

Mayo Clinic Sports Medicine Center

ICE HOCKEY SUMMIT: ACTION ON CONCUSSION

October 19-20, 2010

CONFERENCE BOOKLET



Siebens Medical Education Building, Leighton Auditorium
Mayo Clinic
Rochester, Minnesota

This Program Jointly Sponsored with:

Course Directors:
Michael J. Stuart, MD
Aynsley M. Smith, RN, PhD



General Information

Course Description

The prevalence and consequences of concussion at all levels of ice hockey are concerning. Reduction of concussion risk, improved concussion diagnosis and management require a collaborative effort from medicine, psychology, sport science, coaching, engineering, officiating, manufacturing, and community partners. This quality scientific program will focus on education and will generate an evidence-based action plan designed to make a difference. All speakers are also being asked to discuss how gender differences influence the topic of their talk.

Course Learning Objectives

Overall Objectives:

1. To provide comprehensive, educational updates on concussions in ice hockey, including diagnosis, management, aftermath and prevention.
2. To identify a comprehensive, objective, and measureable 'action plan' to reduce the risks and consequences of concussion across levels of participation in ice hockey.

Learner Specific Objectives:

1. To identify scientific information on hockey related predictors, the pathophysiology and the sequelae of concussion.
2. To list strategies for head trauma prevention through medical and scientific education, behavioral modification (to reduce aggressive, harmful behavior), equipment alterations (i.e. improved helmet design), rule changes, conditioning and strengthening programs.
3. To evaluate, after learning from sport scientists, engineers, and product manufacturers, the strengths and limitations of current hockey helmet design.

Core Group Outcome Objectives:

1. To construct, write and then communicate (via professional publications and lay press) a strategic plan with a time line by which programs, rules, and standards can be evaluated and properly implemented.
2. To integrate the energy of health care professionals, if deemed appropriate, to propose improved standards for hockey helmets.

Intended Audience

Physicians from sports medicine, emergency medicine, neurology, neurosurgery, radiology, pediatrics, and family practice, sport scientists, physical therapists, athletic trainers, physician assistants, nurse practitioners, coaches, ice hockey organization representatives, arena managers, manufacturers and researchers.

Credit Directly Sponsored

College of Medicine, Mayo Clinic is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

College of Medicine, Mayo Clinic, designates this educational activity for 10.25 *AMA PRA Category 1 Credits™*. Physicians, and others seeking credit, should only claim credit commensurate with the extent of their participation in the activity.

Other Health Care Professionals

A certificate of attendance will be provided to other health care professionals for requesting credits in accordance with state nursing boards, athletic training (NATA) and other professional associations.

10.25 of *AMA PRA Category 1*. The Department of Psychiatry and Psychology, College of Medicine, Mayo Clinic is approved by the American Psychological Association to sponsor education for psychologists. The Department of Psychiatry and Psychology, maintains responsibility for this program and its content.

Supporting Organizations

This course is supported, in part, by the Hockey Equipment Certification Council (HECC), International Ice Hockey Federation (IIHF), Ontario Neurotrauma Foundation (ONF), USA Hockey, Team Wendy, and the Johannson-Gund endowment, in accordance with ACCME Standards.

Date and Location

The *Ice Hockey Summit: Action on Concussion* will be held **October 19-20, 2010**. The course will be located in the Leighton Auditorium on the second floor of the Siebens Medical Education Building, Mayo Clinic, 100 Second Avenue Southwest, Rochester, Minnesota, 55905.

Registration

Due to the participatory nature of this Summit, we strongly encourage attendance to both days of the Summit. To register online, visit www.mayo.edu/cme/oct2010.html. The registration fee includes tuition, continental breakfast, refreshment breaks, a box lunch, and a reception on Tuesday evening. A letter of confirmation will be sent upon receipt of payment and completion of the registration form. Early registration is suggested. Online registration closes **October 15, 2010**. On site registration will be available.

We hope to seat all attendees in Leighton Auditorium. Should demand exceed the seating available in Leighton, we have an adjacent overflow room with interactive capabilities. All breaks, meals and the reception are provided in a shared space.

