IMPROVING CONCUSSION AWARENESS AND CARE IN YOUR COMMUNITY

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Director, Therapy & Wellness
Rainy Lake Medical Center
International Falls, MN
OBJECTIVES

- To share my experience of developing a Concussion Management Program in a rural setting.
- To provide a template to others in underserved communities on how they can initiate or improve their own Concussion Management Program.
- To offer suggestions to others on how they can educate their own community about concussions.
I have no financial disclosures.
MY COMMUNITY

International Falls Welcomes You

MINNE"SNO"TA
ROUNDABOUT
HEALTH CARE IN I. FALLS
CONCUSSION PREVALENCE

- Very common – as many as 3.8 million concussions each year in the U.S.

- Very commonly undiagnosed
MY STORY

- High School and College Hockey
- ATC
- PT
CONCUSSION STORIES IN I. FALLS

- Hockey Coaches
- Football Coach
- Physician
MY COMMUNITY = UNDERSERVED

- Obvious lack of training for coaches and parents
- Medical system that struggled to care for athletes with concussion
Two goals:

- Educate community
  - Especially coaches, parents, other health care providers

- Improve quality of local concussion care
EDUCATING THE COMMUNITY

- Evidence-based message
  - Concussions happen frequently and are frequently undiagnosed.
  - We need to take concussions seriously.
  - Trying to play through concussion symptoms is a bad idea
    - Can lead to PCS or other long-term problems
  - Helmets and mouthguards have minimal effect on concussion risk

MOST IMPORTANTLY...

- When in doubt, sit them out, and get them checked out.
**EDUCATING COMMUNITY**

- Concussion Education Night – Meet with AD, coaches, parents
- Meet with other health care providers
- EMT training
- Education at local youth athletic events
- Providing sideline coverage as an athletic trainer
- Social media – articles on Facebook, RLMC website
- Concussion articles in local paper
- Advertisement – radio, newspaper, etc.
- Local Television station
Founded in International Falls in 2012.
  - Falls High School athletes
  - Junior high and recreational athletes

- Expanding to include Littlefork-Big Falls High School in 2013.
- Expanded to include Fort Frances Lakers of the SIJHL in 2015.
BENEFITS OF A SMALL STAFF

- More consistency in the care that's being provided
- Players see the same health care provider throughout the process
  - Improved *therapeutic alliance*
- Build meaningful relationships with coaches, athletic director, teachers, parents, etc.
CONCUSSION MANAGEMENT PROGRAM: OVERVIEW

- All players in contact sports get baseline tested during pre-season with ImPACT
  - Football, hockey, basketball, diving in our town
  - Non-contact sports can still be treated using normative data

- Coaches are educated: When in doubt, sit them out, get them checked out

- Following possible concussion, evaluation in 1-3 days by PT/ATC
  - History and physical examination
  - Re-take ImPACT test
  - Plan recovery
BENEFITS OF IMPACT TEST

- Increases compliance among players, coaches, parents
- Baseline session is a great opportunity to provide additional education
- Gives you additional objective data to go along with subjective
- Harder to hide symptoms
- *Note: It is only one piece of a concussion evaluation.*
# ImPACT® Clinical Report

**WYATT LAVIGNE**

<table>
<thead>
<tr>
<th>Information</th>
<th>Details</th>
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<tbody>
<tr>
<td>Organization</td>
<td>International Falls High School</td>
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<tr>
<td>Date of Birth</td>
<td>07/17/1986</td>
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<tr>
<td>Gender</td>
<td>Male</td>
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<td>Handedness</td>
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<td>Weight</td>
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<td>Native Language</td>
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<td>Years of education completed</td>
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<td>Received speech therapy</td>
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<tr>
<td>Attended special education classes</td>
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<tr>
<td>Current sport</td>
<td>X-Country</td>
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<tr>
<td>Primary position</td>
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</tr>
<tr>
<td>Years experience at this level</td>
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<tr>
<td>Number of times diagnosed with concussion</td>
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<tr>
<td>Concussions that resulted in loss of consciousness</td>
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<tr>
<td>Concussions that resulted in confusion</td>
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<tr>
<td>Concussions that resulted in difficulty remembering events that occurred immediately after injury</td>
<td>2</td>
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<tr>
<td>Concussions that resulted in difficulty remembering events that occurred</td>
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<tr>
<td>Total games missed as a result of all concussions combined</td>
<td>2</td>
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<tr>
<td>Treatment for headaches</td>
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<tr>
<td>Treatment for migraines</td>
<td>No</td>
</tr>
<tr>
<td>Treatment for epilepsy/ seizures</td>
<td>No</td>
</tr>
<tr>
<td>Treatment for brain surgery</td>
<td>No</td>
</tr>
<tr>
<td>History of meningitis</td>
<td>No</td>
</tr>
<tr>
<td>Treatment for substance/alcohol abuse</td>
<td>No</td>
</tr>
<tr>
<td>Treatment for psychiatric condition (depression, anxiety)</td>
<td>No</td>
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</tbody>
</table>
# ImPACT® Clinical Report

