CONCUSSIONS: MAKING THE INVISIBLE VISIBLE

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Concussion Video
Concussions extra dangerous to teen brains

Bill takes aim at concussions

New Concussion Guidelines Stress Individual Treatment

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High school athletes say concussions won’t sideline them

Survey of football players shows many would not report symptoms to a coach

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New Concussion Guidelines Stress Individual Treatment

The American Academy of Neurology said Monday that it had revised its guidelines for handling concussions to emphasize treating athletes case by case rather than according to a predetermined course.

The move brings the group more in line with best practices followed by the NFL and other leagues and associations, and it essentially acknowledges that concussions are too ambiguous to be compartmentalized.

“We’ve moved away from the concussion grading systems we first...
GOOGLE SEARCH:
MTBI – 577,000
CONCUSSION - 19,500,000
MTBI and Post-Concussion Syndrome – 229,000
Concussion Management - 11,800,000
Incidence of TBI

- 36,000 Nebraskans living with disability due to TBI
- 1 person per day dies from a TBI
  - (higher than national average)
- 3 people hospitalized per day
  - (higher than national average)
- 24 people visit the ED per day
  - (steady increase in 5 years)
- $413 million in 2009

Brain Injury Association of Nebraska - 2013
2001-2011:

- TBI visits to EDs increased 62% for those 19 and younger.
- Total rate of TBI visits increased by 57%.
  - Age 9 and under = playground and biking
  - 10-19 year olds = football, biking, soccer, and basketball
- The most frequent causes of TBI in school age students include falls, automobile accidents, shaken baby, and sports-related injuries.
Presentation Objectives

• A Concussion Is...
• Recognizing a Concussion
• Diagnosing a Concussion
• Managing a Concussion
• Legislation – Return to Play / Learn
• Brain Injury Regional School Support Teams
A CONCUSSION IS...
A traumatic brain injury induced by biomechanical forces.

Concussion may be caused by a direct blow to the head, face, or neck or elsewhere on the body with an “impulsive” force transmitted to the head;

Typically results in the rapid onset of short-lived impairment of neurological functioning that resolves spontaneously;

No abnormality on standard structural neuroimaging studies;

Results in a graded set of clinical syndromes that may or may not involve the loss of consciousness. While the resolution of symptoms typically follows a sequential course, symptoms may be prolonged in some cases.
A CONCUSSION IS A CONCUSSION

- Concussions don’t just happen to athletes and student-athletes involved in formalized activity.

A CONCUSSION IS A BRAIN INJURY

MILD  SEVERE
Concussions are a Big Deal... especially in a younger population

• The developing brain is different than the adult brain.
• New research indicates that young athletes are particularly vulnerable to the effects of concussion / TBI.
  ✔ Youth are at increased risk for repeat injury and disability.
• Returning to play prior to full resolution may place individuals at increased risk for prolonged recovery or more serious consequences. (IOM, 2013)
• Individuals with history or prior concussion 2 to 5.8 times more likely to sustain a subsequent concussion. (IOM, 2013)
• The time between concussions may be a risk factor for and the severity of any subsequent concussions. (IOM, 2013)
Recognition relies on Education

Diagnosis relies on Recognition

Management relies on Diagnosis
RECOGNIZING A CONCUSSION
Characteristics of Concussions

We now know that...

- “Dings,” “bell-ringers” are concussions.
  - Significant Brain Injuries

- Concussions do not have to involve LOC.
  - 85% - 90% do not
Signs of Concussion

- Vacant Stare
- Slow to Answer Questions or Follow Instructions
- Easily Distracted
- Disoriented
- Disoriented
- Slurred or Incoherent Speech
- Photophobia
- Memory Deficits Gross Incoordination
- Emotions out of proportion to the situation
- Loss of Consciousness
- Seizures
- Nystagmus
Symptom Categories

Physical Symptoms
- Headache (1)
- Fatigue (3)
- Dizziness (5)
- Sensitivity to Light and/or noise (8)
- Nausea
- Balance Problems (9)

Emotional Symptoms
- Irritability
- Sadness
- Feeling more emotional
- Nervousness

Cognitive Symptoms
- Difficulty remembering (10)
- Difficulty concentrating (2)
- Feeling slowed down (7)
- Feeling like they are “in a fog” (6)

Sleep Symptoms
- Drowsiness (4)
- Sleeping more than usual
- Sleeping less than usual
- Trouble falling asleep

Zurich, 2014
ImPACT, 2013
“Everyday Life”...