Physician Fee:
\$250

Non-Physician Fee:
\$175

General Information

For additional information, contact:

Carol Best, Event Planner
Mayo Clinic Sports Medicine Center
200 First Street SW
Rochester, MN 55905

E-mail: best.carol@mayo.edu

Phone: (507) 266-3725

Fax: (507) 266-1803

Website: <http://www.mayo.edu/cme/oct2010.html>

Cancellation Policy

If you cancel your participation in the course, your registration fee will be refunded when written notification is received by Carol Best in the Mayo Clinic Sports Medicine Center at least 14 DAYS PRIOR TO COURSE (fax#: (507) 266-1803). No refunds will be made on or after a minimum of 14 DAYS PRIOR. Canceled registrations are non-transferable.

Mayo Clinic Sports Medicine Center reserves the right to cancel or postpone any course due to unforeseen circumstances. In the unlikely event the Mayo Clinic Sports Medicine Center must cancel or postpone this course, the registration fees will be refunded. Mayo Clinic Sports Medicine Center is not responsible for any related costs, charges, or expenses to participants, including fees assessed by airline/travel/lodging agencies.

Getting to Mayo Clinic

Mayo Clinic is serviced by Rochester International Airport (RST). Delta Airlines and American Airlines fly to Rochester through Minneapolis, Detroit, and Chicago.

Minneapolis-St. Paul International airport (MSP) is located 75 miles to our north, providing direct service from most cities, via multiple airlines. Shuttle services are available from Minneapolis to Rochester on Go Rochester Direct (1-800-280-9270).

Lodging Accommodations

Guest rooms have been reserved for attendees and their guests with special course rates at the following downtown Rochester hotels. In order to receive a special rate, reservations must be made before the room block is filled or before the expiration date of September 27, 2010, which ever comes first. Reservations will be taken following this date based on space and rate availability. Please identify yourself as a participant of the "Mayo Clinic Ice Hockey Summit: Action on Concussion" when making your reservation at one of the following hotels.

Rochester Marriott Hotel

101 First Avenue SW
877-623-7775 or 507-280-6000
\$149.00 single/double (plus applicable tax)

The Kahler Grand Hotel

20 Second Ave SW
1-800-533-1655 or
507-280-6200
\$92.00 single/double
(plus applicable tax)

Both the Marriott and Kahler Hotels are connected directly by skyway or pedestrian subway to the Siebens Building and are very close to downtown shops and restaurants. You may wish to visit the Rochester Convention and Visitors Bureau web site (www.rochestercvb.org) or (www.rochester411.com) for additional area information and accommodation options. These include the Hilton Garden Inn, Doubletree, and Holiday Inn.

Lodging arrangements are the sole responsibility of the individual registrant.

Parking

Parking is available in hotel, city, and Mayo patient/visitor ramps. The cost of parking is not included in the registration fee.

Abstracts

Poster Presentations

Overview: The *Ice Hockey Summit: Action on Concussion* will include a reception that features poster presentations. Submissions are invited on any concussion related research or educational project; including, but not limited to, rules, guidelines, outcome studies, practice innovations, or descriptive analyses. Posters will be selected from the abstracts received by the **July 30, 2010** deadline.

Abstract Eligibility: All abstracts related to concussions are welcome regardless of their previous publication. It is expected that abstracts selected will be displayed, as a poster, at the Summit reception.

Abstract Deadline: Submission deadline for posters is **July 30, 2010**. Please complete your abstract submission form online at: www.mayo.edu/cme/oct2010.html, then print and mail or fax to Carol Best.

Notification of Results: All primary authors will be notified by August 13, 2010, if their submission has been selected for the poster session, and details regarding poster set-up will follow.

Inquiries: For further information, contact Carol Best via phone at (507) 266-3725 or email best.carol@mayo.edu. For questions pertaining to the scientific content of the abstract, please contact David Krause, PT, DSc. at (507) 284-8487 or krause.david@mayo.edu



General Information

Faculty

Course Directors

Michael J. Stuart, MD
Aynsley M. Smith, RN, PhD

Steering Committee

Mark Aubry, MD
Alan Ashare, MD
Brian Benson, MD, PhD
Pat Bishop, PhD
David Dodick, MD
Ruben Echemendia, PhD
Paul Echlin, MD
Carolyn Emery, PhD, PT
Jonathan Finnoff, DO
Richard Greenwald, PhD
Stan Herring, MD
Blaine Hoshizaki, PhD
Mark Lovell, PhD
Ann McKee, MD
Winne Meeuwisse, MD, PhD
William Montelpare, PhD
Aynsley M. Smith, RN, PhD
Michael J. Stuart, MD
Charles Tator, MD, PhD
James Whitehead, VP, ACSM

