Care and Prevention of Athletic Injuries

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NEACA
NATIONAL EDUCATION & ATHLETIC CERTIFICATION ASSOCIATION
First Aid & Safety

Introduction

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Introduction

• In today's society, athletics, has taken on a life of its own. It has infiltrated every aspect of our daily lives. This is not to say that this athletics is negative in any way, just that we have a heightened focus on the benefits of participation and being a spectator.

• The statistical participation rates in the United States have been reported as high as 70 million youth sport athletes (ages 6-18).

• This puts a huge stress on the need for coaches. In order to meet the demanding and growing need for coaches, they can often end up in precarious positions without the appropriate education.
• The main focus of athletics is still to provide a positive physical and emotional environment for competitive activities in a Safe Environment.

• This Care and Prevention of Athletic Injuries course provides an in depth and comprehensive education into the concepts, constructs and solutions to the most common and important aspects of keeping our athletes safe at every age.

• The benefit of this course is that it is laser focused on the Real Challenges coaches face under the umbrella of Athletic Injury, Injury Prevention, Injury Rehabilitation, Injury Awareness, Liability and Risk Management.
Introduction

Defined

• A sports injury results from an acute trauma or repetitive stress associated with athletic activities for movements.

• These types of injuries often affect bone or soft tissue (ligaments, muscles, tendons).

Etiology

• It is critical to understand injuries especially the cause of mechanism that caused the injury to properly assess and treat the athlete. The main role of an athletic coach, with respect to injury, is prevention by properly planning activities & drills, matching athletes appropriately, as well as providing proper technical instruction.
Introduction

Coaches Responsibilities

- A coach must be able to recognize hazards, provide first aid care, assess injuries & deliver treatment
- All coaches must be certified in CPR, AED & First Aid
- Must support the AT staff in rehabilitation process

Stay Up To Date

- It is the responsibility of the coach & staff to engage in ongoing professional development to improve skills and knowledge in order to deliver the appropriate care and render responsible decisions
- This should be a constant & consistent activity - not just when it is required for certification or recertification

Evaluate through H.I.T.

- History
- Inspection
- Touch
Statistically At Risk

- Statistically Predisposed 8,000 children are treated in emergency rooms daily for sports related injuries.

- High School athletes suffer approximately 2 million injuries, 500,000 doctor visits & 30,000 hospitalizations per year.

- 62% of sports related injuries occur during practice.

- Athletes ages 15-17 experience the highest emergency room visit percentage over all age categories.

- History of injury is the biggest risk factor in future injury - making prevention absolutely critical.
Your Risk As A Coach

• It is crucial to understand legal terms like:
  • Liability
  • Negligence
  • Tort
  • Good Samaritan law
  • Non-Mal & Misfeasance

• The challenge with coaching is the added legal liability in working with minors in a physically strenuous activity.

• There have been consequences athletically across the nation to children that include but are not limited to broken bones, soft tissue injury, paralysis and even death!

• As much as you would not like it to be so - the fact is YOU ARE LIABLE! As THE COACH in charge when these types of things happen you will be “on the hook” if anything was done incorrectly or with negligence.
Your Risk As A Coach

• I have said this to my coaching clients for years:
  
  • “Parents are your best friends until they’re not - then they’re your worst nightmare!”
  
• What this means is when you are playing their child or at minimum winning, parents will be in your corner fighting with & for you
  
• As soon as their child is sitting the bench or you’re losing (or both) they will quickly & quietly (sometimes very publicly) attempt to bring you down
  
• Providing them with ammunition over an ill-advised drill or a practice in the heat without enough water breaks and so on is enough to give them a shot.
If a situation ever ends up in any type of litigation or mediation over an athlete being injured or following injury how it was handled, a simple question will start the ball rolling: Was an appropriate Standard of Care provided.

What is the definition of appropriate Standard of Care:

• What a minimally competent person would do in a given situation.

Torts & Types

• It is important that as a coach you understand that you can be held legally liable for the following:

  • For DOING something wrong.
  • For DOING something right at the WRONG time.
  • For NOT doing anything at all.
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Standard of Care

• Tort

  • Tort: a legal wrong.

