

Ice Hockey Summit III: Action on Concussion

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

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

Supported by USA Hockey; International Ice Hockey Federation (IIHF); Thorne Science; Hockey Equipment Certification Committee (HECC); American College of Sports Medicine (ACSM); the Johansson–Gund Endowment; the Brian Mark Foundation and the Martineau Gift.

Summit Objectives

1. Describe the epidemiology of concussions in hockey
2. Classify concussion prevention strategies
3. Define the most reliable diagnostic concussion tests
4. Identify novel treatment methods to enhance concussion recovery
5. Integrate promising science and clinical care into action plans and policy

THURSDAY SEPTEMBER 28, 2017	
6:30 -7:25 am	Registration and Continental Breakfast Phillips Hall
7:25 -7:35 am	Introduction Aynsley Smith, RN, PhD and Michael Stuart, MD
7:35-7:40 am	Welcome Dr. John Noseworthy, President and CEO, Mayo Clinic
7:40-7:45 am	Pre-Summit Test Questions
Session #1	Epidemiology of Concussions in Hockey Moderators: Michael J. Stuart, MD and Aynsley M. Smith, RN, PhD
Learner Objectives	<ol style="list-style-type: none"> 1. Appraise the epidemiology of concussion literature according to specified measures and rigor. 2. Interpret the relationship between head accelerations in hockey and concussion symptoms. 3. Describe how video reconstruction determines head accelerations in the absence of accelerometers. 4. Predict which hockey players are at greatest risk for concussion and why?
7:45-8:00 am	Hockey Concussion Across Levels of Participation: Epidemiologic Facts Brian Benson, MD, PhD

8:00-8:15 am	The Biomechanics of Head Impact: Lessons from Helmet Sensors Rick Greenwald, PhD
8:15-8:30 am	Connecting Impact Events to Head Acceleration and Brain Tissue Strains for Concussion in Ice Hockey Anna Oeur, PhD Candidate
8:30-8:45 am	Which Hockey Players are at Greatest Risk and Why? Diane Wiese-Bjornstal, PhD
8:45-9:00 am	Discussion
Session #2	Prevention of Concussion Moderators: Aynsley M. Smith, RN, PhD, Michael J. Stuart MD, and Francis X. Shen, JD, PhD
Learner Objectives	<ol style="list-style-type: none"> 1. Examine how anticipation, strength, and concussion history interact to affect concussion risk. 2. Explain the supporting evidence for “no body checking” in PeeWee leagues and “optimal checking” for Bantam players. 3. Interpret how Fair Play can reduce concussion risk in league and tournament play. 4. Analyze influences of player contracts, fighting, and concussions on pending litigation in the NHL.
9:00-9:15 am	Individual Player Prevention: Anticipation, Strength, and Concussion History Jason Mihalik, PhD
9:15-9:30 am	Evidence Informed Body Checking Policy in Youth Hockey: Where We’ve Been and Where We’re Going? Amanda Black, PhD
9:30-9:45 am	Fair Play in Regular Season and Tournaments: Disqualifying Teams and Other Challenges to Reduce Concussions Kyle Farrell, BSc
9:45-10:00 am	Can Financial Concerns and Pending Litigation Reduce Concussions in Pro Hockey? Matthew Hanzel, JD
10:00-10:15 am	Discussion
10:15-10:35 am	Break

Session #3	Diagnosing Concussion: What We Know and Don't Know Moderators: Michael J. Stuart, MD, and Aynsley M. Smith, RN, PhD
Learner Objectives	<ol style="list-style-type: none"> 1. Summarize the brain's neurometabolic response to concussion. 2. Describe the art and science of concussion detection at rink-side. 3. Interpret Junior A hockey data in the context with an Objective Diagnosis of Concussion. 4. Apply IIHF concussion diagnosis concepts to point of care and return to play. 5. Discuss the diagnosis of concussion and quantification of severity in a medical setting. 6. Determine if concussed athletes are at greater risk of lower body injury compared to non-concussed players.
10:35-10:50 am	The Brain's Response to Concussive Events: Updates on the Neurometabolic Cascade Christopher Giza, MD
10:50-11:05 am	Rink-Side Concussion Detection in Hockey by an Experienced Athletic Trainer Kristen Erredge, ATR, ATC
11:05-11:20 am	Establishing the Objective Diagnosis of Concussion in Jr A Hockey: A Two Year Study Janelle K. Jorgensen, MSc Eng. Student
11:20-11:35 am	Applying the 5 th International Consensus Conference on Concussion Diagnosis to Ice Hockey Mark Aubry, MD
11:35-11:50 am	Diagnosing Concussions and Determining Severity in a Medical Setting David Dodick, MD
11:50-12:05 pm	Diagnosing Post Concussion Lower Body Injuries Alison Brooks, MD
12:05-12:20 pm	Discussion
12:20-12:35 pm	Box Lunches
Guest Speaker: Shjon Podein Moderator: Francis X. Shen, JD, PhD *No credit offered for this session.	
12:35-12:50 pm	The Price to Pay for a Stanley Cup: The Ups and Downs of a Successful Career* Shjon Podein Former NHL Professional Hockey Player
12:50-1:00 pm	Questions and Answers* Shjon Podein Former NHL Professional Hockey Player

