

Ice Hockey Injury Prevention

Warm-Up before practices & games

- General to Specific
- No static stretching
- No on-ice sitting

Warm-Down after practices & Games

Specific to General

Utilize Static Stretching

Maintain Practice-to-Game Ratio for developmental level

Restoration Hydration and Refuel Windows

- o 30 minute
- o 120 minute

Prevention = Preparation

- Increased role of off-ice activity as athletes mature
- Varied, progressive skills (multiple sports)
- Variety of activities cause varied nerve firing patterns (balances) and muscle adaptations.
- Allow the children to be children
- De-emphasize short-term hockey development
- Proper Warm-up will significantly improve performance and therefore put athletes less at risk.
- STATIC STRETCHING before activity decreases power production for 90-120 minutes

Progressive development in FBS-SSP

- Flexibility
- Balance
- Stability
- Strength
- Speed
- Power

Injury Occurrence

- 70% to 90% of injuries occur in games
- In one study of Junior teams, 96% of the injuries occurred during games - only 4% during practices.
- Only 10% to 30% of injuries occur during practice
- Practices do not mimic games and don't prepare athletes for games

CPR Training

Easy to do and well worth the effort when it is needed.

Prevention

ASSURE that equipment fits and is worn properly.

Helmets are shape-dependant

6-Point Fit Test

Cervical Spine Injuries

- Mechanism of the injury is the same as the "spearing" injury in football
- Head down position makes the player more vulnerable to cervical spine injury
- Mechanism of injury can occur at slow or fast speed
- It is uncommon for this injury to occur when the player's head is up
- Distribution of HEADS UP HOCKEY brochures to players, parents, coaches, administrators, referees
- HEADS UP HOCKEY posters in every rink
- Mandatory viewing of "Heads Up Hockey Challenge" or other videotape ("Smart Hockey" or "Checking from Behind") by players, coaches, parents, administrators, and referees every year before the beginning of the season

Mouthguards

Do not eliminate risk of traumatized teeth

Greatly reduce frequency and severity of concussions due to reducing force from jaw into skull

Many local practices offer custom fitted guards for free or very inexpensively

Baseline Cognitive Function Testing

- Using psychometric testing to determine when a player is back to normal
- Recently debated as to effectiveness and learning bias
- IMPACT is a software program that will enable the athlete to be tested. Thorough, but expensive
- Cost-Effective alternative – Standardized Assessment of Concussion from BIA

Concussions

- Concussions may be caused by a direct blow to the head, face, neck, or elsewhere on the body when an "impulsive" force is transmitted to the head
- Concussions typically result in the rapid onset of short lived impairment of neurological function that resolves spontaneously
- Concussions may not show standard on ER tests

Symptoms of a Concussion

- Behavior / Personality is abnormal
- Appears to be dazed or stunned
- Is confused about assignment
- Forgets plays
- Answers questions slowly
- Loses consciousness
- Forgets events prior to the hit
- Forgets events after the hit
- Is unsure of game, score, or opponent
- Moves clumsily

Signs of a Concussion

- Headache
- Nausea
- Balance problems or dizziness
- Double or fuzzy vision
- Sensitivity to light or noise
- Feeling sluggish
- Feeling "foggy"
- Change in sleep pattern
- Concentration or memory problems
- Seeing stars or flashing lights

Concussions

- It takes teenagers a longer time to recover from a Grade 1 concussion or "Ding" than older players
- High school athletes tend to under-report their symptoms
- It may take as long as one week for athletes to recover fully from a Grade 1 concussion
- When a player shows ANY symptoms or signs of a concussion: he / she should not be left alone; and regular monitoring for deterioration is essential.
- Return to play must follow a medically supervised stepwise process

Intermediate Level III Coaches Education Program

Ice Hockey Injury Prevention

Return to Play Progression

Level 1 No activity, complete rest.

Once asymptomatic, proceed to level 2.

Level 2 Light aerobic exercise such as walking or stationary cycling.

