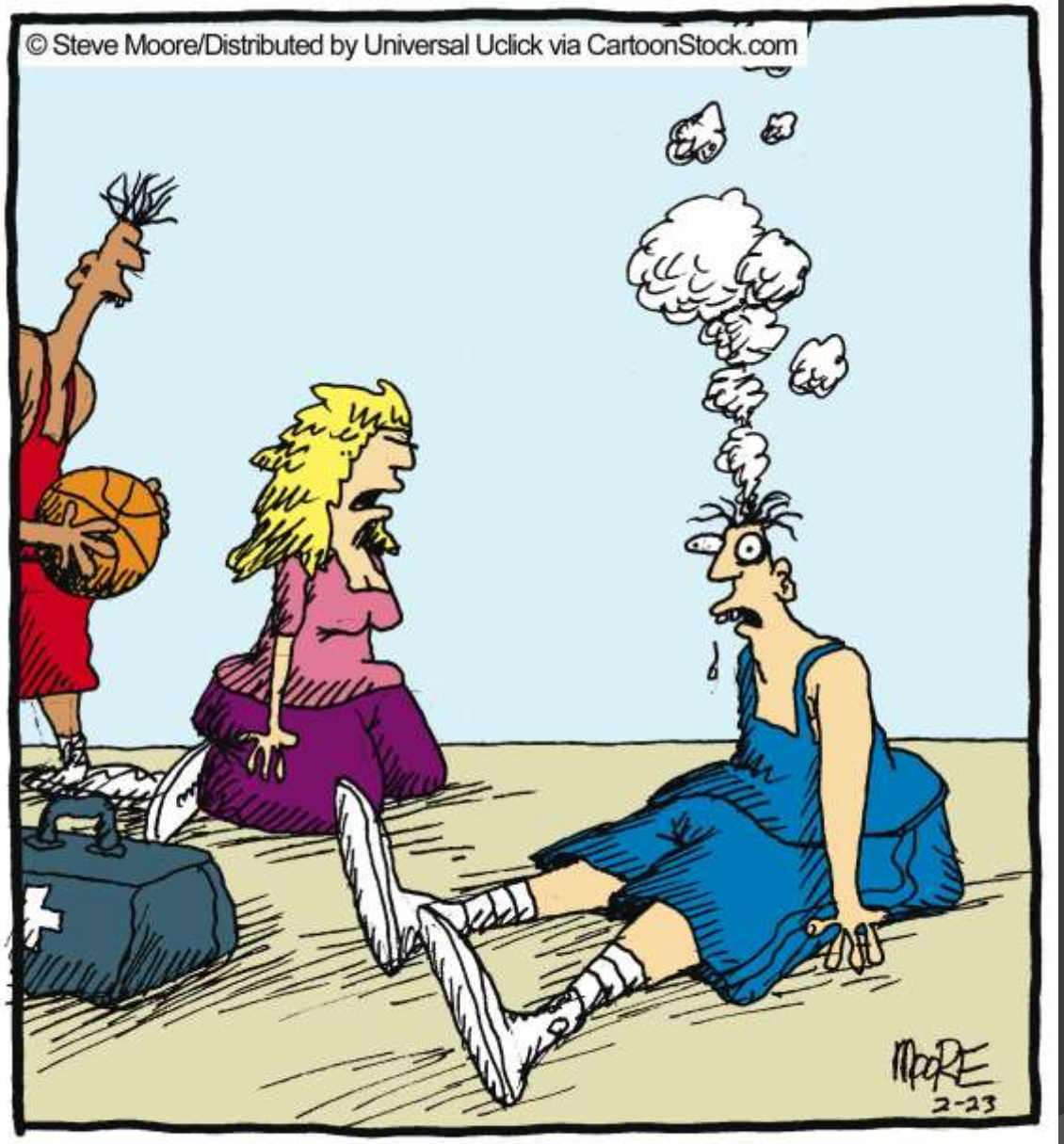
- Players at all levels are at risk
  - 5-10% of athletes are affected by concussion per year
- Prior concussions
  - Risk is highest in first few days after injury
- Age:
  - Kids and teens suffer 65% of concussions.
    - brain more vulnerable during development.
    - less well developed shoulder and neck muscles to absorb impact.
  - Older adults (75+)
    - Age-related shrinking of brain
    - Highest rate of hospitalization
- Type of hit/injury: rotational vs head-on.
- Female

Recovery

Expect gradual recovery in 7-10 days.

Expect longer for kids.