Planning Committee

Carol Best (Event Planner)
David Krause, PT, DSc
Nicole M. LaVoi, PhD
Andrew Link
Halley Moore
Kelly Sarmiento
Aynsley M. Smith, RN, PhD
Matthew Sorenson, JD, MA
Carol-Anne Sullivan, D.Phil
Casey Twardowski



Faculty Disclosure

As a provider accredited by ACCME, College of Medicine, Mayo Clinic (Mayo School of CPD) must ensure balance, independence, objectivity and scientific rigor in its educational activities. Course directors, steering committee, faculty, and all others who are in a position to control the content of this educational activity are required to disclose all relevant financial relationships with any commercial interest related to the subject matter of the educational activity. Safeguards against commercial bias have been put in place. Faculty also will disclose any off-label and/or investigational use of pharmaceuticals or instruments discussed in their presentation. Disclosure of this information will be published in course materials so those participants in the activity may formulate their own judgments regarding each presentation.



Commercial Support

Commercial Support provided by Team Wendy which has the vision and mission to raise helmet awareness for those who have a passion for action sports, and to engineer improved helmet designs that raise the bar for helmet safety standards.

This Program Jointly Sponsored with:



International Ice Hockey Federation



Program Schedule - Tuesday, October 19, 2010

Pre-Reading: A Rational for Collaborative Action on Concussions

Available online after July 30, 2010, prior to conference at:
<http://www.mayo.edu/cme/sports-medicine.html>

7:00 - 7:30 am	Continental Breakfast Leighton Auditorium Atrium
7:30 - 7:35 am	Welcome Leighton Auditorium <i>John Noseworthy, MD</i> President and CEO Mayo Clinic
7:35 - 7:40 am	Introductions, Announcements, and Objectives <i>Michael Stuart, MD</i>
7:40 - 7:45 am	Pre-Test Questions (Audience Response System)

Section 1 An "Outside the Skull" Perspective: A Scientific View of Head Trauma Moderator - Michael Stuart, MD

7:45 - 8:00 am	Integrating Hockey and Medical Knowledge of Concussion: My View on Going Forward <i>Robert Cantu, MD</i>
8:00 - 8:15 am	Patterns of Play Leading to Concussions in the NHL: The Video Analysis Project <i>Paul Comper, PhD</i>
8:15 - 8:30 am	Quantifying Head Impact Exposure in Ice Hockey <i>Richard Greenwald, PhD</i> (No CME credit for this session)
8:30 - 8:45 am	The Science of Translation from Data Collection to Concussion Prevention: Changing the Practice Profile <i>Kevin Guskiewicz, PhD, ATC</i>
8:45 - 9:00 am	Panel Discussion <i>Robert Cantu, Paul Comper, Richard Greenwald, and Kevin Guskiewicz</i> (No CME credit for this session)

Section 2 An "Inside the Skull" Perspective - The Science of Brain Trauma Moderator - Robert Cantu, MD

9:00 - 9:15 am	The Effect of Concussion on the Developing Brain and Associated Functions <i>Gerard Gioia, PhD</i>
9:15 - 9:30 am	The Metabolic Cascade and Pathophysiology of Acute Concussion: A View of the Hockey Players Experience <i>David Dodick, MD</i>
9:30 - 9:45 am	The Science of Repetitive Head Trauma (Sub-Concussive Events): Chronic Traumatic Encephalopathy (CTE) <i>Ann McKee, MD</i>
9:45 - 10:00 am	Panel Discussion <i>Gerard Gioia, David Dodick, Ann McKee</i>

10:00 - 10:15 am **Break**

Section 3 The Science of Evaluating/Quantifying Concussions - The Physical Evaluation of Concussion Moderator - Rob LaPrade, MD

10:15 - 10:30 am	Evaluating Concussed Players at the Rink Across Levels of Participation - Improving Detection <i>Mark Aubry, MD</i>
10:30 - 10:45 am	Evaluating Concussed Players at the ER/Clinic/Hospital (Balance, Neurology Exam, Bioenzymes, and MRI) <i>Jeffrey Bazarian, MD</i>
10:45 - 11:00 am	Panel Discussion <i>Mark Aubry, Jeff Bazarian, and William Montelpare, PhD</i>

