

Basic Approach to Athletic Injuries: Prevention and Management

By: Ben Conaway, ATC, LAT
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Outline

- ❖ Biography
- ❖ **Injury Prevention**
 - Weight Lifting
 - Footwear
 - Bracing
- ❖ **Management**
 - Emergency Action Plans
 - Basic Types of Injury
 - Basic Treatment
 - Referrals
- ❖ Questions

Biography



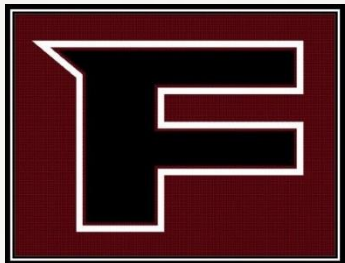
❖ Kingsport, TN

- Sullivan South High School - 2005
- Basketball/Track
- No ATC



❖ West Virginia University

- Bachelor of Science in Physical Education: Athletic Training - 2010
- Minor in Sports Psychology



❖ Tennova and Fulton High School

- 2010 - current
- Free service to the community

Bio Continued

❖ Certified Athletic Trainers

- highly qualified, multi-skilled health care professionals who collaborate with physicians to provide preventative services, emergency care, clinical diagnosis, therapeutic intervention and rehabilitation of injuries and medical conditions.¹
- Recognized allied health care professional by the AMA
- Nationally Certified by the BOC
- TN State Licensure



Disclaimer

- ❖ Always defer to your ATC if they are present or consult them by phone if possible.

Injury Prevention

❖ Weight Lifting

▪ Technique, Technique, Technique

- Knees behind toes / “Butt back, knees back”



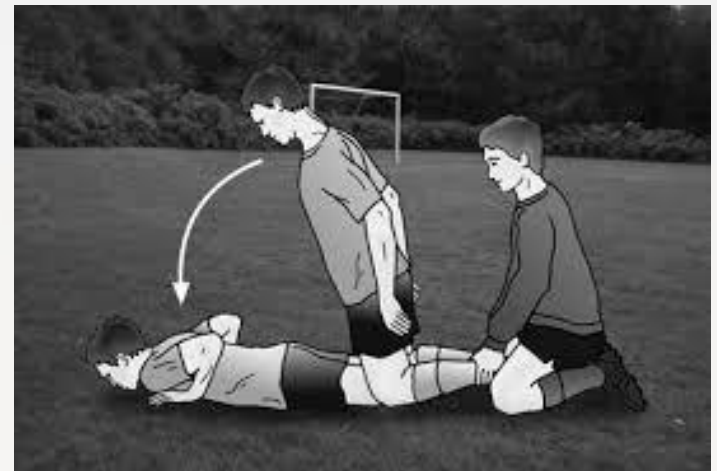
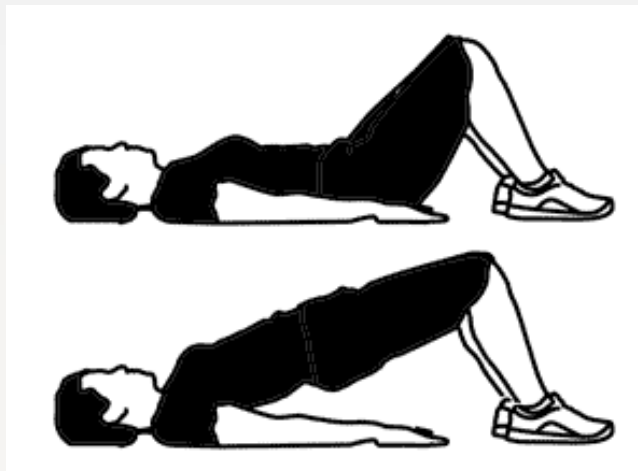
- Avoid Compensation



Injury Prevention

❖ Weight Lifting

- Over developed quadriceps and underdeveloped hamstrings
- must incorporate hamstring strengthening to avoid injury
 - Hamstring curls, bridges, hip extensions, Nordic hamstring curls, etc.



Injury Prevention

❖ Proprioception

- Brain's awareness of the body's joints in space



Injury Prevention

❖ Proper Footwear

- low top vs high top shoes
 - Trend towards low tops in basketball
 - Increased muscle activity vs increased mechanical support²
 - Train for ↑ muscle activity & play with ↑ support
 - Chronic injury
 - Need for more research



Injury Prevention

- ❖ Proper Footwear
 - Position specific cleats
 - WR vs Lineman



Injury Prevention

“To brace or not to brace. That is the question”

Injury Prevention

❖ Bracing

- Prophylactic: tending to prevent or ward off – “Preventative³”
- Ankle braces or no ankle braces?
- Study⁴: Ankle bracing vs taping over 1 season
 - » Same incidence of injury in 2 groups
 - » Bracing cost less \$
 - » 97 hours per ankle taped
- Systematic Review⁵: Bracing to prevent knee sprains
 - » 3 studies = relative risk reduction
 - » 4 studies = increased risk of injury

Injury Management

❖ Emergency Action Plan (EAP)

1. Each institution that sponsors athletic activities **must have** a comprehensive and practical emergency plan
2. Must be a **written document** distributed to administrators, coaches, ATCs, team physicians, organizational safety personnel, etc.
3. Should be developed **in consultation** with local emergency medical services personnel.

Injury Management

❖ EAPs

4. Should **identify the personnel** involved and outline their qualifications for executing the plan. Sports medicine professionals, officials, and coaches **should be trained** in automatic external defibrillation, CPR, & first aid.
5. Should outline the **location of the emergency equipment**. Equipment available should be **appropriate to the level of training** of the personnel involved.