    • If it is deemed that you did not provide an appropriate Standard of Care as the legally responsible person on site the next question will be - is this considered a Tort Case.

• Types:

  • Omission: you didn't do something, you omitted it

    • This is where having things like an emergency plan on file is important.

    • In an emergency situation it is easy to skip a critical step that could cause you to be liable.

  • Commission: you did do something wrong/improper.

    • This is why staying up to date on all certifications & always engaging in professional development is important.

    • Using current strategies & state-of-the-art equipment/solutions keeps you at the forefront of eliminating liability.
Your Risk as A Coach

• Not only do your athletes assume risk, so do you. Following the “clearance” process is often a hassle because kids seemingly never get their information in on time - but it is critical to follow the process to protect yourself. This process clarifies:

• Assumption of Risk:
  • The full understanding that one may be injured while participating in sport/activity and still willingly participates

• Informed Consent:
  • Being granted permission to administer care
Negligence

• Definition: Failure to act as a reasonably, prudent person would act in a similar situation.

• 5 Types of Negligence

  1. Gross Negligence- The fact that someone did something improper and the person suing them can not only sue the person in the wrong, but also institutions & multiple persons

  2. Malfeasance- Not able to perform but does

  3. Misfeasance- Legally able to do a job but does it improperly

  4. Nonfeasance- Having the right to act but you don’t act at all

  5. Malpractice- A negligent act of care, didn’t perform something right because it was an outdated treatment or you didn’t perform the treatment correctly.
Negligence

Your Risk as A Coach

• Proximate Cause:
  • A close connection between the way a health care professional acted & the resulting injury to an athlete

• Avoiding Legal Challenges:
  • Have a written contract (Job description)
  • Use equipment that meets established safety standards (NOCSAE)
  • Maintain CPR and First Aid Certification
  • Have an emergency plan
  • Document all injuries and procedures
  • Maintain confidentiality
  • Check for hazards in practice & game environments
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Negligence

Your Risk as A Coach

- Best Practices for Injury Prevention
  - Educating the Athlete
  - Rule Enforcement (ex: spearing)
  - Proper matching (ex: Boxing & Wrestling: Height, weight and skill level)
  - Physical Fitness
- Documentation
  - All appropriate documentation must be submitted & verified by the coaching staff prior to practice
  - Have all accident logs, injury reports, emergency contacts & insurance information readily available
Negligence

Your Risk as A Coach

• Stay Up To Date

  • It is the responsibility of the coach & staff to engage in ongoing professional development to improve skills and knowledge in order to deliver the appropriate care and render responsible decisions

  • This should be a constant & consistent activity - not just when it is required for certification or re-certification
Proper Dynamic Warm-Up

• A dynamic warm up is a series of active sport-specific movements designed to prepare the muscles for performance. They are performed in a safe and controlled fashion.

• A “one size fits all” approach should be avoided and each athlete should tailor the warm-up based on their respective sport.

• The dynamic warm-up (I.E. walking side lunges, heel kicks) has been gaining popularity & has the research to back it up.
Benefits of Dynamic Warm-Up

Sports Performance

• Increase in performance measures after a dynamic warm-up compared to other warm-ups has been found to be statistically significant.

• Performance measures included vertical jump, long jump, 300-yd shuttle run and medicine-ball underhand throw for distance.

• Improvement in balance, agility & movement time in dynamic stretching compared to static stretching has also been found to be substantial.

Injury Prevention

• There was no reduction in overall injury statistics with standalone static stretching

• Improvements were seen in eccentric quadriceps strength and hamstring flexibility with dynamic warm-up - correlating to reduced injury risk and improved performance
Benefits of Dynamic Warm-Up

Additional Benefits:

• Enhanced nerve conductivity (think faster reaction time)
• Faster metabolism
• Decreased resistance of muscles and joints (i.e., more mobility)
• Increased blood flow to muscles
• Elevation of baseline oxygen consumption
• Increased preparedness to train or compete
Dynamic Warm-Up Movements

- **Side/Front Crossover**: Athletes swing both arms out to their sides and then cross them in front of their chest, while moving forward.

- **Walking Lunge with Rotation**: Athletes take a big step forward and at the same time rotate their arms horizontally.