Section 4 The Science of Neurocognitive Testing Moderator - Jonathan Finnoff, DO

11:00 - 11:15 am	Neurocognitive Testing in the NHL <i>Ruben Echemendia, PhD</i>
11:15 - 11:30 am	Neuropsychological Testing in Youth and High School Players <i>Mark Lovell, PhD</i>

Program Schedule - Tuesday, October 19, 2010

11:30 - 11:45 am **Integrating Assessment and Return to Play (RTP) Guidelines**
Stan Herring, MD

11:45 - 12:00 pm **Panel Discussion**
Ruben Echemendia, Mark Lovell, Stan Herring, and James Whitehead

12:00 - 1:00 pm **Lunch**

Section 5
Player Equipment and Facilities: Potential for Brain Injury Prevention
Moderator - Michael Stuart, MD

1:00 - 1:15 pm **Player Equipment and Facilities that Impact Concussion: An Epidemiologic Perspective**
Brian Benson, MD, PhD

1:15 - 1:30 pm **Mouth Guards - Past, Present and Future**
Brian Benson, MD, PhD

1:30 - 1:45 pm **When Hockey Helmets are Evaluated: What Do We Find and What Do We Need?**
P. David Halstead
(No CME credit for this session)

1:45 - 2:00 pm **Panel Discussion: How to Learn from Each Other about Helmets, Shells, And Liners. Can Medical Scientists Help Manufacturing Scientists?**
Moderator - Ron Szalkowski, Team Wendy
Panel Members: Cascade Sports, Easton Hockey, Bauer Hockey, Reebok/CCM
(No CME credit for this session)

2:00 - 2:15 pm **Panel Discussion: Prioritizing Changes Needed to Facilities and Equipment**
Moderator - Brian Benson, MD
Panel Members: Pat Bishop, P. David Halstead, Richard Greenwald, Ron Szalkowski
(No CME credit for this session)

2:15 - 2:30 pm **Break**

Section 6
Can Psychosocial Factors Reduce On-Ice Violence and Concussions?
Moderator - Nicole LaVoi, PhD

2:30 - 2:45 pm **Neck Strength, Anticipation, Activation and its Relationship to Proneness to Concussion: Gender Differences?**
Jason Mihalik, PhD

2:45 - 3:00 pm **The Science of Aggression and Reinforcement in Ice Hockey**
Diane Wiese-Bjornstal, PhD

3:00 - 3:15 pm **Reducing Aggression in Youth Hockey Across Sectors? Hockey Education Program (Fair Play)**
Aynsley Smith, RN, PhD

3:15 - 3:30 pm **Play it Cool**
William Montelpare, PhD

3:30 - 3:45 pm **Panel Discussion**
Jason Mihalik, Diane Wiese-Bjornstal, Aynsley Smith, William Montelpare

Section 7
Can Physical Factors Reduce Concussions?
Moderator - Alison Macpherson, PhD

3:45 - 4:00 pm **Winning: Effective Coaching that Decreases Likelihood of Concussion**
Kirk Gill

4:00 - 4:15 pm **Injuries in Checking vs. Non-Checking Leagues**
Carolyn Emery, PhD, PT

4:15 - 4:30 pm **Gender Differences in Concussion**
Carolyn Emery, PhD, PT & Doug Stacey, MSc, BHScPT

4:30 - 4:45 pm **Role of the Referee in Concussion: Overcoming Bias, Intimidation and Expectations**
Kerry Fraser

4:45 - 5:00 pm **Panel Discussion**
Kirk Gill, Carolyn Emery, Doug Stacey, Kerry Fraser

5:00 pm **Summary/Announcements**
Michael Stuart, MD

6:00 - 7:30 pm **Reception/Poster Session**
Hage Atrium – Siebens Building
Hors'devours and Cash Bar

Program Schedule - Wednesday, October 20, 2010

- 7:00 - 7:30 am **Continental Breakfast**
- 7:30 - 7:45 am **Opening: Action Items Presented from Day 1**
David Dodick, MD
- Improved, Hockey Helmet Standards
 - Enforcement to Reduce Impacts, Head Hits, Fighting
 - Monitoring of Sub-Concussive Events
 - Reducing Impacts in Practice via Coaching, Player and Parent Education
 - Improving Concussion Evaluation
 - Return to Play: Evaluation and Guidelines
 - Promoting Youth Hockey Safety
 - Equipment and Arena Characteristics
 - Separate Checking vs. Non Checking Leagues
 - HEP, Play It Cool, Heads Up Hockey; Protect and Respect, etc.
 - Physical Strengthening, Activation (or both)
 - Coaching, Parent and Officials Education
 - Community Partners

