Sports Specific Safety

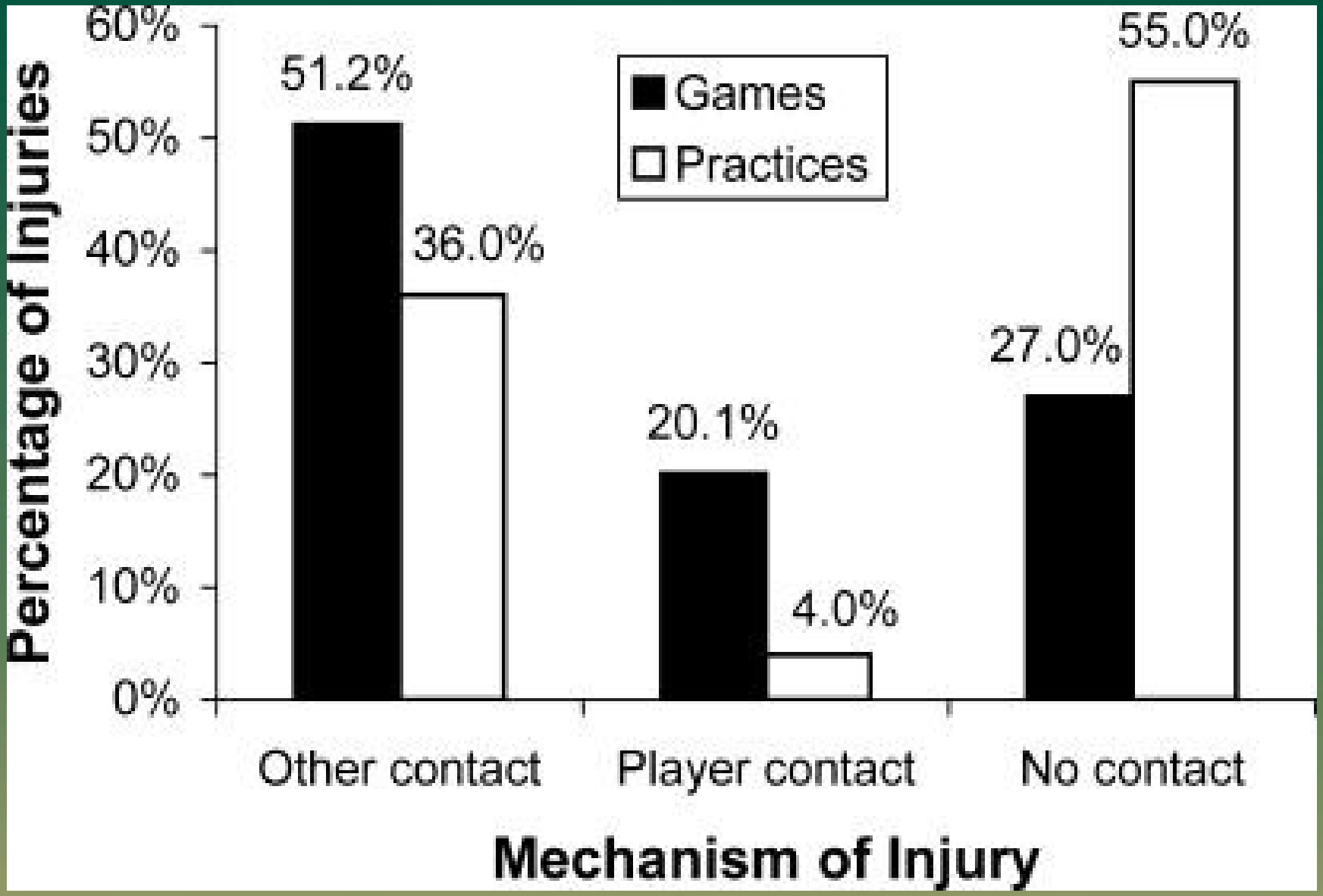
Softball

Sports Medicine & Athletic Related Trauma
SMART Institute

Injury Statistics

Body Part	Games	Practices
• Head/neck	13.4	9.6
• Upper extremity	33.1	33.0
• Trunk/back	7.2	12.3
• Lower extremity	43.3	40.8
• Other	3.0	4.4

J Athl Train. 2007 Apr–Jun; 42(2): 286–294.



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The Rotator Cuff

The rotator cuff muscles help stabilize the shoulder joint and are involved in the rotational movements of the shoulder. They are put under a significant strain when the arm goes through an overhead motion such as throwing or serving, making them susceptible to injury.

Rotator Cuff

The rotator cuff is a group of four muscles:

- Supraspinatus
- Infraspinatus
- Teres minor
- Subscapularis

Rotator Cuff Strain Treatment

- Ice
- Activity modification
- NSAID
- Restore pain free range of motion
- Rehabilitation
  - Rotator cuff
  - Scapular stabilizers

Rotator cuff tear

- Most tears occur through repetitive overhead activities, like throwing a baseball/softball
- RTC tears can also occur with a single traumatic incident.