- **Lateral Shuffle**: Athletes move laterally without crossing feet.

- **Frankenstein Walks**: Athletes walk with both hands extended in front of the body, palms down, then they kick with the extended leg towards hands.

- **Heel-Ups**: Athletes kick heels towards buttocks while moving forward.

- **Inch Worms**: Start in push-up position. Keeping legs extended athletes walk towards hands, and then they walk hands forward while keeping limbs extended.

- **Modified Shuttle Run**: Athletes run to the opposite line at a moderate pace (50% maximum speed), bend to touch the line, and return back gradually accelerating (75%) and touch the starting line. After touching the starting line, they run to the opposite line accelerating to near maximum speed (90%), touch the line and return back to the starting line walking.
Soft Tissue Terminology

Soft Tissue

• Definition: A generic term used to describe anything other than boney structure in the body.
  • muscle
  • fat
  • ligaments
    • connect bone to bone
  • tendons
    • attach muscle to bone
  • blood vessels
  • fibrous tissues
Soft Tissue Injuries

- Incision: A surgical cut made in skin or flesh.
- Abrasion: An area damaged by scraping.
- Contusion: Tissue or skin with ruptured capillaries; bruise.
- Laceration: A deep cut or tear in the skin or flesh.
- Avulsion: A pulling or tearing away of soft tissue.
- Puncture: To pierce or penetrate soft tissue or bone.
- Countrecoup: A contusion resulting from the brain contacting the skull on the opposite side of the impact.
- Superficial: close to the body’s surface.
- Deep: away from the body’s surface.
Purpose of Proper Wound Care

• Proper wound care is necessary to prevent infection, assure there are no other associated injuries, and to promote healing of the skin. An additional goal, if possible, is to have a good cosmetic result after the wound has completely healed.
Causes of Wounds

- **Inflammation** is swelling and redness of injured area which is the skin's initial response to injury.

- **Superficial (on the surface) wounds and abrasions** leave the deeper skin layers in tact. These types of wounds are usually caused by friction rubbing against an abrasive surface.

- **Deep abrasions** (cuts or lacerations) go through all the layers of the skin and into underlying tissue like muscle or bone.

- **Puncture wounds** are usually caused by a sharp pointed object entering the skin. Examples of puncture wounds include a needle stick, stepping on a nail, or a stab wound with a knife.

- **Human and animal bites** can be classified as puncture wounds, abrasions, or a combination of both.

- **Pressure sores** (bed sores) can develop due to lack of blood supply to the skin caused by chronic pressure on an area of the skin (for example, a person who is bedridden, sits for long hours in a wheelchair, or a cast pressing on the skin). Individuals with diabetes, circulation problems (peripheral vascular disease), or malnutrition are at an increased risk of pressure sores.
The skin is a large sensory organ that interacts with the environment, and sends signals to the brain about touch, pain, vibration, and position.

There are two layers of skin that cover the body, the epidermis and dermis:

- The epidermis is the outermost layer of skin, the part that can be seen, and is very active with new skin cells being formed and gradually being shed.

- The dermis is the deeper layer of skin. It has two layers that are responsible for supporting the epidermis.
Home Care

• Most wounds may be cared for at home. Superficial abrasions and lacerations can be cleaned, an antibacterial ointment applied, and then covered with a band-aid or light bandage.

• Bleeding can often be controlled with direct pressure to the wound, and if possible, elevating the bleeding site above the level of the heart. This allows gravity to help decrease blood flow to the injury. Most bleeding will stop within 10 minutes, at which point, a dressing can be placed over the wound.

• If bleeding is not an problem, the wound can be cleaned using tap water to wash out any debris to decrease the risk of infection. River and lake water can contain many types of bacteria that can cause significant infection. It is not recommended to clean wounds with contaminated water.

• Deeper wounds are painful and scrubbing is not necessarily advised.

• If a wound needs medical care, there are steps that can be taken at home to begin treatment. Unless there is a significant underlying injury, there is ample time to seek medical care and it is appropriate to take a few minutes to clean and dress the wound.
Medical Attention

• If the wound is due to significant force or trauma and other injuries are present.

• If bleeding cannot be stopped even with persistent pressure and elevation.

