

## Ice Hockey Summit III: Action on Concussion

Location: Phillips Hall, Siebens Building, Mayo Clinic, Rochester, MN 55905  
September 28 and 29<sup>th</sup>, 2017

Co-Directors: Aynsley M. Smith, RN, PhD and Michael J. Stuart, MD

	<b>THURSDAY SEPTEMBER 28, 2017</b>
<b>7:00-7:30 am</b>	Registration and Continental Breakfast
<b>7:30-7:40 am</b>	Welcome, Introduction of Supporting Organizations, Announcements and Objectives  Aynsley Smith, RN, PhD and Michael Stuart, MD
<b>7:40-7:45 am</b>	<b>Pre-Summit Test Questions</b>
<b>Session #1</b>	<b>Epidemiology of Concussions in Hockey</b>
<b>Learner Objectives</b>	<ol style="list-style-type: none"> <li>1. Appraise the epidemiology of concussion literature according to specified measures and rigor.</li> <li>2. Interpret the relationship between head accelerations in hockey and concussion symptoms.</li> <li>3. Describe how video reconstruction determines head accelerations in the absence of accelerometers.</li> <li>4. Predict which hockey players are at greatest risk for concussion and why?</li> </ol>
<b>7:45-8:00 am</b>	Hockey Concussion Across Levels of Participation: Epidemiologic Facts Brian Benson, MD, PhD
<b>8:00-8:15 am</b>	The Biomechanics of Head Impact: Lessons from Helmet Sensors Rick Greenwald, PhD
<b>8:15-8:30 am</b>	Connecting Impact Events to Head Acceleration and Brain Tissue Strains for Concussion in Ice Hockey Anna Oeur, PhD Candidate
<b>8:30-8:45 am</b>	Which Hockey Players are at Greatest Risk and Why? Diane Wiese-Bjornstal, PhD
<b>8:45-9:00 am</b>	<b>Discussion</b>

Session #2	Prevention of Concussion
<b>Learner Objectives</b>	<ol style="list-style-type: none"> <li>1. Examine how anticipation, strength, and concussion history interact to affect concussion risk.</li> <li>2. Explain the supporting evidence for “no body checking” in PeeWee leagues and “optimal checking” for Bantam players.</li> <li>3. Interpret how Fair Play can reduce concussion risk in league and tournament play.</li> <li>4. Analyze influences of player contracts, fighting, and concussions on pending litigation in the NHL.</li> </ol>
<b>9:00-9:15 am</b>	Individual Player Prevention: Anticipation, Strength, and Concussion History Jason Mihalik, PhD
<b>9:15-9:30 am</b>	Evidence Informed Body Checking Policy in Youth Hockey: Where We Have Been and Where We Are Going? Amanda Black, PhD
<b>9:30-9:45 am</b>	Fair Play in Regular Season and Tournaments: Disqualifying Teams and Other Challenges Kyle Farrell, BSc
<b>9:45-10:00 am</b>	Can Financial Concerns and Pending Litigation Reduce Concussions in Pro Hockey? Matthew Hanzel, JD
<b>10:00-10:15 am</b>	<b>Discussion</b>
<b>10:15-10:35 am</b>	<b>Break</b>
Session #3	Diagnosing Concussion: What We Know and Don't Know
<b>Learner Objectives</b>	<ol style="list-style-type: none"> <li>1. Summarize the brain's neurometabolic response to concussion.</li> <li>2. Describe the art and science of concussion detection at rink-side.</li> <li>3. Interpret data in Junior A hockey in the context of an Objective Diagnosis of Concussion.</li> <li>4. Apply IIHF concussion diagnosis concepts to point of care and return to play.</li> <li>5. Discuss the diagnosis of concussion and quantification of severity in a medical setting.</li> <li>6. Determine if concussed athletes are at greater risk of lower body injury compared to non-concussed players.</li> </ol>
<b>10:35-10:50 am</b>	The Brain's Response to Concussive Events: Updates on the Neurometabolic Cascade Christopher Giza, MD
<b>10:50-11:05 am</b>	Rink-side Concussion Detection in Hockey by an Experienced Athletic Trainer Kristen Greek, ATR, ATC