Signs & Symptoms

- Pain and weakness with lifting the arm, with lowering the arm
- Atrophy (muscle shrinkage)
- Crepitus (clicking and grinding)
- Pain that wakes a person up at night

Common treatment

- Rehabilitation: pain control, range of motion, strengthening.
- Anti- inflammatory medication
- If the injury does not respond to the above, a surgical procedure may be required.

Biceps Tendon injury

- Biceps muscle activity is greater during a windmill pitch than during an overhand throw.

- The highest muscle activity occurred at the "9-o'clock phase" of the windmill pitch.

Am J Sports Med. 2009 Mar;37(3):558-65. Epub 2009 Jan 27.

Ankle ligament sprain

- Ankle Sprains: lateral ankle injuries are more common than medial, sometimes the result of stepping on another's foot.
- Acute Management: Rest, Ice , Compression, Elevation
- Prevention: Stretching (Achilles), strengthening, proprioceptive training, proper footwear, and taping/bracing when appropriate.

Ankle Sprain

- Prevention Techniques
  - Tape/Bracing
  - Ankle strengthening exercises
  - Balancing drills

Knee cartilage & ligament

- Internal knee injuries: could consist of ligamentous damage or meniscal tears.
- Acute management: Rest, Ice, Compression, Elevation. Crutches could be warranted.
- Prevention programs such as PEP can be instrumental in preventing ACL injuries.

Meniscal (Cartilage) Tears

- Caused by foot being planted and body twists
- “Pop”, may still 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 quadricep shutdown

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

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

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

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

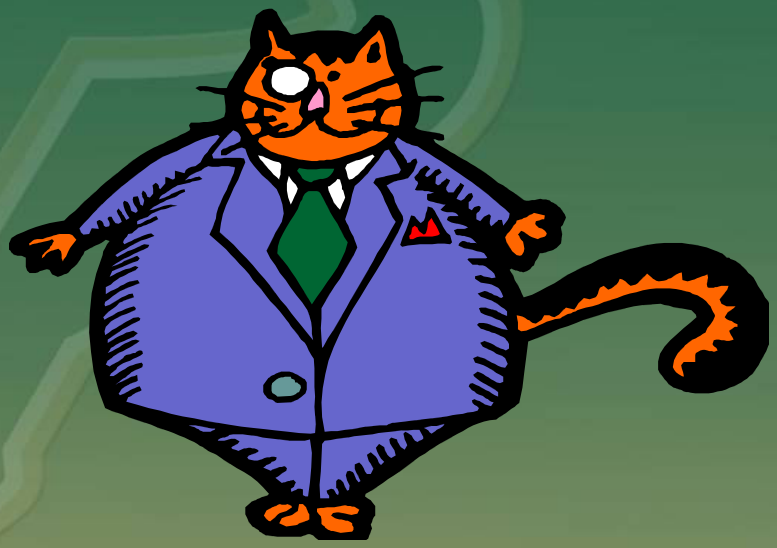
- Lightning
  - Flash to Bang or 30-30 Rule
    - If there is 30 seconds or less between the time that you see lightening and hear thunder then seek shelter immediately.
    - Wait at least 30 minutes after the last thunder is heard before resuming play. If you see further thunderstorm clouds building, 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.

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

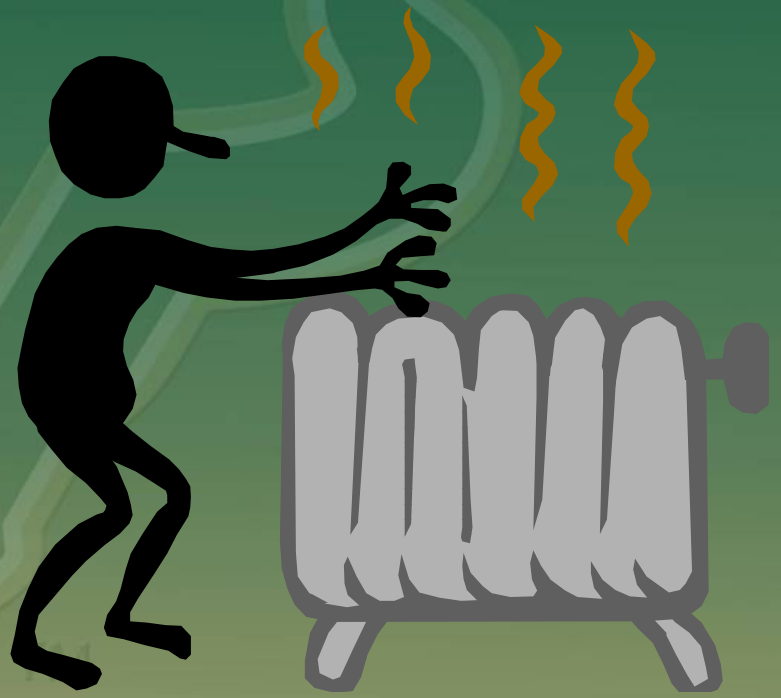
- Sweat increases
- Blood is pushed towards the skin
- Respiration increases
- Desire for food decreases
- Desire for fluids increases
- Desire for salt increases
- Muscle contraction decreases (willingness)

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 impedence
- CoreTemp
  - "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.

USF Health Sports Medicine

http://usf**ortho**.com

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