• If there is concern that wound requires repair with sutures (stitches). The size and location of the wound are important considerations. Most facial wounds may need to be repaired for cosmetic reasons, especially if they involve the lip or eye.

• If the wound is caused by an animal bite. There is also a need to consider rabies immunizations, if appropriate.

• If the wound is very dirty and cannot be easily cleaned.

• If there is evidence of infection including redness, swelling, increased pain, and pus at the wound.

• If tetanus immunizations are not up to date, then a booster is needed within 48 hours. If the patient has never been immunized, the initial tetanus prevention with immunoglobulin should be given immediately.
Medical Attention

• The skin is a barrier to the outside world protecting the body from infection, radiation, and extremes of temperature.

• Many wounds are superficial requiring local first aid including cleansing and dressing.

• Some wounds are deeper and need medical attention to prevent infection and loss of function, due to damage to underlying structures like bone, muscle, tendon, arteries and nerves.

• The purpose of medical care for wounds is to prevent complications and preserve function. While important, cosmetic results are not the primary consideration for wound repair.

• Animal and human bites should always be seen by a medical professional because of the high rate of infection.

• It is important to know a person's tetanus immunization status (for example, has the person had a tetanus shot or booster vaccine in the last 5 years?) so that it can be updated with a tetanus booster if needed.
Wound Care - Treatment

- Personal history is important to understand the circumstances of the injury, because mechanism of injury will significantly affect the care provided. An animal bite will require more medical care than a fall on the playground.

- Individuals with diabetes, poor circulation, on dialysis, or taking medications that can compromise the immune system are at higher risk of infection; and the decision to repair a wound may be affected by the patient's medical history.

- The time frame from when the initial injury occurred, and when medical care is sought is important. The longer a wound is left open, the higher the risk of infection if it is sutured. The guide for many health care practitioners is if the wound is older than 6 to 12 hours, it may not be sutured.
Wound Care - Prevention

- Accidents happen and most people will sustain a wound regardless of how careful they might be.

- It is important to remember that when using tools at home or at work, to make certain they are being used in the appropriate manner and the appropriate precautions are taken. Often accidents occur because the person was in a rush, took a shortcut, or was using a tool in a way it wasn't designed.

- Protective gear is always appropriate. Wearing proper shoes or boots, wearing a bike helmet, or eye protection regardless of the situation will prevent an injury.
Bone Injury

• Dislocation
  • Occurs when a strong force displaces a bone so the two ends of a joint do not align.
  • They present with a noticeable deformity and pain.
  • A physician must reduce (put the joint back in its original position) the injury.

• Avulsion Fracture
  • Occurs when the tendon or ligament pulls off a piece of the bone. Can occur anywhere in the body.
Bone Injury

• Stress Fracture
  • An overuse injury. Occurs when muscles become fatigued and can’t absorb added shock and the fatigued muscle transfers the overload of stress to the bone causing a tiny crack.

• Spiral Fracture
  • Is a bone fracture occurring when torque (a rotating force) is applied along the axis of a bone. Spiral fractures often occur when the body is in motion while one extremity is planted.
Bone Injury

• Longitudinal Fracture
  • A fracture that follows the long axis of the bone.

• Compression Fracture
  • A collapse of a vertebra due to trauma or a weakening of the vertebra.
Bone Injury

• Oblique Fracture
  • A fracture, the line of which runs obliquely to the longitudinal axis of the bone.

• Comminuted Fracture
  • A break or splinter of the bone into more than two fragments. Considerable is required to fragment bone, fractures of this degree occur after high-impact trauma (vehicular accidents).
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Bone Injury

• Transverse Fracture
  • A fracture in which the break is across a bone at a right angle to the long axis of the bone

• Greenstick Fracture
  • A fracture of the bone, occurring typically in children, in which one side of the bone is broken and the other only bent
Bone Injury

• Pathological Fracture

  • A bone fracture caused by disease that leads to weakness of the bone structure, most commonly due to osteoporosis or other pathologies such as: cancer, infection, inherited bone disorders or a bone cyst.

• Blowout Fracture

  • A fracture of one or more of the bones surrounding the eye and is commonly referred to as an orbital floor fracture.
Bone Injury

• Depressed Fracture

  • A depressed fracture is a break in a cranial bone with depression of the bone in toward the brain.

