Concussion & EMS
RINGING OF THE BELL.

THE JOURNEY OF UNDERSTANDING, RECOGNIZING AND MANAGING CONCUSSION

NOT JUST A “STAND BY”

Edward M. Racht, M.D.
Chief Medical Officer
American Medical Response – AMR Medicine
Concussion strikes those we love
The silent personality thief
WILL SMITH

BASED ON A TRUE STORY

CONCUSSION

EVEN LEGENDS NEED A HERO
CHRISTMAS
TBI.

- Worldwide, TBI is the leading injury cause of death and permanent disability.
- 1.4 million cases of TBI present to emergency services every year in the US.
- 235,000 hospitalizations.
- 50,000 deaths.
- Blunt trauma alone kills 1% of those affected, but when a TBI is also involved, the mortality rate increases to 30%.
- 50% of those who die from TBI do so within the first two hours of injury.
Concussion...

- Derived from the Latin word *Concutere* – To shake violently
- A specific type of mild Traumatic Brain Injury (mTBI) that results in alteration of brain function even in the absence of LOC
Incidence

- According to the CDC, the annual estimate of concussion in the US is 1.6M-3.8M
- Top reported concussion sports (NCAA)
  - Football
  - Women’s Soccer
  - Women’s Basketball
  - Men’s Basketball
  - Men’s Soccer
  - Wrestling
Autopsy data

• Pro football players
  – Mike Webster
  – Frank Gifford
  – Fred McNeill

• Chronic Traumatic Encephalopathy (CTE)
  – A degenerative brain disease caused by repetitive trauma to the head
    • Memory loss
    • Depression
    • Dementia
Early in-theater management of combat-related traumatic brain injury: A prospective, observational study to identify opportunities for performance improvement (32,996 cases)

“Avoidance of secondary brain injury by optimizing oxygenation, ventilation, and cerebral perfusion is the primary goal in the contemporary care of moderate-to-severe CRTBI.

Ideally, this crucial care must begin as early as possible after injury”

Fang. J Trauma Acute Care Surg. 2015;00:
NFL Acknowledges a Link Between Football, CTE
Second-impact syndrome (SIS) occurs when the brain swells rapidly, and catastrophically, after a person suffers a second concussion before symptoms from an earlier one have subsided.

This second blow may occur minutes, days or weeks after an initial concussion, and even the mildest grade of concussion can lead to SIS.
NASCAR expands concussion protocol in latest push for driver safety

NASCAR's protocol, which applies to all three national touring series, includes the following guidelines:

Any driver whose car sustains damage from an accident or contact of any kind and goes behind the pit wall or to the garage is required to visit the Infield Care Center for evaluation.

The medical portion of NASCAR's Event Standards now require that Infield Care Center physicians incorporate the SCAT-3 diagnostic tool in screening for head injuries.

American Medical Response will provide on-site neurological consultative support at select NASCAR events during the 2017 season and will work directly with the sanctioning body in the continued development of concussion protocol.

Concussion procedures have come under increased scrutiny in the NFL and other professional sports in recent years. Drivers are certainly subject to head injuries; the sport's biggest star, Dale Earnhardt Jr., missed half of last season with concussion-like symptoms.

"NASCAR has worked very closely with the industry to ensure our concussion protocol reflects emerging best practices in this rapidly developing area of sports medicine," NASCAR senior vice president of racing operations Jim Cassidy said in a statement. "We will continue to utilize relationships we've had for years with leaders in the neurological research field who helped to shape these updates."

Earlier this month, NASCAR announced a partnership with American Medical Response that adds a doctor and paramedic to the existing on-site medical staff for each Monster Energy NASCAR Cup race weekend. The AMR doctor and paramedic, who would travel to every race, would help provide familiarity with competitors and their medical history.
## Signs & Symptoms
(As reported by the patient or noticed by others)

<table>
<thead>
<tr>
<th>Reported by Patient/Athlete</th>
<th>Observed by Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Headache or pressure in head</td>
<td>- Loss of consciousness (any)</td>
</tr>
<tr>
<td>- Double or blurry vision; seeing stars in peripheral vision</td>
<td>- Moves clumsily (altered coordination)</td>
</tr>
<tr>
<td>- Ringing in ears</td>
<td>- Exhibits balance problems</td>
</tr>
<tr>
<td>- Nausea or vomiting</td>
<td>- Less energetic</td>
</tr>
<tr>
<td>- Sensitivity to light or noise</td>
<td>- Pupil dilation</td>
</tr>
<tr>
<td>- Dizziness or balance problems</td>
<td>- Seizure activity</td>
</tr>
<tr>
<td>- Fatigue, drowsiness</td>
<td>- Slurred speech</td>
</tr>
<tr>
<td>- Numbness or tingling in face or extremities</td>
<td></td>
</tr>
</tbody>
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# Signs & Symptoms
(As reported by the patient or noticed by others)