- Personal Lives and at Home:
  - Reduced Play / Activity
  - Difficulty Completing Chores
  - Depression
  - Irritability:
    - Parents
    - Siblings
    - Boyfriends / Girlfriends
  - Family Dynamics

- At School / Work
  - Concentration / Focus
  - Remembering Assignments
  - Tolerance of Environment
  - Fatigue
  - Drop in Grades, Attendance
  - Reduction in Overall Performance
Recognition relies on Education

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DIAGNOSING A CONCUSSION
• Diagnosis is a clinical decision.

• Evaluation should include assessment of:
  ➢ Clinical Symptoms;
  ➢ Neurologic Status;
  ➢ Neurocognitive Status;
  ➢ Balance/Coordination.

• When possible and available, compare with baseline performance.
Recognition relies on Education

Diagnosis relies on Recognition

Management relies on Diagnosis
MANAGING A CONCUSSION
Who Should Manage this Injury?

• Professionally?
  – Neurology
  – Sports Medicine
  – Primary Care
  – Neuropsychology
  – Multi-Disciplinary Teams
    • Neuropsychology
    • Physical Therapy
    • Occupational Therapy
    • SLP
    • Psychology / Psychiatry

• Based on Mechanism?
  – Sports / Recreation
  – MVA
  – Falls
  – Other...

• Based on Activity?
  – Student
  – Student Athlete
  – General Population
Managing Concussions

➢ Sports Related Concussions:
  ➢ Most injuries in adults will resolve within 10-14 days.
  ➢ Most injuries in children will resolve within 4 weeks.

➢ May take longer in younger individuals, those that are not sports related and those with other risk factors.

➢ Current cornerstone of concussion management is physical and cognitive rest until acute symptoms resolve.

➢ Current evidence regarding the amount of rest is limited and evolving.

➢ Evidence is showing that directed exercise and activity may be beneficial.
LEGISLATION
Changing the Culture of Concussions

• **Nebraska’s Concussion Awareness Act**
  ✓ Effective Date July 1, 2012

• **Contains the Three Tenets of Model Legislation**
  1. Education - Coaches, Parents and Student Athletes;
  2. Removal from Play - if a concussion is reasonably suspected;
  3. Clearance by a licensed Health Care Provider;
     Requires clearance from the athlete’s parents
     
     PLUS.....

  4. Requires schools to have a return to learn protocol in place.
     (Concussion Awareness Act Amendment, July 2014)
Remember....

• In a pediatric patient, not all students are athletes but ALL ATHLETES ARE STUDENTS.

Therefore....

• We can’t just focus on athletics, we need to include academics.
Cultural Shift....

Return to Activity = Return to Learn + Return to Play

- Cognitive Rest
- Physical Rest
- Asymptomatic
- Normal NCT
- Completed RTP Progression
- Normal Balance*
- Normal Vision*
BRIDGING THE GAP: CONCUSSION TO CLASSROOM IMPLEMENTING A CONCUSSION MANAGEMENT TEAM
Concussion Management Team Guidance

As soon as the school is made aware of the injury:

1. Assign a point person on the Concussion Management Team to contact the family.
2. **TBI Screening Tool**: Ask the parent to complete the screening form that corresponds to the student’s age.
3. **Postconcussion Symptom Checklist**: Ask the parent and/or student to rate the student’s symptoms post injury. Then rate the current symptoms. (e.g., if the injury occurred on Friday, document the symptoms at the time of the injury. If the first contact is made with the family the following Monday, ask the parent to rate the symptoms again on Monday.)
4. Schedule a meeting with the student and parent as soon as possible to develop a Return to Learn plan.