• Epiphyseal (Salter-Harris) Fracture

  • A Salter–Harris fracture involves the epiphyseal plate or growth plate of a bone. It’s a common injury in children, occurring in 15% of childhood long bone fractures.
Splinting Basics

• Any suspected fracture (broken bone) or dislocation should be splinted, immobilized, or both. An effective splint helps to prevent further injury and to provide substantial pain relief.

• Splints can be ready-made or can be made from basic materials. For example, a person could use branches, boards, layers of cardboard, or a foam sleeping pad. Wrapping materials for the splint can include bandannas, climbing webbing, torn shirts, pants, or other pieces of clothing. These materials should be wrapped completely around the splinted extremity to secure the splint but should not be so tight as to block circulation.

• Unless the person who is injured is in a dangerous setting (for example, in the middle of a road or at the foot of a gully exposed to frequent ice or rock falls), all injuries should be splinted before the person is moved to minimize further injury.
Splinting Basics

- Severely deformed fractured limbs should be straightened if sensation or pulses are impaired prior to splinting. The process of straightening should not worsen the injury.

- A basic rule of splinting is that the joint above and below the broken bone should be immobilized to protect the fracture site. For example, if the lower leg is broken, the splint should immobilize both the ankle and the knee.

- Pulses and sensation should be checked below the splint at least once per hour. If the person complains of tightness, tingling, or numbness, the wrapping material should be released completely, and the splint should be rewrapped more loosely.
Splinting- Upper Extremity

• Using bandages to create a sling works for immobilizing collarbone, shoulder, and upper arm injuries extending down to the elbow. The arm sling is wrapped to the person's body with a large bandage encircling the person's chest.

• Injury to the forearm and wrist requires a straight supportive splint that secures and aligns both sides of the injury. An open hardback book is a quick and handy, temporary immobilizer.

• An injured finger can be buddy-taped to the adjacent, unaffected fingers, or it can be splinted with small pieces of wood or cardboard until more sturdy splints can be applied.
Splinting- Lower Extremity

• Pelvis, hip, and femur (upper leg) fractures often completely immobilize the person. Because broken bones of the pelvis and upper leg can cause massive, life-threatening internal bleeding, people with these types of fractures should be evacuated unless splinting and carriage are absolutely necessary. In these cases, the splint should extend to the lower back and down past the knee of the affected side of the extremity.

• Knee injuries require splints that extend to the hip and down to the ankle, running parallel to the injured leg. These splints are wrapped to the leg above and below the knee joint causing complete stability of the leg.
Splinting- Lower Extremity

• Ankle injuries and foot injuries can be wrapped alone. Use a figure-of-eight pattern: under the foot, over the top of the foot, around the back of the ankle, back over the top of the foot, under the foot, and so on. Splinting supports can also be used along the back and sides of the ankle to prevent excessive movement. The foot should be kept at a right angle in the splint to immobilize the ankle.

• An injured toe can be buddy-taped to the adjacent, unaffected toes until evaluated by a health care professional.
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Orthopedic Terminology

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Orthopedic Terminology

- **Abduction**: To move away from the mid-line of the body
- **Adduction**: To move toward the mid-line of the body
- **Eversion**: To turn outward
- **Inversion**: To turn inward
- **Extension**: To straighten
- **Flexion**: To bend
- **Dorsiflexion**: Flexing the foot at the ankle
- **Plantar Flexion**: Extending the foot at the ankle
- **Hyperextension**: Excessive extension at any joint
- **External Rotation**: Rotation away from the mid-line
- **Internal Rotation**: Rotation toward the mid-line
Orthopedic Terminology

- **External Rotation**: Rotation away from the mid-line

- **Internal Rotation**: Rotation toward the mid-line

- **Circumduction**: Moving a part so that its end follows a circular path

- **Pronation**: Palm turned downward or face downward

- **Supination**: Rotation of the forearm and hand so that the palm faces forward or upward also: a corresponding movement of the foot and leg in which the foot rolls outward with an elevated arch.

