2009 Concussion Update

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Concussions: The Problem

• We now realize that concussions occur more often than previously thought
• Young athletes are at risk for serious short-term and long-term problems
• There is much variation in the knowledge of Health Care Providers managing concussed athletes
• New and emerging technologies will lead to a continuing evolution of care

Increasing Exposure of the Problem

• High profile athletes with severe or career ending injuries
  – Steve Young
  – Troy Aikman
  – Trent Green
• ESPN and Sports Illustrated frequently cover the issue—not always very well
  – Highlights of hits
  – Features in print and television
Concussions: Extent of the Problem

- Like all problems in sports—what is seen in NFL and NHL only a small part of the problem
- Much more common in high school than any other level—due to large number of participants

New in Oregon in 2008-9

- State-wide concussion management program involving all high schools
  - Establish state-wide physician network
  - Uniform evaluation and management protocol
  - Consultation service for coaches, athletes, parents, and physicians
  - ImpACT baseline recommended for contact and collision sport athletes: www.impacttest.com

What is a Concussion?

- A concussion is a mild traumatic brain injury
- Evolving knowledge—“dings” and “bell ringers” are brain injuries—no such thing as a mild concussion
- Loss of consciousness is not common in concussion
Concussions

- Estimated 300,000-3 million sports-related head injuries in high school athletes yearly
- 9% of all sports injuries
- 678-6000 head-injuries in Oregon HS athletes in 2004-5 based on OSAA participation stats

Concussions

Not Just a Football Problem…

Injury rate per 1000 exposures:
- Football: 0.44
- Girls soccer: 0.35
- Girls basketball: 0.24
- Boys soccer: 0.73

Most injuries occur in football players due to the large number of participants

Concussion

- Symptoms are variable for each individual in terms of type, intensity and duration
- Classified into somatic (HA, dizzy), Neuropsych (agitated, quiet, depressed), cognitive (memory, processing)
- Cumulative impairment can occur
Second Impact Syndrome

- Injury before recovery from the previous head injury
- May cause brain swelling from loss of normal control of brain blood flow
  - Rare but deadly, more common in teenagers
- Prevention is the key……
  - Do not return to play too early

Concussions: New Science

- Research indicates that HS athletes with less than 15 min of on-field symptoms exhibit deficits on formal neuropsychologic testing and re-emergence of active symptoms, lasting up to one week post-injury.
- Symptoms often return with exertion
- Suggests we are returning athletes too early

<table>
<thead>
<tr>
<th>TABLE 4. Percentage of Players Reporting Symptoms after Mild Head Injury</th>
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</tr>
<tr>
<td>Headache</td>
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<td>Memory</td>
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<td>Dizziness</td>
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* *P < 0.0001.
Neuropsychologic testing
ImpAct Testing

- Standardized, computerized, validated
  - Memory, attention, processing speed
- Consider pre- and post- concussion
- Documents subtle impairments
- 60-70% correlation with symptoms
- Worse at 48hrs and recovers 1-4 weeks
Concussions: New Guidelines

SUMMARY AND AGREEMENT STATEMENT OF THE 2ND INTERNATIONAL CONFERENCE ON CONCUSSION IN SPORT, PRAGUE 2004

NEW CONCUSSION GUIDELINES

1. No Same Day Return to Play
2. Return to Play Recommendations
   *approximately one week out*

Symptoms fully resolved

- and -
Complete a structured, graded exertion protocol over approximately 5-7 days without symptoms
Sport Concussion Assessment Tool (SCAT)

www.newamssm.org/Public.html
Concussions: Return to Play
A Step-wise symptom limited program

1. Rest until asymptomatic (physical, mental)
2. Light aerobic exercise (exercise bike)
3. Sport-specific exercise
4. Non-contact training drills (wt lifting or sleds)
5. Full contact training (after medical clearance)
6. Return to competition (game play)

Each stage is about 24 hrs or longer
and return to stage one if symptoms reoccur
ImPACT Computer testing

- Post-Concussion Assessment and Cognitive Testing
  - Computerized Neurocognitive Testing
  - Available on-line. Cost of <$400 per school on average
- Used extensively in professional, collegiate, and high school athletes
  - Vast majority of NFL and NHL teams
  - Has received significant media attention
- Athletes receive “baseline” testing prior to the start of the sports season
  - Should be done at least every other year

