

Sports Specific Safety

Soccer

*Sports **M**edicine & **A**thletic **R**elated **T**rauma
SMART Institute*

Objectives of Presentation

- Identify the prevalence of injuries to soccer
- Discuss commonly seen injuries in soccer
- Provide information regarding the management of injuries seen in soccer
- Provide examples of venue and equipment safety measure
- Provide conditioning tips for soccer to reduce potential injuries

Percentage of Game and Practice Injuries by Major Body Part, **Men's Soccer, 1988–1989 Through 2002–2003**

Body Part	Games	Practices
Head/neck	12.8	4.8
Upper extremity	6.8	5.3
Trunk/back	10.5	13.9
Lower extremity	67.3	70.7
Other/system	2.6	5.3

Journal of Athletic Training 2007;42(2):270–277

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Percentage of Game and Practice Injuries by Major Body Part, **Women's Soccer**, 1988–1989 Through 2002–2003

Body Part	Games	Practices
Head/neck	13.8	3.9
Upper extremity	6.3	4.2
Trunk/back	8.4	13.2
Lower extremity	67.8	72.0
Other/system	3.7	6.7

Journal of Athletic Training 2007;42(2):278–285

Commonly Seen Injuries

- Most common injury site is the ankle followed by the knee
- Head and neck injuries are also common but often more severe

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Commonly Seen Injuries

Injuries are attributed to:

- Lack of experience
- Inadequate conditioning
- Difficult drills
- Playing a ball with the body in bad position (over-reaching for a ball or making a quick change of direction)
- Inappropriate surfaces and equipment (pot holes or wet slippery fields; improper shoes or pads)

Commonly Seen Injuries

Continued:

- Insufficient supervision
- Untrained coaches and instructors
- Poor decision-making by instructors or participants
- Poor nutrition

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.