- **Valgus**: Deviation of distal extremity away from midline

- **Varus**: Deviation of proximal extremity toward midline
• Definition: A direct blow to the head or an indirect blow to the body causing neurological impairments that may resolve spontaneously

• Symptoms usually reflect a functional disturbance to the brain, and may include
  • Physical (e.g., headaches, nausea)
  • Cognitive (e.g., difficulty with concentration or memory)
  • Emotional (e.g., irritability, sadness)
  • 'Maintenance' (e.g., sleep disturbances, changes in appetite or energy levels) symptoms
• A concussion is considered a BRAIN INJURY
Concussion Statistics

• CDC estimates up to 3.8 million sport concussions per year

• 50% of 2nd Impact Syndrome brain injuries are caused due to premature return to activity

• Football is the most common concussion sport for males

• Soccer is the most common concussion sport for females

• 78% of concussions occur during competition

• Approximately 47% of athletes don’t report feeling any symptoms after a concussive blow
Age & Concussions

• High school athletes take significantly longer to recover after a concussion than college or professional athletes.

• High School athletes tend to have more severe symptoms than their older counterparts.

• A Significant number of high school athletes fail to report concussion symptoms which makes awareness and detection critical.

• Due to the frontal lobe being undeveloped until around age 25 it is essential to manage youth concussions extremely conservatively.

• The 5 Step Return-To-Play protocol takes place on page 57-60 of this e-book.
Concussion Treatment

• Return To Play
  
  • Baseline testing should occur before the season & be applied after a concussive event - the athlete must meet or beat their baseline score.

  • No concussion symptoms for 24 hours.

• Physical Battery
  
  • A series of increasingly more difficult tests must be completed without the onset of any concussion symptoms.

  • If during that battery of physical tests concussion symptoms do arise - you go back to step #1 - no concussion symptoms for 24 hours.
5 Step Return-To-Play Protocol

• Back to School First:
  • Once the athlete is back to regular school activities & no longer experiencing symptoms from the injury they will get the green-light to begin the return to play process

• Step 1:
  • Light aerobic activity: Begin light aerobic exercise to increase heart rate. I.E. - 5-10 minutes on an exercise bike, walking, or light jogging. No weight lifting.

• Step 2:
  • Moderate activity: Continue to increase heart rate with body or head movement. Moderate jogging, brief running, moderate-intensity stationary biking, moderate-intensity weightlifting.
5 Step Return-To-Play Protocol

• Step 3:
  • Heavy Non-Contact activity: Add heavy non-contact physical activity, such as sprinting/running, high-intensity stationary biking, regular weightlifting routine, non-contact sport-specific drills (in 3 planes of movement).

• Step 4:
  • Practice & Full Contact: Athlete may return to practice & full contact (if appropriate for the sport) in controlled practice.

• Step 5:
  • Return to competition: Athlete may return to full competition again.
5 Step Return-To-Play Protocol

• Each step should take 24 hours

• It should take an athlete approximately one week to proceed through the full rehabilitation protocol once they are asymptomatic at rest and with provocative exercise

• If any post concussion symptoms occur while in the Return To Play Progression - the athlete will drop back to the previous asymptomatic level and try to progress again after a 24-hour period of rest has passed

• IF THERE IS ANY DOUBT - SIT THEM OUT
Concussion Consequences

• As we continue to research this issue we discovering the real effects of this injury. what we know at this time is:
  
  • MCI: Mild Concussive Impairments
  
  • PCS: Post-Concussion Syndrome
  
  • CTE: Chronic Traumatic Encephalopathy

• While we are still determining the exact long-term consequences of concussions the one thing we do know is that the biggest factor leading to neurological damage is sustaining ANOTHER concussion before fully recovering from the previous concussion.
Second Impact Syndrome

• Occurs when an athlete receives a blow to the head before the symptoms of the first concussion has subsided.

• This a very rare condition in which rapid and severe brain swelling occurs with often catastrophic results.

• Shows the importance of having an athlete complete the full 5 step return-to-play protocol until an athlete can workout symptom free.