Session # 4	Delving into Diagnostic Measures Moderators: Aynsley M. Smith, RN, PhD and Francis X. Shen, JD, PhD
Learner Objectives	<ol style="list-style-type: none"> 1. Discuss metabolomic profiling in identifying concussion in adolescent hockey players. 2. Explain the principles of video reconstruction and its role in concussions. 3. Describe mTBI advanced imaging methods, results, timing and cost. 4. Determine the role of qEEG and brain vital signs in concussion diagnosis, monitoring, and return to play. 5. Conclude why neurobiomarkers can aid in diagnosing a concussion. 6. Determine the role of the King Devick Test in concussion diagnosis, monitoring, and return of play.
1:00-1:15 pm	Metabolomic Profiling in Hockey – Role in Concussion Diagnosis and Detecting Severity. Ready for POC? Douglas Fraser, MD, PhD
1:15-1:30 pm	Understanding the Risk of Concussion in Ice Hockey Using Video Reconstruction Blaine Hoshizaki, PhD
1:30-1:45 pm	Concussion Neuroimaging – Its Utility, Feasibility, and Economics John Huston III, MD
1:45-2:00 pm	Quantitative EEG – Role in Concussive and Sub Concussive Impacts: Diagnosing, Detecting Severity, and Ready for POC? Ryan D’Arcy, PhD
2:00-2:15 pm	Biomarkers – Role in Concussion Diagnosis and Detecting Severity Michael J. Stuart, MD
2:15-2:30 pm	King Devick – Role in Concussion Diagnosis and Detecting Severity. Jennifer Wethe, PhD
2:30-2:45 pm	Discussion
2:45-3:05 pm	Break

Session #5	Expert Panel Ideas for Action on Concussion
Learner Objectives	<ol style="list-style-type: none"> 1. Prioritize action to best prevent, diagnose, treat and return players to hockey. 2. Describe conflicts of interest that coaches, general managers, and officials face when hockey players suffer a concussion. 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.
3:05-3:35 pm	<p>Panel A- Three Hockey Players with a Concussion History will Provide Ideas for Potential Solutions. Mike Eaves, Michael B. Stuart, Jordan Leopold</p> <p style="text-align: center;">Moderators: Jon Finnoff, DO and Aynsley Smith, RN, PhD</p>
3:35-4:05 pm	<p>Panel B - Hockey Medical Providers with Concussion Expertise will Provide Ideas for Potential Solutions Michael J. Stuart, MD, Brian Benson, MD, PhD, and Chad Eickhoff, MSc, ATC, ATR</p> <p style="text-align: center;">Moderators: Bill Roberts, MD, Chip Burke, MD, and Francis X. Shen, JD, PhD</p>
4:05-4:35 pm	<p>Panel C – Coach, Official, and Athletic Trainer will Provide Ideas for Potential Solutions Matt Leaf, Director, Officiating Program, USA Hockey Mark Tabrum, Director, Coaching Education Program, USA Hockey Kevin Margarucci, ATC, Manager, Player Safety, USA Hockey</p> <p style="text-align: center;">Moderators: Jim Whitehead, ACSM, Michael Joyner, MD, and Francis X. Shen, JD, PhD</p>
4:35-4:50 pm	Discussion
4:50-5:20 pm	<p>Prioritize Action Items from Day 1 Material Moderators: Aynsley Smith, RN, PhD, Francis X. Shen, JD, PhD, and Michael J. Stuart, MD</p>
5:20 pm	Adjourn
5:30 pm	<p style="text-align: center;">Posters Phillips Hall</p> <p style="text-align: center;">Tours of New Dan Abraham Sports Medicine Center, DAHLC (Meet outside of Phillips Hall)</p>