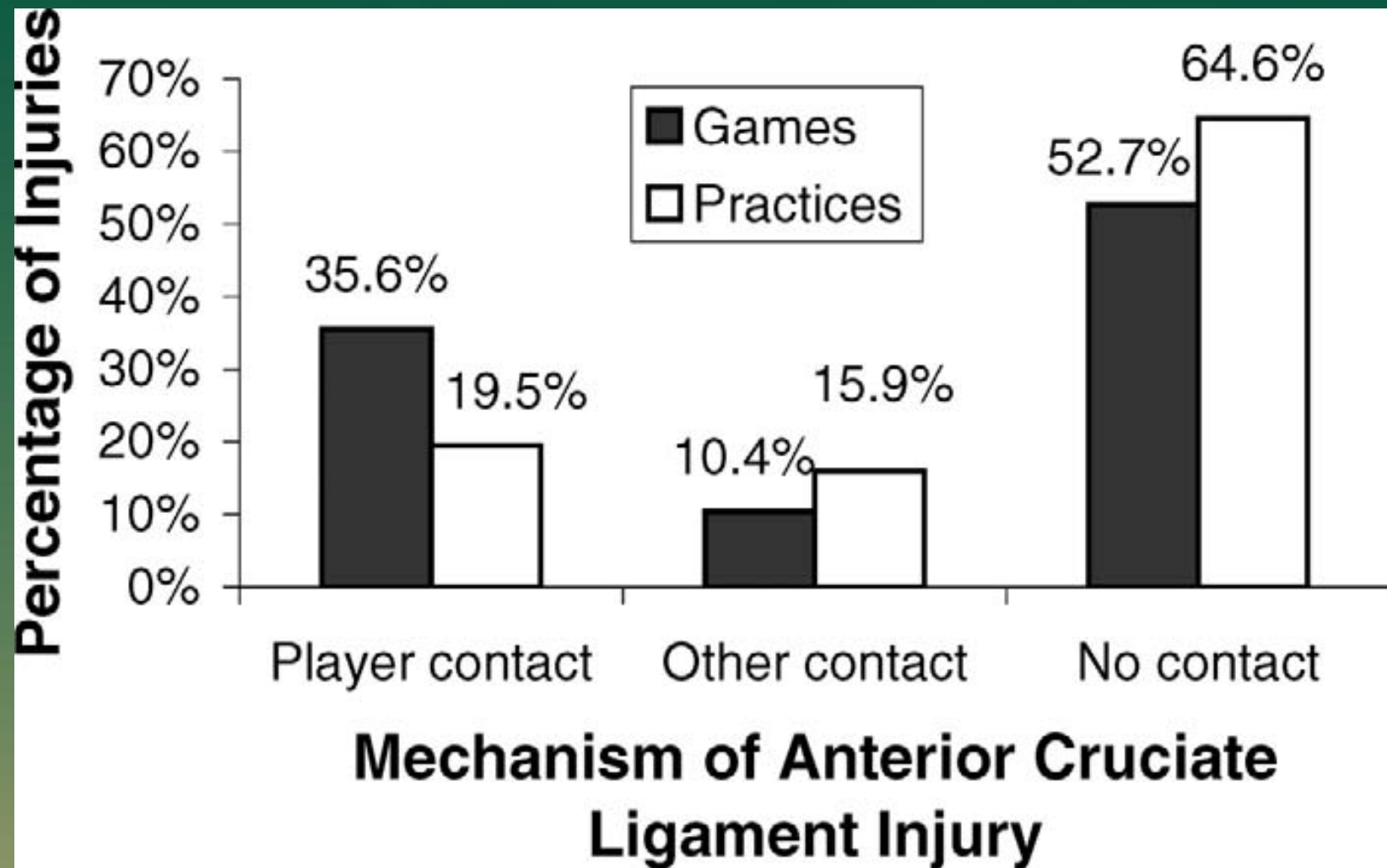
Ligament Injuries - ACL

- 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

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Anterior Cruciate Ligament Tears

- Mechanism
 - Sudden stopping and pivoting or changing direction
 - Improper landing
- Acute Management
 - Ice, immobilization, crutches, pain medication if necessary (per MD)
 - Orthopedic referral for surgical options



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Anterior Cruciate Ligament Tears

- Prevention Techniques
 - Proper landing/jumping techniques
 - Balance/proprioception drills
 - Hamstring strengthening

PEP

- 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

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 quadricеп shutdown

Recognition and Management of Injuries to the Ankle

- Inversion Sprains
 - Most common and result in injury to the lateral ligaments
 - Anterior talofibular ligament is injured with inversion, plantar flexion and internal rotation
 - Occasionally the force is great enough for an avulsion fracture to occur off the lateral malleolus

Ankle Sprain Care

- Must manage pain and swelling
- Apply horseshoe-shaped foam pad for focal compression
- Apply wet compression wrap to facilitate passage of cold from ice packs surrounding ankle
- Apply ice for 20 minutes and repeat every hour for 24 hours
- Continue to apply ice over the course of the next 3 days
- Keep foot elevated as much as possible
- Avoid weight bearing for at least 24 hours
- Begin weight bearing as soon as tolerated
- Return to participation should be gradual and dictated by healing process

Ankle Sprain Rehabilitation

- Athletes with a sprained ankle should complete supervised rehabilitation prior to returning to practice and competition.
- Rehabilitation should include appropriate strengthening and proprioceptive (balance board) components.
 - Athletes returning from moderate to severe sprains should wear a protective orthosis for at least 6 months.

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 (ie, *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

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



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Field Safety

- Uneven playing surfaces
- Surfaces with greater than normal friction
- Slippery playing surfaces, fields with 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.
- Sun
 - Don’t forget sunscreen.