• Remember… If in doubt, sit them out!
Basic Athletic Training

7 Most Common Sports Injuries

Coaching Education & Licensure E-Book

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7 Most Common Sports Injuries

- No matter what sport you participate in it will physically stress soft tissue and bone and cause injury - these are the most common injuries found across all sports:
  1. Ankle Sprain
  2. Groin Pull
  3. Hamstring Strain
  4. Shin Splints
  5. ACL Tear
  6. Patellofemoral Syndrome
  7. Tennis Elbow

- Many of these are preventable with proper care and limiting use overtime. Some are not and the return to play protocol will be critical to proper healing and preventing additional identical injuries.
7 Most Common Sports Injuries

Ankle Sprain

• A twisting or rolling over of the ankle bones that stretches or tears the ligaments stabilizing the joint.

• An excessive movement that forces the ligaments beyond their normal range of motion.

• Most sprains involve the lateral (outside) aspect of the ankle joint.
Sprain vs. Strain

- **Sprain** - Overstretch or tear of a ligament
  - Grade 1: Mild pain during use, mild swelling/muscle spasm (Overstretched ligament with no loss of motion)
  - Grade 2: Moderate pain, swelling, spasm, impaired muscle function (Partially torn, some loss of motion and swelling).
  - Grade 3: Severe pain, significant loss of muscle function due to rupture, palpable defect (Completely or nearly ruptured).

- **Strain** - Overstretch or tear of a muscle
Ankle Sprain Treatment

• R.I.C.E.

  • **Rest**: You may need to use crutches until walking is not painful without them.

  • **Ice**: For the first 48 to 72 hours or until swelling goes down, apply an ice pack for 10 to 20 minutes every 1 to 2 hours during the day. After 48 hours, you can continue with ice or try contrast baths.

  • **Compression**: An elastic compression wrap will help decrease swelling and should be worn for the first 24 to 36 hours. A protective brace should also be worn if you try to bear weight on your injured ankle. Don't apply the wrap too tightly. Loosen the bandage if it gets too tight. Signs that the bandage is too tight include numbness, tingling, increased pain, coolness, or swelling in the area below the bandage. Compression wraps do not offer protection.

  • **Elevation**: Raise your ankle above the level of your heart for 2 to 3 hours a day if possible to decrease swelling and bruising.
7 Most Common Sports Injuries

Groin Pull

• Definition: Results from putting too much stress on muscles in your groin and thigh. If these muscles are tensed too forcefully or too suddenly, they can get over-stretched or torn.

• Groin pulls are common in people who play sports that require a lot of running and jumping. In particular, suddenly jumping or changing direction is a likely cause.
Groin Pull Treatment

- **Rest:** A groin pull will usually heal on its own given enough time and rest.

- **Ice:** The inside of your thigh to reduce pain and swelling. Experts recommend doing it for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days, or until the pain is gone.

- **Compress** your thigh using an elastic bandage or tape.

- **OTC NSAIDs:** Nonsteroidal anti-inflammatory drugs (NSAIDs), like ibuprofen and naproxen, will help with pain and swelling.
  
  - These drugs can have side effects
  - They should only be used under parental or doctor supervision.
7 Most Common Sports Injuries

Hamstring Strain

• Definition: The Hamstring is a group of four muscles that run along the back of your thigh that allow you to bend your leg at the knee

  • A hamstring strain is when one or more of these muscles gets overloaded and the muscles might even start to tear
Hamstring Strain Treatment

- **Rest:** Avoid putting weight on the leg if you can. If the pain is severe, you may need crutches until it goes away. Ask your doctor or physical therapist if they're needed.

- **Ice:** Will reduce pain & swelling. Apply for 20-30 minutes every three to four hours for two to three days, or until the pain is gone.

- **Compression:** Use an elastic bandage around the leg to keep down swelling.

- **Elevation:** Elevate your leg on a pillow when you're sitting or lying down.

- **OTC NSAIDs:** Nonsteroidal anti-inflammatory drugs (NSAIDs), like ibuprofen and naproxen, will help with pain and swelling.
  
  - These drugs can have side effects.
  
  - They should only be used under parental or doctor supervision.

- **Stretching & Strengthening:** if your doctor/physical therapist recommends them. Strengthening your hamstrings is one way to protect against hamstring strain.
Shin Splints

- Definition: it is a problem with the muscle sheath pulling away from the shin bone.