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<thead>
<tr>
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<tr>
<td>• Concentration problems</td>
<td>• Appears dazed or stunned</td>
</tr>
<tr>
<td>• Memory deficits</td>
<td>• Is confused about assignment or position</td>
</tr>
<tr>
<td>• Confusion, mental fogginess</td>
<td>• Responds slowly to or cannot answer questions</td>
</tr>
<tr>
<td>• Difficulty focusing</td>
<td>• Forgets instructions/play strategies, events prior to or after the concussion</td>
</tr>
<tr>
<td></td>
<td>• Is unsure of game, score, or opponent</td>
</tr>
</tbody>
</table>
### Signs & Symptoms
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<tr>
<td>Depression</td>
<td>Changes in behavior, mood, or personality</td>
</tr>
<tr>
<td>Unusually irritable</td>
<td>Emotional outbursts</td>
</tr>
<tr>
<td>Nervousness</td>
<td>Sadness</td>
</tr>
<tr>
<td>More emotional than usual</td>
<td>Nervousness</td>
</tr>
</tbody>
</table>
SCAT 3

What is the SCAT 3?
The SCAT 3 is a standardized tool for evaluating ignited athletes for concussion and can be used at times of injury from 5 to 5 years after injury. It consists of the original SCAT and the SCAT 6 published in 2000 and 2008, respectively. It is designed to be used by medical professionals. If you are not qualified, please use the Concussion Assessment Tool (CAT) by the Concussion Recognition Education. The CAT is designed to be used in sports medicine. The SCAT 3 can be used by medical professionals, coaches, athletic trainers, therapists, and parents. Specific instructions for use of the SCAT 3 are presented in page 3. If you are not familiar with the CAT, please read through these instructions carefully. This tool should be used when there are no signs of concussion such as dizziness, nausea, vomiting, or loss of memory. The CAT should be used by medical professionals. The CAT should be used at least 10 times a week for testing the athlete’s condition. The CAT should be used by medical professionals. The CAT should be used at least 10 times a week for testing the athlete’s condition.

What is a concussion?
A concussion is a brain injury that occurs when a direct or indirect force is applied to the head or body. This can cause the brain to bruise or tear and lead to a variety of physical symptoms. Concussions are caused by or in combination with any of the above:

- Head trauma
- MVA
- Fall
- Blunt force, etc.

SIDELINE ASSESSMENT

Indications for Emergency Management

1. Any injury that results in unconsciousness, severe headache, or vomiting
2. Any condition that causes the athlete to lose consciousness
3. Any athlete who is unable to perform their normal activities
4. Any athlete who is unable to perform their normal activities
5. Any athlete who is unable to perform their normal activities
6. Any athlete who is unable to perform their normal activities
7. Any athlete who is unable to perform their normal activities
8. Any athlete who is unable to perform their normal activities
9. Any athlete who is unable to perform their normal activities
10. Any athlete who is unable to perform their normal activities

Potential signs of concussion:

- Any athlete who is unable to perform their normal activities
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Glasgow Coma Scale (GCS)

- Eye opening
- Speech
- Motor response

Maddocks Score

- Eye opening
- Speech
- Motor response

Notes: Mechanism of Injury

Any athlete with a suspected concussion should be removed from further activity and should be evaluated by a medical professional. If the athlete is able to walk and run, the athlete should be allowed to return to sports participation on the day of injury.
Evolving technology
Crash Sensor

$149.00

The ICEdot Crash Sensor detects major head impacts and notifies your emergency contacts if you are unresponsive. Peace of mind for the solo...
At the end of this countdown, your emergency contacts will be notified.

JANE WORTHINGTON

Jane Worthington. Female, 57.

location

Incident
KEEP YOUR HEAD IN THE GAME.

In sports, impacts are part of the game. CHECKLIGHT™ alerts athletes and coaches to their severity.

Buy Now

FOR ALL SPORTS AND LEVELS OF PLAY WHERE CONTACT OCCURS

MOTO  CYCLING  SNOW
# 1 requested technology?
Medical clearance for return to play is typically determined by specialists who are competent in administering and interpreting highly sensitive computer based assessments.

*EMS should not routinely recommend return to play.*
Concussion for EMS

*The new journey*...

- We have become comfortable with informal assessment
- Routine “stand bys” have significant potential
- Assessment tools include consistent neuro examination, scoring and evolving bedside tests
- Critical importance of Second Impact Syndrome
- Concussion is a continuum
Thanks...

I've got a concussion, but my head is still attached to my neck.

So I got that going for me, which is nice.
"Now don't forget, Gorok! . . . This time punch some holes in the lid!"