<b>11:05-11:20 am</b>	Establishing the Objective Diagnosis of Concussion in Jr A Hockey: A Two Year Study Janelle K Jorgensen, MSc Eng. Student
<b>11:20-11:35 am</b>	Applying the 5 <sup>th</sup> International Consensus Conference on Concussion in Sport to Ice Hockey Mark Aubry, MD
<b>11:35-11:50 am</b>	Diagnosing Concussions and Determining Severity in a Medical Setting David Dodick, MD
<b>11:50-12:05 pm</b>	Diagnosing Post Concussion Lower Body Injuries Alison Brooks, MD
<b>12:05-12:20 pm</b>	<b>Discussion</b>
<b>12:20-12:35 pm</b>	<b>Box Lunches</b>
<b>12:35-12:50 pm</b>	The Price to Pay for a Stanley Cup: The Ups and Downs of a Successful Career* Shjon Podein *No Credit Offered for This Session
<b>12:50-1:00 pm</b>	Questions and Answers Shjon Podein *No Credit Offered for This Session
<b>Session # 4</b>	<b>Delving into Diagnostic Measures</b>
<b>Learner Objectives</b>	<ol style="list-style-type: none"> <li>1. Explain the principles of video reconstruction and its role in concussions.</li> <li>2. Describe mTBI advanced imaging methods, results, timing and cost.</li> <li>3. Determine the role of qEEG and brain vital signs in concussion diagnosis, monitoring, and return to play.</li> <li>4. Discuss Metabolomic Profiling in identifying concussion in adolescent hockey players.</li> <li>5. Conclude why SNTF is a promising test to diagnose concussion.</li> <li>6. Determine the role of the King Devick Test in concussion diagnosis, monitoring, and return of play.</li> </ol>
<b>1:00-1:15 pm</b>	Understanding the Risk of Concussion in Ice Hockey Using Video Reconstruction Blaine Hoshizaki, PhD
<b>1:15-1:30 pm</b>	Concussion Neuroimaging – Its Utility, Feasibility, and Economics John Huston III, MD
<b>1:30-1:45 pm</b>	Quantitative EEG – Role in Concussive and Sub Concussive Impacts: Diagnosing, Detecting Severity, and Ready for POC? Ryan D’Arcy, PhD

<b>1:45-2:00 pm</b>	Metabolomic Profiling in Hockey – Role in Concussion Diagnosis and Detecting Severity. Ready for POC? Douglas Fraser, MD, PhD
<b>2:00-2:15 pm</b>	SNTF – Role in Concussion Diagnosis and Detecting Severity. Ready for POC? Robert Siman, PhD
<b>2:15-2:30 pm</b>	King Devick – Role in Concussion Diagnosis and Detecting Severity. Jennifer Wethe, PhD
<b>2:30-2:45 pm</b>	<b>Discussion</b>
<b>2:45-3:05 pm</b>	<b>Break</b>
<b>Session #5</b>	<b>Expert Panel Ideas for Action on Concussion</b>
<b>Learner Objectives</b>	<ol style="list-style-type: none"> <li>1. Prioritize action to best prevent, diagnose, treat and return athletes to hockey.</li> <li>2. Suggest strategies for health care providers to expedite diagnoses, determine severity, treat symptoms, and prevent recurrence. Describe conflicts of interest that coaches, general managers, and officials face when players suffer a concussion.</li> <li>3. Contrast as appropriate for each of your roles: concussion causation, magnitude of financial loss, impact on team confidence, player susceptibility, and potential litigation risk.</li> </ol>
<b>3:05-3:35 pm</b>	<b>Panel A- Three Hockey Players with a Concussion History will Provide Ideas for Potential Solutions</b> Mike Eaves, Ben Eaves, Michael B. Stuart <b>Moderators: Jon Finnoff, DO and Aynsley Smith, RN, PhD</b>
<b>3:35-4:05 pm</b>	<b>Panel B - Hockey Medical Providers with Concussion Expertise will Provide Ideas for Potential Solutions</b> Michael J. Stuart, MD, Brian Benson, MD, PhD, and Chad Eickhoff, MSc, ATC, ATR <b>Moderators: Bill Roberts, MD and Chip Burke, MD</b>
<b>4:05-4:35 pm</b>	<b>Panel C – Coach, Official, and Former NHL Player Will Provide Ideas for Potential Solutions</b> Matt Leaf (Director, Officiating Education Program, USA Hockey), Mark Tabrum (Director, Coaching Education Program, USA Hockey), Jordan Leopold (Former NHL Player) <b>Moderators: Jim Whitehead, ACSM &amp; Michael Joyner, MD</b>
<b>4:35-4:50 pm</b>	<b>Discussion</b>
<b>4:50-5:20 pm</b>	Action Items for Day 2 Voting Aynsley Smith, RN, PhD Michael Stuart, MD
<b>5:20 pm</b>	<b>Adjourn to Posters, Tours and Reception</b>

