LEND Capstone

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Youth Concussion Management
Rest vs light activity

- Personal journey/significance
- Literature Review (no IRB) dual credit PT program
- Acknowledgements
  - Sandra Heimerl, PT
  - Tiffany Enache, PT
- https://www.youtube.com/watch?v=NzD KJPLR9Hs
In the United States alone, 1.6 to 3.8 million individuals experience a sport-related concussion, or minor traumatic brain injury, every year.

Concussion

Representing 8.9% of all high school athletic injuries
TBI is a leading cause of death and disability

NORMAL AXON

SHEARING OF AXON

POST-TRAUMA CONDITION

Myelin sheath

Axon

Cell body

Nucleus in cell body

Forces applied to brain cause axons to twist and tear

Neuronal (brain cell) death results
In a national survey of 2,2012 American adults

- 9/10 respondents couldn’t identify a concussion correctly
- 9/10 consider it a moderate to severe health concern
- 32% of parents live ‘in fear’ that their child will sustain a concussion
- 1/4 parents forbid their children to play contact sports because of this fear
## Concussion Symptoms (PCS)

<table>
<thead>
<tr>
<th>Physical</th>
<th>Psychosocial</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Balance and vision changes</td>
<td>• Depression / Sadness</td>
</tr>
<tr>
<td>• Migraines/headache</td>
<td>• Emotional stress</td>
</tr>
<tr>
<td>• Pain in neck and shoulders</td>
<td>• Anxiety, irritability</td>
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<tr>
<td>• Cognitive changes</td>
<td>• Decreased self-image</td>
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<tr>
<td>• Poor concentration</td>
<td>• Disruption from school</td>
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Background

- WHO guidelines
  - Cognitive Rest
    - Attention, memory, concentration (schoolwork, video games, phone use)
  - Physical Rest
    - Avoid heavy lifting, housecleaning, working-out
    - Avoid sport activity or re-injury possibilities

- Side-lining adolescents until the point of being asymptomatic

- Lack of evidence/ rat research
  - Review body of evidence
**Methods:**

|-------------------|-----------------------------------------------------------------------------|

- **P**
  - Patient

- **I**
  - Intervention

- **C**
  - Comparison

- **O**
  - Outcomes

- Adolescents age 12-20 post acute concussion

  - Light activity
  - Absolute rest

  - Duration/severity of symptoms
    - Performance on neurocognitive testing
     - IMPACT
Results

- 8 studies, 7 retrospective studies, 1 literature review
  - Medical charts, self-reports activity and self reported symptoms
- imPACT and symptom severity scale
  - Balance
  - Reaction time
  - Verbal and visual memory and learning
  - Speed of information processed
Results

- Absolute rest did not show better outcomes
- Too much (moderate-heavy) activity is worse for outcomes
- 2 studies showed rest rx showed prolonged symptoms (>30 days)
- Light activity (jogging, walking) to symptom threshold showed faster recovery
- Concussion recovery is gendered
  - Females prolonged recovery
Summary

Conservative recommendations

• 1-2 days rest
• Initiation of light activity
• Personal opinions on graded return to play
• Bans on headers in certain age ranges
“We need to get the message out, that exertion—provided it's very well gauged, very well monitored, and injected at the proper sequence of the recovery phase—can play a key role in returning people who've been concussed to full participation in their daily lives.”

Tim Rylander, PT
Relevance to LEND & learning experience

- Staying updated on current literature, questioning current best practice
- Role of clinicians in patient advocacy
- Roles/responsibilities in multi-disciplinary team