Level 3 Light Skating

Level 4 Non-contact training drills

Level 5 Full contact after medical clearance

Level 6 Game play

Neck Lacerations

- Area of highest risk is not covered by neck guard
- Incidence rate is low, but consequences are high
- Coaches and players should know how to manage a laceration to prevent loss of life (direct pressure, activate EMS)
- *Blunt Chest Trauma*
- Commotio Cordis - "Functional effect of mechanical stimulation in the absence of structural damage"
- Sudden disturbance of heart rhythm from blunt, non-penetrating impact to precordial region

Hydration

- When down 1 pint of fluid, you'll see a 10% performance drop
- 8 For a 150-pound player, this is 2-3 pound loss after practice. This can also occur from illness if diarrhea is present.
- Cold fluid does not give you cramps. Chugging fluid could! The amount of water your stomach can absorb at one time is small, but steady.
- Best overall fluid choice is water at 42°F (ice water) but sports drink may be very helpful immediately after a contest or practice.
- 10 oz every 10-15 minutes
- "A Pint is a pound the world around"
- 30 minutes to get fluid content back up
- *6-8% sugars and no protein until re-hydrated*
- *Once re-hydrated, 4:1 carbohydrate to protein beverage*
- *What and when*
 - *Sports drink + water before*
 - *Water during.*
 - *Sports drink + water after*
 - *4:1 beverage once re-hydrated (i.e.: chocolate milk)*

Adapted From: National Athletic Trainer Association www.nata.org

Energy Drinks

- No required governing body as to content
- Taurine / caffeine combination may rapidly drop blood pressure and rapidly rise heart beat rate
- Cardiac conditions accelerated by high sugar content
- Banned in many countries

Event	Fluid Goals
2 hours before event (practice or game)	16 to 24 ounces intake
15 minutes before event	8 to 16 ounces intake
Every 10 to 20 minutes during	7 to 10 ounces intake
Within 2 hours after activity	look for pale and colorless urine.
Daily normal intake	look to have to urinate every 2 to 4 hours

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Management of Concussion in Sports

From: Brain Injury Association / Standard Assessment of Concussion (SAC) www.biausa.org

Grades of Concussion:

Grade 1	Transient confusion (inattention, inability to maintain a coherent stream of thought and carry out goal-directed movements) No Loss of Consciousness Concussion symptoms or mental status abnormalities on examination resolve in less than 15 minutes.
Grade 2	Transient confusion No Loss of Consciousness Concussion symptoms or mental status (including amnesia) on examination more than 15 minutes.
Grade 3	Any Loss of Consciousness <ul style="list-style-type: none"> • Brief (seconds) • Prolonged (minutes)

Management Recommendations

Grade 1	Remove from participation Examine immediately and at 5-minute intervals for the development of mental status abnormalities or post-concussive symptoms at rest and with exertion May return to contest if no mental status abnormalities or post-concussive symptoms clear within 15-minutes.
Grade 2	Remove from participation and disallow return that day Examine immediately and at 5-minute intervals for intracranial pathology A trained person should reexamine the athlete the following day A physician should perform a neurologic examination to clear the athlete for return to play after 1 full asymptomatic week at rest and with exertion
Grade 3	Transport the athlete from the field to the nearest emergency department by ambulance if still unconscious or if worrisome signs are detected (with cervical spine immobilization - if needed) A thorough neurologic evaluation should be performed emergently, including appropriate neuroimaging if indicated Hospital admission is indicated if any signs of pathology are detected, or if the mental status of the athlete remains abnormal

When to Return to Play

Grade of Concussion	Return to Play ONLY after asymptomatic with Normal Neurologic Assessment at Rest and with Exercise
Grade 1 Concussions	15 minutes
Multiple Grade 1 Concussions	1 week
Grade 2 Concussions	1 week
Multiple Grade 2 Concussions	2 weeks
Grade 3 – Brief Loss of Consciousness (seconds)	1 week
Grade 3 – Prolonged Loss of Consciousness (minutes)	2 weeks
Multiple Grade 3 Concussions	1 month or longer, based upon decision of evaluating physician

Resources

www.headsuphockey.com

www.safehockey.com

www.concussionsafety.com

www.masshockey.com

National Athletic Trainers Association www.nata.org

National Strength & Conditioning Association www.nasca-lift.org

Standardized Assessment of Concussion (\$50) / Management of Concussion in Sports Wallet Cards www.biausa.org

Academy of Sports Dentistry www.sportsdentistry-iasd.org