	<b>FRIDAY SEPTEMBER 29, 2017</b>
<b>7:00-7:30 am</b>	<b>Continental Buffet Breakfast and Announcements for Day 2</b>
<b>Session #6</b>	<b>Taking New Science Forward: From Bench to Rink-side</b>
<b>Learner Objectives</b>	<ol style="list-style-type: none"> <li>1. Establish the “in vitro” neuronal response to head trauma as a primer to treatment.</li> <li>2. Discuss the neuronal response to known hockey accelerations in an “in vivo” large animal study.</li> </ol>
<b>7:30-7:45 am</b>	In Vitro Models for Brain Injury <span style="float: right;">Patrick Alford, PhD</span>
<b>7:45-8:00 am</b>	Using Known Hockey Accelerations to Examine a Large Animal Behavioral Model <span style="float: right;">Susan Margulies, PhD</span>
<b>Session #7</b>	<b>Treating Concussions in Ice Hockey</b>
<b>Learner Objectives</b>	<ol style="list-style-type: none"> <li>1. Define the role of medications in concussion treatment and recovery.</li> <li>2. Define the role of dietary supplements for neuroprotection, concussion treatment, and recovery.</li> <li>3. Summarize strength testing of cervical muscles and their relation to concussion.</li> <li>4. Describe post-concussion syndrome diagnosis, treatment, and return to play.</li> </ol>
<b>8:00-8:15 am</b>	Pharmacologic Interventions Available Now and on the Horizon <span style="float: right;">Dave Dodick, MD</span>
<b>8:15-8:30 am</b>	Fish Oils, Supplements and their Neuroprotective Effects <span style="float: right;">Jon Finnoff, DO</span>
<b>8:30-8:45 am</b>	The Relationship Between Neck Strength and Concussion <span style="float: right;">David Krause, PT, DSc.</span>
<b>8:45-9:00 am</b>	Dealing with Post-Concussion Syndrome <span style="float: right;">Cara Prideaux, MD</span>
<b>9:00-9:15 am</b>	<b>Discussion</b>
<b>9:15-9:35 am</b>	<b>Break</b>

Session #8	Evolving Scientific Contributions
<b>Learner Objectives</b>	<ol style="list-style-type: none"> <li>1. Interpret cervical spine and vestibular dysfunction occurrence post hockey related concussion.</li> <li>2. Discuss interventional exercise strategies for concussion rehabilitation.</li> <li>3. Examine attrition or growth in hockey across age groups that may be influenced by concussion awareness.</li> </ol>
<b>9:35-9:50 am</b>	Cervical Spine and Vestibular Involvement in Concussion Kathryn Schneider, PhD, PT, DSc
<b>9:50-10:05 am</b>	Effective Exercise Regimens Available Post-Concussion in 2017 John Leddy, MD
<b>10:05-10:20 am</b>	Concussion Awareness: Positive or Negative for Hockey Participation? David Soma, MD
<b>10:20-10:35 am</b>	Opportunities and Barriers to Removing Fighting from Hockey Aynsley Smith, RN, PhD
<b>10:35-10:50 am</b>	<b>Discussion</b>
Session #9	Integrating Science & Clinical Care Into OUR Action Plan
<b>10:50-10:55 am</b>	<p><b><u>Learner Objectives</u></b></p> <p><b><u>Case Study #A</u></b></p> <ol style="list-style-type: none"> <li>1. Describe subsequent concussion risk after three years of Junior A hockey.</li> <li>2. How do the objective measures provide insight into concussion severity?</li> <li>3. Develop a plan for academic advancement and playing hockey for fun.</li> </ol> <p><b><u>Case Study #B</u></b></p> <ol style="list-style-type: none"> <li>1. Estimate a concussion risk based on impact exposures.</li> <li>2. Contrast impact exposures in football and hockey.</li> <li>3. Discuss concussion risk in athletes playing consecutive contact sports.</li> </ol> <p>Case Study #1 (Introduced by Michael Stuart, MD)            A 2<sup>nd</sup> year Junior A forward sustained his 1<sup>st</sup> concussion in the 2<sup>nd</sup> period after being checked into the boards. You witnessed the event (video of the contact will be shown) and you think it probably is a concussion. The game is tied and you ask yourself: Should he return to play? What did you find to support your decision?</p> <p>Case Study #2 (Introduced by Thayne Munce, PhD)            A youth football and Bantam hockey player is participating in a study</p>

	requiring him to wear a helmet, adapted by Simbex to house six accelerometers. His parents ask if he is at risk for Mild Cognitive Impairment or concussion due to the repeated sub-concussive impacts.
<b>10:55-11:10 am</b>	Integrating Case Study #1 with Science Presented Michael Stuart, MD Guided by Bill Roberts, MD
<b>11:10-11:25 am</b>	Integrating Case Study #2 with Science Presented Thayne Munce, PhD Guided by Dave Dodick, MD
<b>Session #10</b>	<b>Concluding Ice Hockey Summit III</b>
<b>11:25-11:40 am</b>	Voting on Prioritized Action Items Panel A 5” - Jon Finnoff, DO Panel B 5” - Bill Roberts, MD Panel C 5” –Mike Joyner, MD
<b>11:40-12:00 pm</b>	Incorporating the “Summit III Action Plan” into Policy and Social Media Jim Whitehead ACSM and Nicole LaVoi, PhD
<b>12:00-12:10 pm</b>	Integrating Summit III Evidence-Based Items: A Metaphor for Success Aynsley Smith RN, PhD, Michael J. Stuart, MD, Jon Finnoff, MD, Dave Dodick, MD
<b>12:10-12:15 pm</b>	<b>Post-Summit Test Questions</b>
<b>12:15-12:20 pm</b>	<b>CME Evaluations, Announcements, and Adjournment</b>