Injury Management

❖ EAPs

6. Establishment of a **clear mechanism for communication** to appropriate emergency care service providers.
7. Should be **specific** to and **comprehensive of all venues**. That is, each activity site should have a defined emergency plan detailing site specific access points for emergency personnel.

Injury Management

❖ EAPs

8. Should be **reviewed and rehearsed annually**, although more frequent review and rehearsal may be necessary.
9. All personnel involved with the organization and sponsorship of athletic activities share a **professional and legal responsibility** to provide for the emergency care of an injured person, including the development and implementation of an emergency plan.⁶

Injury Management

❖ Basic Types of Injury

■ Acute

- Specific cause or MOI
- Contact and non-contact
- Immediate pain and loss of function

■ Chronic

- Develops over time
- Overuse
- Repetitive microtrauma

Injury Management

❖ Acute Injuries

▪ Strains

- Non-contact injuries to muscles and tendons caused by excessive tension within muscle fibers⁷
 - Overload “stretch” injury
 - Hamstring, Rotator Cuff, Hip Flexor, etc.

▪ Sprains

- Traumatic joint twist that results in stretching or total tearing of the **stabilizing** connective tissues⁸
 - Ligaments and joint capsules
 - ACL, MCL, Lateral Ankle, Thumb UCL, etc.

Injury Management

❖ Acute Injuries

▪ **Joint Dislocations**

- **Luxation** – complete dislocation
 - “comes out and stays out”
 - must be reduced by medical personnel
- **Subluxation** – partial dislocation
 - “slipped out, but went back in”
- Most common: fingers and shoulders

▪ **Fractures**

- Fracture = Broken
- Blunt Trauma, FOOSH, Dislocations, etc.
- Significant pain and loss of function
- Pain while at rest

Injury Management

❖ Chronic Injuries

▪ Tendonitis

- Inflammation of the muscle tendon
 - Result of repetitive microtrauma placed on the structure
 - Pain, heat, swelling, and thickening over time
 - Not a structural stability issue
 - Patellar or “jumpers knee,” Achilles, Quadriceps, Medial/Lateral Epicondylitis or “Golfer’s/Tennis Elbow,” etc.

ACHILLES TENDINITIS

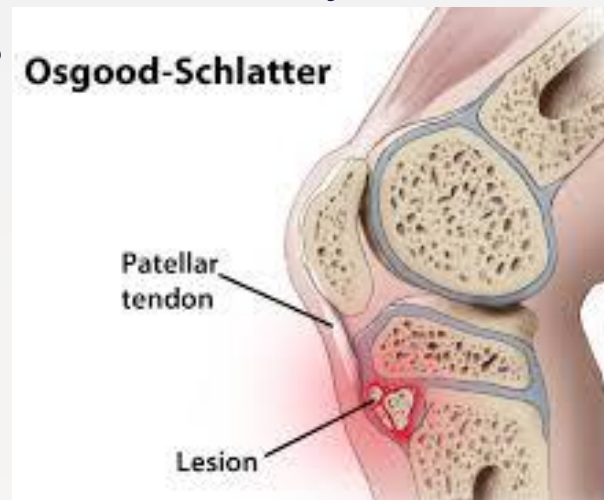


Injury Management

❖ Chronic Injuries

▪ Osgood-Schlatter Disease

- Common to immature adolescent knees
 - Predominately 13 – 16 yrs of age
- Significant pain where the patellar tendon attaches to the tibial tuberosity
- Cartilage avulsions which eventually morph into boney callus



Injury Management

❖ Chronic Injuries

▪ **Stress Fractures**

- Caused by the performance of a rhythmically repetitive stress that leads up to a vibratory summation point⁹
- Early detection is difficult
- Pain, swelling, and focal tenderness
- Initially, pain when active, but not at rest
- Later, pain is constant and more intense at night

Injury Management

❖ Basic Treatment

▪ Inflammatory Phase

- Result of an acute injury
- First 72 hours post injury
- Body's inflammatory response is critical to the overall healing process
 - Dispose of injury by-products
 - Initiates the healing cascade
- Overreaction
- Must work to control swelling ASAP

Injury Management

❖ Basic Treatment

▪ Edema control

➤ **Rest**

➤ **Ice**

➤ **Compression**

➤ **Elevation**



Injury Management

❖ Rest

- Removal from all participation
- Avoidance of just painful activity
- Crutches for ambulation
 - Athlete cannot walk without limping
 - 6" out and 2" up
 - Distribute weight through out the forearms. NOT the arm pits
 - "Up with the good guys, down with the bad"



Injury Management

❖ Ice

- “When in doubt go with ice”
- Helps control pain and swelling
- Most important for the first 3 days or after reaggravation
- No less than 15’ but no more than 20’ at a time
- Use a skin barrier only if there are superficial nerves
- Ice while elevated

Injury Management

❖ Compression

- Ace wrap or compression sleeve
- Mechanical vasoconstrictor
- Supportive of joint and surrounding musculature
- Wear at all times except in the shower and for icing



Injury Management

❖ Elevation

- Raise the injured area above the heart
- Let gravity do the work
- Elevate as much as possible when swelling is present
- Best tool to decrease swelling after the first 3-5 days



Injury Management

❖ Referral

- Suspected fracture
 - Significant loss of range of motion
 - Significant swelling
 - Obvious deformity
 - Any dislocation or subluxation
 - Injury that just doesn't seem to be getting better
- ER vs Orthopaedic Clinic

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Questions