FRIDAY SEPTEMBER 29, 2017	
7:00 am	Continental Buffet Breakfast
7:25 am	Announcements for Day 2 Moderators: Aynsley M. Smith, RN, PhD, and Michael J. Stuart, MD
Session #6	Taking New Science Forward: From Bench to Rink-side and Treatment Moderators: Michael J. Stuart, MD, and Francis X. Shen, JD, PhD
Learner Objectives	<ol style="list-style-type: none"> 1. Establish the “in vitro” neuronal response to head trauma as a primer to treatment. 2. Discuss the neuronal response to known hockey accelerations in an “in vivo” large animal study. 3. Define the role of medications in concussion treatment and recovery. 4. Define the role of dietary supplements for neuroprotection, concussion treatment, and recovery. 5. Summarize strength testing of cervical muscles and their relation to concussion. 6. Describe post-concussion syndrome diagnosis, treatment, and return to play.
7:30-7:45 am	In Vitro Models for Brain Injury Patrick Alford, PhD
7:45-8:00 am	Using Known Hockey Accelerations to Examine a Large Animal Behavioral Model Susan Margulies, PhD
8:00-8:15 am	Pharmacologic Interventions Available Now and on the Horizon Dave Dodick, MD
8:15-8:30 am	Fish Oils, Supplements and their Neuroprotective Effects Jon Finnoff, DO
8:30-8:45 am	The Relationship Between Neck Strength and Concussion David Krause, PT, DSc.
8:45-9:00 am	Dealing with Post-Concussion Syndrome Cara Prideaux, MD
9:00-9:15 am	Discussion
9:15-9:35 am	Break
Session #7	Evolving Scientific Contributions Moderators: Jon Finnoff, DO and David Krause PT, DSc.

Learner Objectives	<ol style="list-style-type: none"> 1. Discuss interventional exercise strategies for concussion rehabilitation. 2. Examine attrition or growth in hockey across age groups that may be influenced by concussion awareness. 3. Explain current evidence that supports removal of fighting from hockey. 4. Discuss a legal perspective of the roles the science of concussion plays in sports.
9:35-9:50 am	<p>Effective Exercise Regimens Available Post-Concussion 2017 John Leddy, MD</p>
9:50-10:05 am	<p>Concussion Awareness: Positive or Negative for Hockey Participation? David Soma, MD</p>
10:05-10:20 am	<p>Opportunities and Barriers to Removing Fighting from Hockey Aynsley Smith, RN, PhD</p>
10:20-10:35 am	<p>The Roles of Science in Society: Research, Education and Practice Francis X Shen, JD, PhD</p>
10:35-10:50 am	Discussion
Session #8	Integrating Science & Clinical Care Into OUR Action Plan Moderators: Bill Roberts, MD, and David Dodick, MD
10:50-11:05 am	<p style="text-align: center;"><u>Case Study #1</u></p> <p><u>Learner Objectives</u></p> <ol style="list-style-type: none"> 1. Describe subsequent concussion risk after three years of Junior A hockey. 2. How do the objective measures provide insight into concussion severity? 3. Develop a plan for academic advancement and playing hockey for fun. <p>Case Study #1 (Introduced by Michael J. Stuart, MD) A 2nd year Junior A forward sustained his 1st concussion in the 2nd 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 service supported your decision?</p> <p>Integrating Case Study #1 with Science Presented by: Michael J. Stuart, MD</p>

<p>11:05-11:20 am</p>	<p style="text-align: center;"><u>Case Study #2</u></p> <p><u>Learner Objectives</u></p> <ol style="list-style-type: none"> 1. Estimate a concussion risk based on impact exposures. 2. Contrast impact exposures in football and hockey. 3. Discuss concussion risk in athletes playing consecutive contact sports. <p>Case Study #2 (Introduced by Thayne Munce, PhD) A youth football and Bantam hockey player is participating in a study 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.</p> <p>Integrating Case Study #2 with Science Presented by: Thayne Munce, PhD</p>
<p>Session #9</p>	<p style="text-align: center;">Concluding Ice Hockey Summit III Moderators: Michael J. Stuart, MD, Aynsley M. Smith, RN, PhD and</p>
<p>11:25-11:40 am</p>	<p>Voting on Prioritized Action Items Integrating Evidence of Contributions from all speakers, moderators, panelists and attendees</p> <p style="text-align: center;">Michael J. Stuart, MD, Aynsley M. Smith, RN, PhD, Jon Finnoff, DO</p>
<p>11:40-12:00 pm</p>	<p>Incorporating the “Summit III Action Plan” into Policy and Social Media Jim Whitehead ACSM and Nicole LaVoi, PhD</p>
<p>12:00-12:10 pm</p>	<p>Integrating Summit III Evidence-Based Items: A Metaphor for Success *Automated Audio Visual Aynsley Smith RN, PhD, Michael J. Stuart, MD, Jon Finnoff, MD, Dave Dodick, MD</p>
<p>12:10-12:15 pm</p>	<p>Post-Summit Test Questions</p>
<p>12:15-12:20 pm</p>	<p>CME Evaluations, Announcements, and Adjournment</p> <p style="text-align: center;">Michael J. Stuart, MD and Aynsley M. Smith, RN, PhD</p>