FROEDTERT & THE MEDICAL COLLEGE OF WISCONSIN PRESENTS:
MANAGING CONCUSSIONS ON AND OFF THE FIELD

PRESENTED BY:

STACY LYNCH, MD
SPORTS MEDICINE AND PM&R PHYSICIAN

CORNELL SMITH, LAT
ATHLETIC TRAINER FOR THE MILWAUKEE BALLET
WELCOME AND OVERVIEW

- Definition of concussion
- Epidemiology of concussion
- Signs and symptoms
- Initial treatment
- On-off field evaluation
- Emergency cases
- Physician referral
- State laws, regulations and guidelines
- Return-to-play protocols
DEFINITIONS

- A concussion is a traumatic brain injury that alters the way your brain functions.

Temporary change in the way the brain works or the way nerves talk to each other.
SYNONYMS OF A CONCUSSION

- Mild brain injury
- Mild traumatic brain injury (MTBI)
- Mild head injury (MHI)
- Minor head trauma
- “Ding”
- “Bell rung”

A concussion, no matter how mild it may seem at the time, is a brain injury.
HOW IT HAPPENS

• Caused by a direct blow to the head, face, neck or body with an “impulsive” force transmitted to the head

• Most concussions are not associated with a loss of consciousness
  - Less than 10 percent of athletes lose consciousness
EPIDEMIOLOGY

- Estimated 44 million children and adolescents participate in organized sports each year in the United States
- 1.6-3.8 million sport and recreation concussions in the United State annually
- ≈ 1.4 million emergency room visits
  - Nearly 500,000 of the kids are 0-14 years of age
EPIDEMIOLOGY

• Still **under-reported**

• No good injury tracking data for youth, individual and recreational sports
PREDICTING OUTCOME

- No health care provider can predict the outcome of a concussion at the time of the injury.

- A loss of consciousness is not directly correlated with a worse concussion.

- A concussion cannot be seen on a CT or MRI scan:
  - Imaging can rule out fractures, bleeds and more serious injuries.
SIGNS

Signs are things observed by coaches, teammates, friends, parents

- Appears dazed or stunned
- Shows mood, behavior, personality changes
- Is confused about assignment or position
- Forgets an instruction or play
- Is unsure of game, score or opponent
- Moves clumsily
- Answers questions slowly
- Can’t recall events *prior* to hit or fall
- Can’t recall events *after* hit or fall
- Loses consciousness
SYMPTOMS

Initial:
- Headache
- Dizziness
- Mental status disturbance
  - Mental clouding, confusion, feeling slowed down

First 24 hours:
- Headache
- Nausea
- Dizziness
- Balance problems
- Blurred vision
- Confusion
- Memory loss
- Fatigue

Days after:
- Tiredness
- Irritability
- Nervousness or anxiety
- Sleep disturbance
- Sensitivity to light or noise

Symptoms can fluctuate or relapse!
SYMPTOMS REPORTED BY ATHLETE

1. Headache or “pressure” in the head
2. Nausea or vomiting
3. Balance problems or dizziness
4. Double or blurry vision
5. Sensitivity to light
6. Sensitivity to noise
7. Confusion
8. Feeling sluggish, hazy, foggy or groggy
9. Concentration or memory problems
10. Does not “feel right” or is “feeling down”
Concussions can affect the way a student feels, thinks, expresses emotion and their level of sleep/energy.
EFFECTS OF A CONCUSSION

Usually temporary, but can include problems with:

- Headache
- Concentration
- Memory
- Judgment
- Balance
- Coordination
- Reaction time
- Sleep
- Mood
CONCUSSION RECOVERY FACTS

• Most concussive traumatic brain injuries are mild, and kids usually recover fully
  • 80-90 percent of concussions resolve in 1-3 weeks

• While recovering from a concussion, the student is extremely vulnerable and at high risk for further injury to the brain

• Once a student has sustained one concussion, they are at a 3-6X higher risk of sustaining another concussion
  • May occur with less force and result in a longer, more difficult recovery
INITIAL MANAGEMENT

- NO Same Day Return to Play!
  - Majority of concussions occur without loss of consciousness or frank neurological signs

- Athletes may try to hide symptoms to keep playing

- Concussion is an evolving process
  - May have delayed onset of symptoms
  - Onset of symptoms can be minutes to the following day
  - Change in temperature may affect symptoms

- Individuals with a concussion need time and rest to heal properly!
BRAIN REST

Rest is the essential component of concussion treatment!

Home
- No driving
- Enough sleep
  - Earlier bed times and naps
- Limit “stimulation”
  - Screen time
    - Phone, computer, TV, texting, gaming
  - Loud noises and lights
    - Parties/games/events/gatherings

Work
- No part-time jobs

Activity/Sports
- No gym class
- No contact
  - Includes friends/siblings
- No exertion
  - Lifting
  - Conditioning
- No sports
  - Practice
  - Games
SCHOOL

- Time out of school is encouraged initially or when symptomatic
- Return 1/4 to 1/2 day increments with core classes first
- Essential homework only
  - Homework should be limited to 15-30 minute increments
  - Avoid “make up work” or added assignments
- Extended time to complete assignments and take tests
- Preprinted notes, tutoring or study buddy
- Planned time/areas of rest (study hall or nurse’s office)
- Avoid loud classes/gathering areas
  - Hallways, lunch room, band/choir, shop or Tech Ed classes
- Avoid classes requiring computers or smart boards
- No gym class
INJURY MANAGEMENT

• Best to work as a team for care (teachers, coaches and parents)

• Physical symptom management
  • Medical intervention
  • Rest protocols
  • Therapeutic interventions
  • Monitoring sleep recovery

• Emotional symptom management

• Cognitive symptom management
  • Their primary job is to be a student!