Sample CMT Agenda

Student: ___________________  Date: __________________
Team Members Present: __________________________________

Agenda:

1. Introductions
2. Description of the Injury: When, Where, How
3. Medical documentation of the injury
4. Analyze symptom ratings documented so far. If more than one set of ratings have been documented, analyze any changes that have occurred over time.
5. Brainstorm and develop a Return to Learn plan based on the symptoms.
   a. Determine when the student will return to school and for what amount of time.
      □ Ratings of 5-6= stay home
      □ Ratings of 3-4= return to school part time or full time with breaks
      □ Ratings of 1-2= return to school part to full time
   b. Determine the accommodations the student will need. Consider all 4 areas.
   c. Confirm who the point person will be.
   d. Establish a time to review the success of the plan and make revisions to the plan.
6. Communicate the plan to all of the student’s teachers.
7. Implement the plan.
8. Review and revise the plan until the student returns to baseline, attends school all day, and no longer needs accommodations.
Return to Activity Slowly

- Limit Technology—TV/Text/Computer Time
- Driving
- Reading/Studying for tests
- Dance/music/instrument lessons
- Rest, Rest, Rest!
Students must return to full functioning (no accommodations) in the classroom before starting a return to play protocol.
Student

- Coaches
- Family
- Medical
- School
Concussion Management Team

- School Nurse
- Athletic Trainer
- School Counselor
- School Administrator
- Coach
- Teachers
- Parent / Guardian
- Attendance Secretary
- School Psychologist
Academic Accommodations

• Will vary based on subject

• Examples include:
  – Shortening assignments
  – Reducing projects
  – Allowing notes, open book tests
  – Oral tests
  – Audio books
Recap

• Concussions are an educational issue, no longer just an athletic issue.

• Return to Learn Accommodations are now required by law.

• Each student and each injury is different.

• Healing times vary based on each individual.

  • Readjustments may be necessary throughout the healing process.

  • It’s best to be proactive vs. reactive then play catch-up after it's too late.

• Assistance is available for all injured students to be successful both in and out of the classroom.
Nebraska Concussion Coalition (2013)

- Taking the lead in implementing action-oriented steps to improve concussion awareness and **change the culture of concussion** management at play, school, and home.

- Representatives from key:
  - Government Agencies
  - Healthcare Providers
  - Club Sport Programs
  - Educators
  - Non-profit Agencies
Areas of Focus

• **Return to Learn**
  – Concussion Survey
  – Advanced Concussion Training

• **Youth Club Sports**
  – Media Campaign
  – Concussion Support Group

• **Health Care Providers**
  – Concussion Symposium - July 17
  – Health Care Provider Modules
    • [http://dhhs.ne.gov/publichealth/ConcussionManage/Pages/croo.aspx](http://dhhs.ne.gov/publichealth/ConcussionManage/Pages/croo.aspx)
  – REAP Manual
It takes the village

- **Increased coordination and collaboration** between coaches, parents, players, schools and health care professionals so a youth athlete will have the support, at all levels, he or she needs after having a concussion.

- **Build community capacity** so coaches, parents, players, schools and health care professionals all know “when in doubt, sit ‘em out” and how to manage the concussion appropriately.

- **Access to resources and information** so coaches, parents, players, schools and health care professionals have are managing concussion with current best practices.
Resources

• Brain Injury Alliance of Nebraska: www.biane.org
• Center on Brain Injury Research and Training: www.cbirt.org
• Brainline for Kids: www.brainline.org
• Centers for Disease Control and Prevention: www.cdc.gov
• REAP Manual: www.biane.org
• NDE: www.education.ne.gov/sped/birsst/
• Nebraska Brain Injury Advisory Council: www.braininjury.ne.gov
QUESTIONS?

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