**Wyatt Lavigne**

<table>
<thead>
<tr>
<th>Exam Type</th>
<th>Baseline</th>
<th>Post-Injury 1</th>
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<tbody>
<tr>
<td>Date Tested</td>
<td>08/09/2013</td>
<td>09/10/2013</td>
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<tr>
<td>Last Concussion</td>
<td>02/07/2006</td>
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<td>Exam Language</td>
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<td>Test Version</td>
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### Composite Scores

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<tr>
<th>Component</th>
<th>Percentile 50</th>
<th>Percentile 90</th>
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<tbody>
<tr>
<td>Memory composite (verbal)</td>
<td>83</td>
<td>90</td>
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<tr>
<td>Memory composite (visual)</td>
<td>82</td>
<td>95</td>
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<tr>
<td>Visual motor speed composite</td>
<td>46.03</td>
<td>41.6</td>
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<tr>
<td>Reaction time composite</td>
<td>0.58</td>
<td>0.59</td>
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<tr>
<td>Impulse control composite</td>
<td>1</td>
<td>2</td>
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<tr>
<td>Total Symptom Score</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Cognitive Efficiency Index

- Reaction time (in seconds) on the Symbol Match Test: 0.5
- Reaction time percentile: 0.44

This score was not developed to make return to play decisions but can be helpful in determining the extent to which the athlete tried to work very fast on symbol match (decreasing accuracy) or attempted to improve their accuracy by taking a more deliberate and slow approach (jeopardizing speed). The range of scores is from approximately zero to approximately .70 with a mean of .34. A higher score indicates that the athlete did well in both the speed and memory domains on the symbol match test. A low score (below .20) means that they performed poorly on both the speed and accuracy component. If this score is a negative number, the test taker performed very poorly on the reaction time component.

### Additional Information

- Hours slept last night: 8.5 7.5
- Medication:  

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The information provided by this report should be viewed as only one source of information regarding an individual's level of [neurocognitive] functioning. Even though ImPACT is based on demonstrated scientific principles and research, external factors such as improper test administration or improper test taking environment may result in inaccurate test results. These factors and others must be considered in making return-to-play decisions. The information provided by this report is of a general nature and does not represent medical advice, a diagnosis, or prescription for treatment. Additionally, diagnostic or return to play decisions should not be based solely on the data generated by this report, but on an in-person evaluation made by a professional trained in concussion management in accordance with usual and standard medical practices. An individual suspected of suffering traumatic brain injury or concussion should immediately seek the advice of a qualified and trained professional for interpretation of test results and should be reevaluated prior to return to play.
<table>
<thead>
<tr>
<th>Symptom</th>
<th>Counted</th>
<th>Correct</th>
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<tbody>
<tr>
<td>Headache</td>
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<tr>
<td>Nausea</td>
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<td>0</td>
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<tr>
<td>Vomiting</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Balance Problems</td>
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<td>0</td>
</tr>
<tr>
<td>Dizziness</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Fatigue</td>
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<td>Trouble falling asleep</td>
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<td>Sleeping more than usual</td>
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<td>Sleeping less than usual</td>
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<tr>
<td>Drowsiness</td>
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<tr>
<td>Sensitivity to light</td>
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<tr>
<td>Sensitivity to noise</td>
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<tr>
<td>Irritability</td>
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<tr>
<td>Sadness</td>
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<tr>
<td>Nervousness</td>
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<tr>
<td>Feeling more emotional</td>
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<tr>
<td>Numbness or tingling</td>
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<td>0</td>
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<tr>
<td>Feeling slowed down</td>
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<td>0</td>
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<tr>
<td>Feeling mentally foggy</td>
<td>0</td>
<td>1</td>
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<tr>
<td>Difficulty concentrating</td>
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<td>1</td>
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<tr>
<td>Difficulty remembering</td>
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<td>0</td>
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<tr>
<td>Visual problems</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total Symptom Score</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
CONCUSSION CARE