  • Need to be **asymptomatic and full speed at school** before return to activities/sports
LISTEN, DAD, I KNOW YOU YELL BECAUSE YOU WANT ME TO DO WELL, BUT IT WOULD BE MUCH MORE HELPFUL IF YOU'D VICARIOUSLY RELIVE YOUR CHILDHOOD THROUGH MY MATH TESTS...
ON- AND OFF-FIELD EVALUATION
ON-FIELD EVALUATION

- Observe the scene for potential threats
- Orientation and positioning at the time of incident (fencing response, etc.)
- CPR – is it needed?

Look for signs that may suggest emergency situation
  - Bleeding from the ear/nose
  - Bruising behind the ear/around the eyes
  - Abnormal asymmetries
  - Unresponsiveness with bluish tint (face, digits)
UNRESPONSIVE

- Never move the individual until all signs of possible cervical spine injuries are ruled out
  - C3 nerve innervate diaphragm
- If cervical spine involved, stabilize the head until help arrives, monitor vitals
  - Never take off helmet/face mask or clothing (only medical professionals, CPR)
  - Extended loss of consciousness, loss of breathing or pulse, labored breathing = Activate EMS
**RESPONSIVE**

- Check awareness (name, date, etc.)
  - Ask questions that you know
  - Just talk to them!
- Memory (incident, score, days of week)
- Symptoms (headache, dizziness, nausea)
- Check for neck pain (numbness or weakness in the arms/hands) - if present do not move, activate EMS
• If no neck pain present, you may reposition them provided there aren’t other injuries present (fracture, muscle tear, etc.)

• Allow athlete to move slowly through repositioning (Sit up, kneel/take a knee, stand with support, free standing)
OFF-FIELD EVALUATION

• Never leave alone

• Check orientation, memory (antero/retro), memory recall, concentration
  • Months of the year in reverse order, recall repeated numbers in reverse, ask about the score again at time of incident
  • Alert to delayed or disoriented responses

• Check balance

• Pupil symmetry/asymmetry

• These are tools to monitor symptoms of concussion
What should I do after a concussion has been confirmed?

- **Contact parent or guardian**
- Remove from loud noises
- Do not place in a room alone (locker room, etc.)
- Do allow to rest in a room with low lighting
- Check for worsening of symptoms every five minutes (inability to respond, personality changes, mood changes)
  - Temperature may cause intensified symptoms
  - Team up with close friend, teacher, parent
- If worse... activate EMS/ER
- If stable... release to parents/guardian, should not drive home (allow responsible individual to transport)
WHEN TO REFER

• If you are not a licensed medical professional or one is not present
• Persistent symptoms (post-concussive symptoms)
• Diminished ability to concentrate, memorize or delay in cognitive abilities
• Sensitivity in regards to concussion
• Persistent neck pain
• Severe mood changes (behavioral changes) leading to depression or acts of violence

Froedtert & MCW Concussion Management Program

froedtert.com/concussion or 414-805-5005
WISCONSIN CONCUSSION LAW

The law requires **all youth athletic organizations** to educate coaches, athletes and parents on the risks of concussions and head injuries and prohibits participation in a youth activity until the athlete and parent or guardian has returned a **signed agreement** sheet indicating they have reviewed the concussion and head injury informational materials.
The law requires **immediate removal** of an individual from a youth athletic activity if symptoms indicate a **possible concussion** has been sustained. A person who has been removed from a youth athletic activity because of a determined or suspected concussion or head injury, **may not participate** again until he or she is evaluated by a health care provider and receives written clearance from the health care provider to return to the activity.

wiaawi.org and cdc.gov
 HOW MANY STATES WITH CONCUSSION LAW AND HOW LONG?

- Concussion law is present in all 50 states since February 2015 (cdc.gov)
- The law has been in effect since 2009
RETURN-TO-PLAY GUIDELINES

• Seven-day process (must take on full academic load, symptom free, medical clearance)

• Depending on severity, may take longer to recover (age, number of concussions, etc.)

• Two days of rest for symptoms to subside (no activity)

• 24-hour window between each step, if symptoms return—must not advance to next step
• Day 1 - Light exercise (15 minutes)
  • Bike, elliptical, Stairmaster

• Day 2 - Moderate exercise
  • Running/sprinting

• Day 3 - Begin non-contact drills
  • Build on conditioning

• Day 4 - Full contact practice
  • Make limitations as needed

• Day 5 - Full game play
THANK YOU!

HE'S STILL LEARNING THE GAME...

- HASN'T EVEN HAD HIS FIRST CONCUSSION!
Any Questions?