Expect longer if…
Children (<18 years of age)
Prior concussion(s)
History of emotional difficulties
History of learning difficulties (e.g., learning disorders, ADHD)
History of migraines
Poor sleep



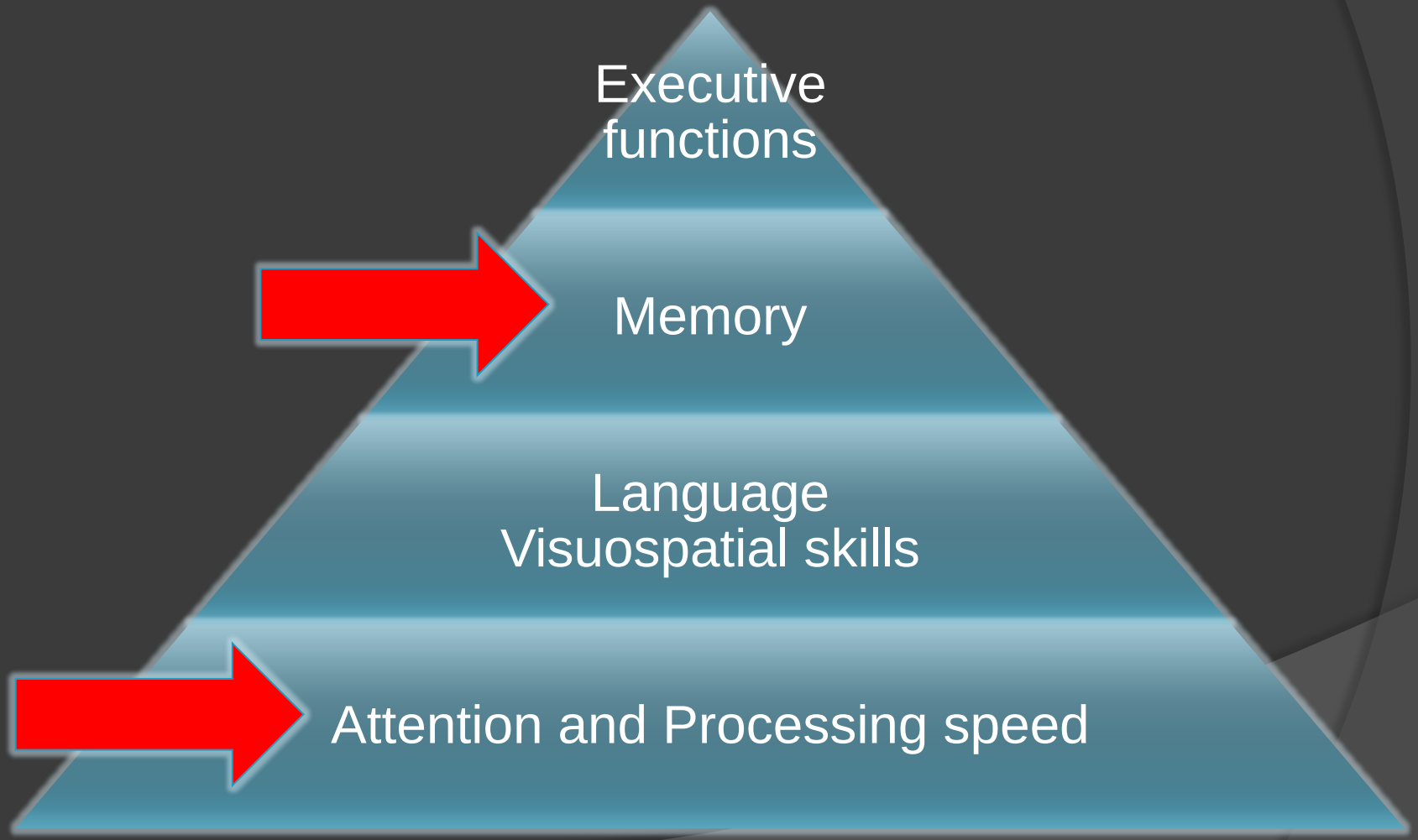
"I don't think it's a concussion ... although the smoke has me a little concerned."

Monitoring of symptoms

- Self-report of symptoms after injury
  - Physical
  - Cognitive
  - Emotional
  - Sleep
- Examples of tools
  - SCAT2: Sport Concussion Assessment Tool (for sideline assessment)
  - Acute Concussion Evaluation (ACE forms)
  - Post-concussion Scale (Lovell & Collins, 1998)

Remember this?

Thinking Skills



Neuropsychological assessment

- Goes beyond subjective reports
  - Difficult to describe cognitive symptoms
  - Underreporting of symptoms
- Quantifies cognitive symptoms post-injury
- Can be compared to pre-injury skills (e.g., attention, memory, reaction time) to help guide return to play decisions.
- In protracted recovery:
  - Describes cognitive strengths and weaknesses to optimize functioning at school/work
  - Examine how emotional factors affect functioning
  - Factors that cause symptoms and those that maintain them may be different

The 3 R's of recovery

- Rest
- Rest
- Rest

Management

- Rest from physical activity.
  - No training, playing, exercise or weight lifting.
  - No exertion with activities of daily living.
- Rest from mental and cognitive strain.
  - Reduced school work or work responsibilities.
  - Limit reading, computers, texting, videogames, etc.
- Nap if needed.
- Prevent re-injury.
- Avoid alcohol and drugs.
- Treatment of headaches and sleep difficulties