- Relative rest
- Return to learn
- Gradual return to sport protocol
- MSHSL guidelines

3. https://www.cdc.gov/headsup/providers/return_to_activities.html
RELATIVE REST

VS
RETURN TO LEARN

- American Academy of Pediatrics Guidelines
  - 30 minutes of concentration
  - \( \frac{1}{2} \) days progressing to full days
- Accommodations
  - Gym
  - Music class
  - Breaks
  - Testing environment
  - Etc.
1. No activity, rest until all symptoms have resolved. Once asymptomatic, proceed to level 2.

2. Light aerobic exercise such as walking or stationary cycling, no resistance training.

3. Sport specific exercise—for example, skating in hockey, running in soccer; progressive addition of resistance training at steps 3 or 4.

4. Non-contact training drills.

5. Full contact training.

6. Game play.
COMMUNICATION IS KEY!

- Conversation, text, e-mail, phone calls between:
  - Athletes
  - Parents
  - Coaches
  - Teachers
  - Doctors
  - Etc.
POST-CONCUSSION SYNDROME

"I just know" —

- Systematic reviews
- Randomised controlled trials
- Cohort studies
- Case-control studies
- Case series, case reports
- Editorials, expert opinion

Figure 1. Levels of evidence
PCS

- **Sub-symptom aerobic exercise**

- **Vestibular therapy**
  - [http://www.sportsconcussion.co.za/Research/Pharmacological%20Treatment/Vestibular-Rehabilitation-Dizziness-Balance.pdf](http://www.sportsconcussion.co.za/Research/Pharmacological%20Treatment/Vestibular-Rehabilitation-Dizziness-Balance.pdf) Education

- **Referral**

- **Time**
UNPUBLISHED OUTCOMES

- Approximately 95% of patients have successfully RTS within 2-4 weeks without subsequent concussion in short or intermediate term
- Approximately 3% have suffered second concussion within 1 month of return
- Approximately 2% have suffered Post-Concussion Syndrome
KEYS TO SUCCESS (IMHO)

- Trying to be as evidence-based as possible
  - Stay as current as you can
  - Adapt with evidence

- Strong therapeutic alliance through compassion, communication, and building relationships
YOUR COMMUNITY
FIRST STEP

- Assessment: What’s existing in your community?
  - Education?
  - Care?
WHAT IS NEEDED TO PROVIDE CONCUSSION EDUCATION?

- A passionate and persistent individual, even if you’re not a health care provider
- A simple, concise message
- A creative and pragmatic approach
  - Networking

- If your message can reach one person, it’s worth it
RESOURCES

- https://www.cdc.gov/headsup/index.html
- MSHSL concussion
- Impacttest.com
- USA Hockey Concussion
NETWORKING

- School districts are typically eager to support this kind of program
  - Start by talking with AD
  - Coaches
  - Parents
  - Players
- Health care facilities
- Local newspaper, radio, etc.
NEEDS FOR CONCUSSION MANAGEMENT PROGRAM

- A Health Care Provider to coordinate it
- If you use neurocognitive testing:
  - Training (impacttest.com)
  - A little $$$ (subscription for our school is ~$600/year).
  - A computer lab to perform baseline testing
  - A quiet room with a computer for health care provider to do follow-up appointments
- Sideline coverage at games is very valuable
- Education to coaches, parents, players about when to refer
IF FUNDING IS NEEDED...

- School district
- Health care facilities
- Booster clubs
- “Old Timer’s” tournaments
- Local businesses
IMPROVING CONCUSSION CARE

- Questions, help, ideas, etc.
- Dr. Wyatt LaVigne, PT, DPT, ATC
- wlavigne@rainylakemedical.com
- (218)283-5444
UNLESS someone like you cares a whole awful lot, nothing is going to get better. It's not. —*The Lorax*