Sports Specific Safety

Field Hockey

Sports Medicine & Athletic Related Trauma
SMART Institute

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Objectives of Presentation

1. Identify the prevalence of injuries in field hockey.
2. Discuss commonly seen injuries.
3. Provide information regarding the management of injuries.
4. Provide examples of venue and equipment safety measures.
5. Provide conditioning tips to reduce potential injuries.
Injury Statistics

• Field Hockey is viewed as a very popular sport world-wide: 2nd only to soccer in popularity as a team sport.

• In the last 15 years the incidence of ankle sprains, knee injuries and finger fractures have declined by 2.5% - good news!

• Chances of a concussion or head laceration are 6 times greater to happen in a game than practice – bad news!
Commonly Seen Injuries

- Ankle sprains
- Knee injuries
- Concussions
- Upper leg muscle strains
- Finger injuries
- Low back strains
Ankle Sprains

• Lateral ankle injuries are more common than medial, sometimes the result of stepping on another person’s foot.

• Most commonly occurring injury in field hockey, with severe ankle injuries resulting in a loss of 10+ days of activity.

• Acute Management: Rest, Ice, Compression, Elevation. Tape/brace as needed. Rehabilitation program makes a huge difference in preventing another ankle sprain!

• Prevention: Stretching (Achilles), strengthening, proprioceptive training, proper footwear, and taping/bracing when appropriate.

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How Common are Ankle Injuries?

- Most common sports injury
- 1 per 10,000 population per day
- 85% of ankle injuries are sprains
- 85% of sprains involve lateral ligaments
- 20% - 40% lead to chronic symptoms
Knee Injuries

- Ligament or meniscal (cartilage) tears.

- Acute management: Rest, Ice, Compression, Elevation. Crutches could be warranted. Brace may be necessary, early range of motion may be critical, or stabilization may be preferred.
Ligament Injuries - ACL

• 200,000 new ACL injuries per year

• History
  – Non-contact injury with knee in extension (70%)
  – Hemarthrosis within a few hours
  – Audible pop in 50%
  – More common in females
Factors associated with anterior cruciate ligament injury history in female athletes
Kramer et al, JAT 2006*

• Increased generalized laxity, and decreased ITB flexibility discriminated between females with and without history of ACL injury

• A relationship linking previous ankle injury and ACL injury risk was also found
Meniscal Tears

- Foot planted, body rotated, hear a “pop”
- May be able to play, swelling next day
- Must address the swelling, pain and limited range of motion first
- Diagnosis may be based on history and/or medical imaging tests alone
- May require an “unlocking” of the joint
- Prevent quadriceps shutdown
Concussions

• Signs & Symptoms - it is important that the athlete understand the signs and symptoms of a concussion and the importance of reporting even the slightest incident.

• Acute management: seek medical attention.

• Prevention: reporting of each incident with proper medical care can prevent “Second Impact Syndrome.”
S & S of Concussion

**Physical Symptoms**
- Headache
- Vision difficulty
- Nausea
- Dizziness
- Balance Difficulties
- Light sensitivity
- Fatigue

**Emotionality Symptoms**
- Irritability
- Sadness
- Nervousness
- Sleep disturbances

**Cognitive**
- Memory loss
- Attention disorder
- Reasoning difficulty
People working with younger (pediatric) athletes should be aware that recovery may take longer than in older athletes. Additionally, these younger athletes are maturing at a relatively fast rate and will likely require more frequent updates of baseline measures compared with older athletes.

JAT 2004 Position Statement
Because damage to the maturing brain of a young athlete can be catastrophic (i.e., almost all reported cases of second-impact syndrome are in young athletes), athletes under age 18 years should be managed more conservatively, using stricter RTP guidelines than those used to manage concussion in the more mature athlete.

JAT 2004 Position Statement
F/U Guidelines

- Avoid meds – only acetaminophen from MD
- Avoid ingesting alcohol, illicit drugs, or other substances
- Instructed to rest, but complete bed rest is not recommended
- Eat a well-balanced diet that is nutritious in both quality and quantity
- An athlete should be awakened during the night to check on deteriorating signs and symptoms only if he or she experienced LOC, had prolonged periods of amnesia, or was still experiencing significant symptoms at bedtime

JAT 2004 Position Statement
Upper Leg Injuries

- **Strains:** can be result of poor conditioning, improper warm-up, or sudden unexpected movement

- **Contusions:** unexpected contact forcefully can lead to internal bleeding and bruising

- **Acute management:** mild stretching, compression and ice.

- **Prevention:** proper conditioning and warm up both prior to the game and prior to the second half as well as adequate hydration.
Treatment of Hamstring Strains

• **THE RISK FACTORS**: Muscle weakness, decreased muscle flexibility, lack of proper warm-up, fatigue, improper flexor/extensor strength ratio, increasing age, menstrual disturbances, previous injury


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Medial Muscle Injuries

• The “Groin” strain
• Associated with lateral movement sports
• “Game-breaking” moves
• Basketball, tennis, volleyball, skiing
• Adductor Magnus & Brevis, Gracilis primarily
• HAF = hip adductor/flexor strain
Healing Properties of a Tendon Strain

• 5\textsuperscript{th} day post injury tendon exhibits weakest tensile strength, then progressively gets stronger each day
Finger Injuries

• Can be the result of contact with the ball, stick, another player or the ground.

• Acute management: DO NOT reduce an open fracture. Splint, apply ice to splinted finger and seek medical attention.