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

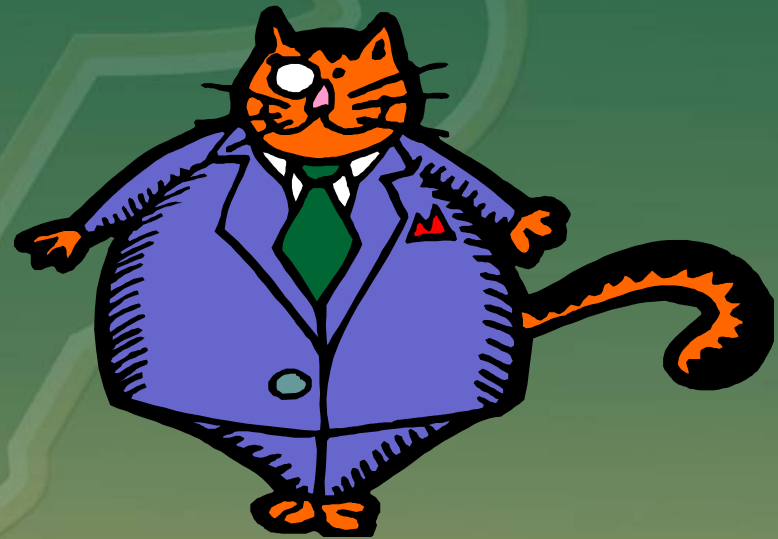
- Does the equipment protect the area of concern appropriately?
- Can the athlete perform the skills required for his/her sport and position while wearing the device?
- Will the device maintain proper anatomical alignment?
- Is the device potentially hazardous or injurious to other participants?
- Is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

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



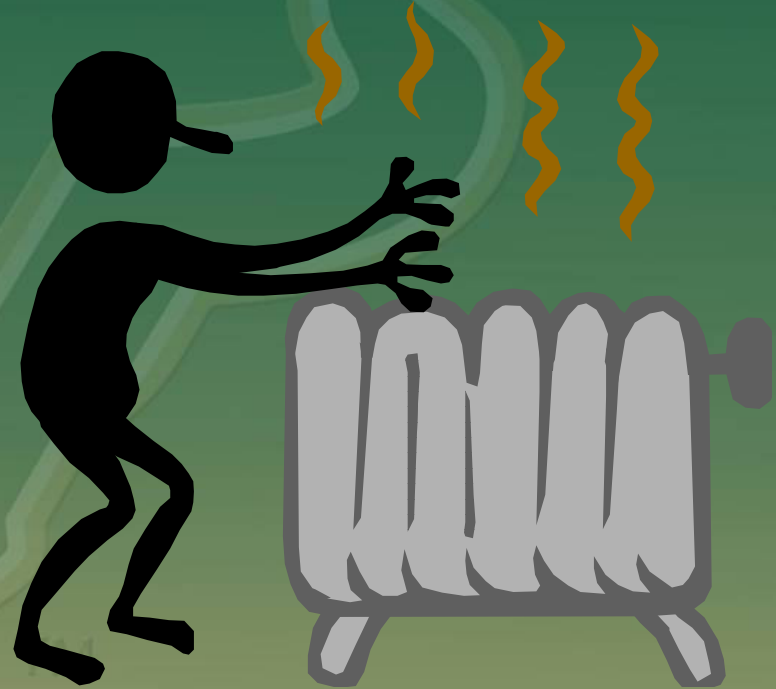
- Sweat increases
- Blood is pushed towards the skin
- Respiration increases
- Desire for food decreases
- Desire for fluids increases
- Desire for salt increases
- Muscle contraction decreases (willingness)

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



Monitoring

- Weight Change
- Symptoms
- Urine specific gravity
- Bioelectrical impedance
- Core Temp
 - “Heat Pill”
 - Correlate with signs/symptoms
 - Ability to track rate of change
 - Monitor the whole team simultaneously
 - Cost?
 - Uncharted waters
 - Parameters?
 - Godek SF, Godek JJ, Bartolozzi AR, *Thermal Responses in Football and Cross Country Athletes During Their Respective Practices in a Hot Environment*, Journal of Athletic Training, vol 39, no 3, 235-240, 2004.
- Others

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.

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

Summary

- RICE immediately following injury
- Seek medical attention if loss of function is severe
- Keep the playing area clean and clear of hazards
- Conditioning may help prevent some injuries

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