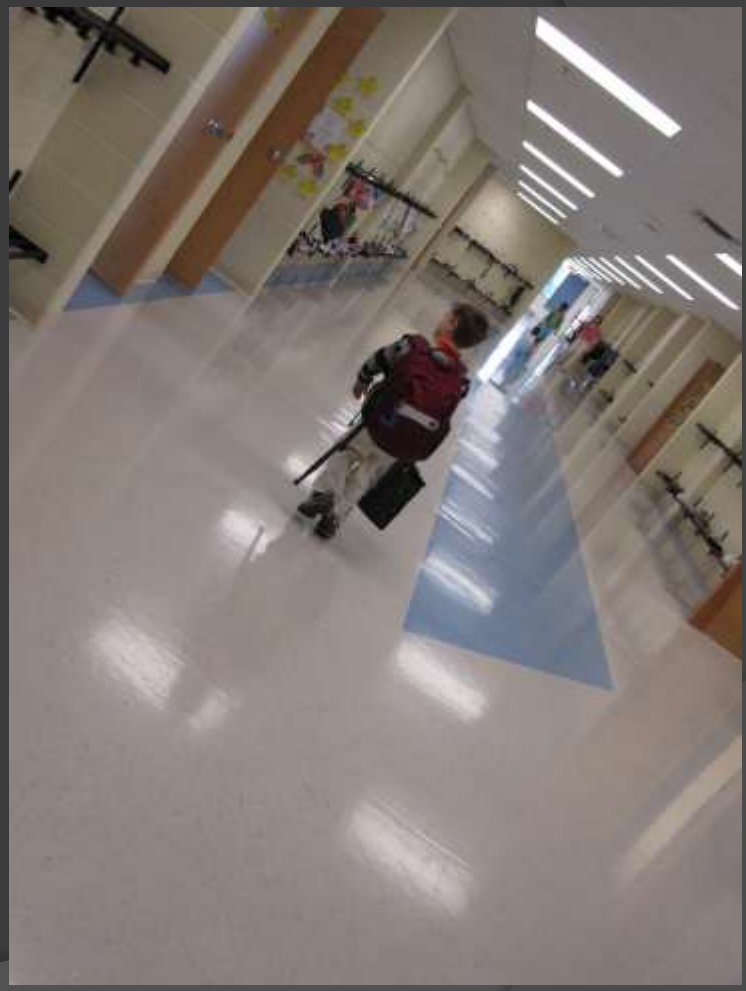
Return to play

Step	Level of activity	Examples	Goal	Restrictions
0	Complete rest			
1	Light aerobic exercise	Walking, swimming.	Increase heart rate 10-15 mins	Heavy lifting, jumping, hard running
2	Moderate exercise (sport specific exercise)	Light jogging, biking, light lifting, skating	Less time than normal routine	Actvities with body and head movements
3	Non-contact exercise	Running, high intensity biking, Regular weight lifting, skating with passing drills.	More intense but non contact. Close to regular routine	Contact drills
4	Full practice with contact			
5	Return to play			

All guidelines agree that athlete must be *symptom-free on exertion* before returning to play.

Management for kids in school

- When symptoms are severe or worsen with cognitive exertion, keep child out of school.
- May need temporary school accommodations:
  - Shortened days
  - Shortened classes
  - Reduced homework
  - Extended time for assignments
  - Rest periods
  - No tests or exams
- Important to avoid failures



Management for work

Work is heavily tied to personal identity.

Better quality of life reported in those who successfully return to work.

- May need gradual return to work
- Monitor symptoms with increased workload
- Allow for breaks
- Reduced task assignments and responsibilities
- No driving
- No heavy lifting
- No heights – especially if there are reported difficulties with balance or dizziness

Complicated outcomes

- **Second Impact Syndrome**
  - Rare but possible.
  - Brain is unable to compensate for second hit and leads to brain swelling.
- **Chronic Traumatic Encephalopathy (CTE)**
  - Associated with repeated injury e.g., boxing.
  - Believed to cause both structural and functional changes over time.
  - Debate whether predisposing factors associated with complicated outcome.

Post Concussive Syndrome

- 10-15% will not be fully recovered after 3 months.
- 3-8% among athletes with concussion.
- Reason for poor recovery is debated.
- Possibly a mix of biological and psychological factors.
- Iverson (2006) found that 5 out of 10 individuals with depression with no history of concussion met criteria for PCS.
- Higher rate of PCS in individuals with financial incentives (e.g., litigation).

Postconcussional disorder

Diagnostic and Statistical Manual (DSM-IV criteria)

A. History of head trauma that has caused significant cerebral concussion.
B. Evidence from cognitive testing of problems with attention or memory.
C. Three or more of the following:
  A. Becoming easily fatigued
  B. Disordered sleep
  C. Headache
  D. Vertigo or dizziness
  E. Irritability or aggression
  F. Anxiety, depression or affective lability
  G. Changes in personality
  H. Apathy or lack of spontaneity
D. Causes impairments in social or occupational functioning.

Resources

- Acute Concussion Evaluation forms available at:
  1. www.cdc.gov/concussion/headsup/pdf/ACE-a.pdf
  2. www.cdc.gov/concussion/headsup/pdf/ACE_care_plan_school_version_a.pdf
- http://concussioneducation.ca/ by Think First
  - Consensus statement on Concussion in Sport
  - Sport Concussion Assessment Tool 2 (SCAT2)
  - Return to play guidelines

Questions?