• Prevention: ? – Can minimize against further injury with proper treatment and protection
Low Back Strains

• Common in every population
• Excessive body weight contributes
• Poor posture contributes
• Management includes conditioning to improve flexibility, strength and endurance of both small and large spinal stabilization muscles
Field/Playing Area Safety
Field/Playing area Safety

• 71% of head injuries and 68% of hand/finger injuries happened near the goal or within the 25 yard line.
• Dry fields will lead to more fixation type injuries that tear ligaments (ankle, knee)
• Wet fields will lead to more muscle strains
Field Safety

- Uneven playing surfaces
- Surfaces with greater than normal friction
- Playing surfaces with uneven puddles
- Improper illuminated lighting for night events
- Irrigation systems not completely buried
- Fences that surround fields with protruding parts
- Goalposts and other fixed apparatus that are not properly protected with padding
Field/Playing Area Safety

• Lightning
  – Flash to Bang or 30-30 Rule
    • If there is 30 seconds or less between the time that you see lightening and hear thunder then seek shelter immediately.
    • Wait at least 30 minutes after the last thunder is heard before resuming play. If you see further thunderstorm clouds building, you should wait at least another 30 minutes.
  – Seek shelter in an enclosed vehicle, restroom, or other nearby building. Golf carts, trees, or other “shaded” locations are not safe.

• Animals
  – Keep your distance from animals, the ponds and bushes along the course may be their natural habitat.
  – Never walk or reach into bushes, overgrown areas, or ponds to retrieve your ball. Instead use your club to fish it out.

• Hazards
  – Obey posted hazard signs.

• Sun
  – Don’t forget sunscreen.

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Equipment Safety

• Wear proper protective equipment (shin guards, mouth pieces, eye protection if available).

• Taping or bracing of the ankles.

• Proper footwear.
Purposes of Protective Equipment

1. Dispose & absorb forces
2. Limit anatomical movement
3. Support joint structures
4. Support musculotendinous structures
5. Enhance proprioceptive feedback
Protective Equipment Guide

- Does the equipment protect the area of concern appropriately?
- Can the athlete perform the skills required for his/her sport and position while wearing the device?
- Will the device maintain proper anatomical alignment?
- Is the device potentially hazardous or injurious to other participants?
- Is the device legal by the rules and regulations of the sport?
Eye Protection

• Suggested collaboration between NCAA FH Committee and equipment manufacturers to develop eyewear to promote extended view and provide optimal protection
Mouth Guards

- Stock, mouth formed, and custom-fitted
- Required for lacrosse, ice hockey, football, field hockey
- Recommended for basketball & soccer
- Intra-oral, upper teeth, visible color
Conditioning Tips to Avoid Injury

• Proper conditioning programs including strengthening.

• Proper warm up and cool down including prior to the second half.

• An ACL prevention program.

• Adequate hydration.
What is the PEP Program?

The PEP (Prevent injury, Enhance Performance) Program is a highly specific 15-minute training session that replaces the traditional warm-up. It was developed by a team of physicians, physical therapists, athletic trainers and coaches, and has funding support from the Amateur Athletic Foundation of Los Angeles (AAF).
PEP Program

• The Goals of the Program are to:

1) Avoid vulnerable positions
2) Increase flexibility
3) Increase strength
4) Include plyometric exercises into the training program
5) Increase proprioception through agilities
Heat Illness
Prevention of Heat Illnesses (NCAA)

- Allow for 7-10 days to acclimatize
  - 80% acclimatization
- 2 months for full acclimatization
Who is at greatest risk?

- Unaccustomed to heat
- Overweight
- Intense athletes
- Sick athletes
- Recent immunizations due to elevated body temperature
General Information

• White → Reflects 30% of the heat
• Dark → Reflects 18% of the heat (skin or clothing)

• Male: Lower % body fat
• Female: Higher % body fat
  • Core temperature must get higher before sweating occurs

• Core temperature: for every one degree of increased core temperature – there is an increase in heart rate (about 10 beats/1 degree)
General Information

Body Temperature

• Sweat increases
• Blood is pushed towards the skin
• Respiration increases
• Desire for food decreases
• Desire for fluids increases
• Desire for salt increases
• Muscle contraction decreases (willingness)
Heat Illnesses - Causes

• Dehydration
  – 60+ % of total body water
  – Sugar in the stomach prevents rehydration
  – Observe until urination occurs (key)

• Electrolyte Imbalance
  – Depletion occurs over a period of 2-5 days
  – Ion-chemical charge
Types of Heat Illnesses

- Heat rash
- Heat syncope
- Heat cramps
- Heat exhaustion
- Heatstroke
Fluid Replacement

• **Before exercise:** drink 17-20 oz. 2-3 hrs prior.
  
  17-20 oz 10-20 min. prior to exercise.

• **During exercise:** 7-10 oz. every 10-20 min.

• **After exercise:** within 2 hrs, drink enough to replace weight loss from exercise.
Pre-participation Exams

• Evaluate size & level of maturation
• Improve fitness & performance
• Counsel youth & answer health and personal questions
• Initiate dialogue between parents, caregivers, coaches and medical personnel
MRSA
Methicillin-resistant Staphylococcus aureus

*The Silent Killer*

Ways to combat MRSA:

- Keep hands clean
- Shower immediately after exercise
- Keep cuts and scrapes covered
- Wear clean exercise clothes
- Don’t share razors or other personal items
- Notify the athletic trainer of any unusual sores

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If you remember nothing else….

• Safe playing environment
• ACL prevention program
• Proper conditioning
• Proper hydration
• Utilize appropriate safety equipment
• Rest, Ice, Compression, Elevation

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Keys to Field Hockey Safety

• Prevent what you can!
• Manage well what is not preventable!
• Don’t ignore safety items!
• When in doubt seek an opinion!
• Enjoy the game!
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