Section 8

Building Momentum: Yesterday's Scientific Knowledge Leads to Action Today **Moderator - Carol-Anne Sullivan, DPhil**

- 7:45 - 8:00 am **Placing the Sport Science of Concussions into Context with Prevention: Thinking Outside the Standard Tool Box**
Pat Bishop, PhD
- 8:00 - 8:15 am **A Hockey Players Quality of Life: Putting Acute and Chronic Head Trauma in Context**
Ronald Petersen, MD, PhD
- 8:15 - 8:30 am **Effective Implementation of Concussion Education Across Sectors in Ice Hockey**
Charles Tator, MD, PhD
- 8:30 - 8:45 am **Panel Discussion**
Pat Bishop, Ronald Petersen, Charles Tator
- 8:45 - 9:00 am **Instructions for Breakout Sessions**
James Whitehead
- 9:00 - 10:30 am **Breakout Sessions**

Breakout A - Databases - [IIHF, CDC, NHL, USA Hockey, Hockey Canada, NCAA, College Hockey, High School, and Youth Hockey].
Breakout Leaders: *Alison Macpherson, PhD, Paul Echlin, MD, Mark Aubry, MD, and Chip Burke, MD*

Breakout B - Recognizing, Diagnosing, Caring for Concussions, and Returning Players to Hockey.
Breakout Leaders: *Rob LaPrade, MD, Jonathan Finnoff, DO, Stan Herring, MD, and William Roberts, MD*

Breakout C - Player Equipment and Arena Characteristics: Are Equipment and Arenas Optimal for Hockey Players?
Breakout Leaders: *Blaine Hoshisacki, PhD, Richard Greenwald, PhD, Brian Benson MD, PhD, Pat Bishop, PhD, and Halley Moore* (No CME credit for this session)

Breakout D - Education Across Sectors (Coaches, Officials, Parents, and Team Physicians) - Anticipation, Neck Strengthening, Behavior Modification [ThinkFirst, HEP (Fair Play) and Play it Cool].
Breakout Leaders: *Charles Tator, MD, PhD, Kevin Guskiewicz, PhD, Nicole LaVoi, PhD, Aynsley Smith, RN, PhD, and William Montelpare, PhD*

Breakout E - Recommendations for Rule Changes, Policies and Enforcement at all Levels. (e.g. Body Checking, Head Hits, Officiating in pre-pubescent youth).
Breakout Leaders: *Carolyn Emery, PhD, PT, Alan Ashare MD, Alison Brooks, MD, (AAP representative), Jason Mihalik, PhD, Michael Stuart, MD, Thomas Babson, MFA and Kerry Fraser*

Breakout F - Communication Strategies to Enhance Hockey and Concussion Safety (Representatives from Multiple Stakeholders)
Breakout Leaders: *Chris Gade and Joan Mariconda*

10:30 - 10:45 am **Break**

Section 9

Prioritizing Items for the Action Plan and Dissemination **Moderator - Mark Aubry, MD**

- 10:45 - 10:50 am **Presentations from Breakout Leaders and Prioritizing Action Items**
(Audience Response System)
- 10:50 - 11:30 am **The Action Plan for Canada and USA: Integrating Action Items into the Strategic Plan**
Michael Stuart, MD, Aynsley M. Smith, RN, PhD, Carolyn Emery, PhD, PT, and Brian Benson, MD, PhD
- Where Are We Now?
 - Where Must We Get to? (By When?)
 - Strategies (Prioritized Action Items) to Get Us There?
 - How Do We Evaluate our Progress?
- 11:30 - 11:45 am **Pulling together a Power Play on Concussion: Communicate and Build Support so the Action Plan has Maximal Impact and Success**
Michael Stuart, MD, Aynsley M. Smith, RN, PhD, and Chris Gade
- 11:45 - 12:00 pm **Post-Test Questions**
(Audience Response System)
- 12:00 pm **Adjourn**



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