Oregon Concussion Awareness and Management Program.
www.impacttest.com/pdf/OCAMP.doc

School Size and pricing: a substantial savings over their regular charge
- This price package and requires a 3 year commitment from each school.
  - 1A/2A- Package #1 $350/yr- 150 baseline tests/30 post tests
  - 3A/4A- Package #2 $400/yr- 300 baseline tests/60 post tests
  - 5A/6A- Package #3 $450/yr- 600 baseline tests/90 post tests
  - Additional baselines $2 and post tests $10.

ImPACT and RTP decisions

- Assesses 6 domains of brain function:
  - Attention span
  - Working memory
  - Sustained and selective attention times
- Compare post-injury score on test battery to pre-injury baseline. www.impacttest.com
- Not a perfect tool and not to be used in the absence of an experienced and knowledgeable physician. May incorrectly diagnose 10% of those tested.
Return to Play considerations

- All symptoms need to resolve
  - This includes HA, especially
  - Follow symptom log
- Neurocognitive score may normalize before or after symptoms resolve
- If symptoms recur with exercise, school, work or play: remove/modify
- See CDC “HEADS UP” tool kit for other details: www.cdc.gov/ncipc/tbi/Coaches_Tool_Kit.htm

New Concussion Guidelines

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Concussion

Final thoughts….

- Be alert for subtle symptoms
- Physical/ cognitive rest and limit contact for about one week and transition back to play
- Consider use of neuropsych testing
  - Document baseline, deficits and improvement
- Be aware of cumulative trauma and risk for permanent damage
- Use padding to your advantage!
The Goal

- State-wide concussion management program involving all high schools
  - Establish state-wide physician network
  - Uniform evaluation and management protocol
  - Consultation service for coaches, athletes, parents, and physicians
  - ImPACT testing available for all contact and collision sport athletes

How do we achieve our goals?

- What happens when coaches and other members of the Sports Medicine Team work together to promote safety and injury prevention?

Episodes of Permanent Paralysis in Football

1976 – implementation of NCAA/High School rule changes and using coaching techniques eliminating the head as a battering ram
Episodes of Permanent Paralysis in Football

1987-1989 – gradual increase in permanent quadriplegia

1991 – distribution of video “Prevent Paralysis: Don’t Hit with your Head” and release of educational poster “Play Heads-Up Football”

Concussions: The Plan

Three Tiers of Education

- Medical Professionals
  - Chiropractors
  - Paramedics/EMT’s
- Educators
  - Athletic Directors
  - Coaches
  - Principals/Administrators
  - Counselors
- Community
  - Parents/Athletes
  - School Boards
Concussions: The Plan

Identify Regional Leaders
- Portland: OHSU
- Eugene: Slocum
- Bend: The Center

- Each will “oversee” programs at the “satellite” sites and help local doctors care for their own athletes

Concussions: Regional Presentations

- Teams will carry out presentations throughout the state in late Spring and early Fall 2008
- State meetings of multiple associations
- Portland
  - Hillsboro
  - Gresham
  - Wilsonville
  - Astoria
- Eugene
  - Corvallis
  - Salem
  - Roseburg
  - Medford
- Bend
  - Ontario
  - La Grande
  - John Day
  - Hermiston
  - Klamath Falls
  - The Dalles

Multimedia Campaign

- Presentations at each site
- PowerPoint available to anyone who asks
- Brochures
- Webcasts of presentations
- Podcasts available
- Local and regional television, radio, and newspaper
- Website- Link through OSAA or our own site
What We Need from You!!

• Support
  – Organizational
  – Individual
• Access to membership
  – Present program at meetings
  – E-mail addresses, newsletters, direct mailings, etc
• Feedback
  – Is the educational component working?
  – What should we change in our approach?
  – Does the program need changes/adjustments?

Conclusion

• The opportunity presents itself for us to establish a program which can:
  – Maximize the health and safety of our athletes
  – Minimize worry and liability for our coaches and administrators
  – Provide a model for other western states to emulate