- Shin splints are very common in runners and dancers. Any sport where there is a singular repetitive motion of the lower body.

- You can get shin splints from a variety of scenarios:
  - ramping up workout intensity.
  - changing the training surface.

- Shin splints often heal on their own

- If you see a doctor, expect to get a thorough physical exam.

- Your doctor may want to see you run to look for problems.

- You may also need X-rays or bone scans to look for fractures.
7 Most Common Sports Injuries

Shin Splint Prevention

• Wear shoes with good support and padding.

• Warm up before working out.

• Work to maintain and improve the mobility in your ankles and hips.

• Stretch the muscles in your legs, especially after workouts.

• Work to maintain and improve strength in the stabilizing muscles of your hips and ankles.

• Stop working out as soon as you feel pain in your shins.
Shin Splint Treatment

- **Rest**: It needs time to heal

- **Ice**: to reduce pain and swelling. Apply for 20-30 minutes every 3 to 4 hours until the pain is gone

- **OTC NSAIDs**: Nonsteroidal anti-inflammatory drugs (NSAIDs), like ibuprofen and naproxen, will help with pain and swelling
  
  - These drugs can have side effects
  - They should only be used under parental or doctor supervision

- **Orthotic shoes inserts** -- which can be custom-made or bought off the shelf -- may help with arches that collapse or flatten when you stand up

- **Do range-of-motion exercises**, if your doctor recommends them

- **Use a neoprene sleeve** to support and warm your leg

- **Go to physical therapy** to identify and treat issues in your legs or running mechanics that may be causing shin splints. A therapist can also help ease the pain and guide your return to sport
Anterior Cruciate Ligament (ACL) Injury

• One of the most common knee injuries is an anterior cruciate ligament sprain or tear.

• Athletes who participate in high demand sports like soccer, football, and basketball are more likely to injure their anterior cruciate ligaments.

• If you have injured your anterior cruciate ligament, you may require surgery to regain full function of your knee. This will depend on several factors, such as the severity of your injury and your activity level.
Anterior Cruciate Ligament (ACL) Anatomy

- Three bones meet to form your knee joint: your thighbone (femur), shinbone (tibia), and kneecap (patella). Your kneecap sits in front of the joint to provide some protection.

- Bones are connected to other bones by ligaments. There are four primary ligaments in your knee. They act like strong ropes to hold the bones together and keep your knee stable.
Anterior Cruciate Ligament (ACL) Anatomy

• Colateral Ligaments:
  • These are found on the sides of your knee. The medial collateral ligament is on the inside and the lateral collateral ligament is on the outside. They control the sideways motion of your knee and brace it against unusual movement.

• Cruciate Ligaments:
  • These are found inside your knee joint. They cross each other to form an "X" with the anterior cruciate ligament in front and the posterior cruciate ligament in back. The cruciate ligaments control the back and forth motion of your knee.
  • The anterior cruciate ligament runs diagonally in the middle of the knee. It prevents the tibia from sliding out in front of the femur, as well as provides rotational stability to the knee.
Anterior Cruciate Ligament (ACL) Treatment

• Non-Surgical

• A torn ACL will not heal without surgery. But nonsurgical treatment may be effective for patients who are elderly or have a very low activity level. If the overall stability of the knee is intact, your doctor may recommend simple, nonsurgical options.

• Bracing. Your doctor may recommend a brace to protect your knee from instability. To further protect your knee, you may be given crutches to keep you from putting weight on your leg.

• Physical therapy. As the swelling goes down, a careful rehabilitation program is started. Specific exercises will restore function to your knee and strengthen the leg muscles that support it.
Anterior Cruciate Ligament (ACL) Treatment

• Surgical

  • **Rebuilding the ligament.** Most ACL tears cannot be sutured (stitched) back together. To surgically repair the ACL and restore knee stability, the ligament must be reconstructed. Your doctor will replace your torn ligament with a tissue graft. This graft acts as a scaffolding for a new ligament to grow on.

  • Grafts can be obtained from several sources. Often they are taken from the patellar tendon, which runs between the kneecap and the shinbone. Hamstring tendons at the back of the thigh are a common source of grafts. Sometimes a quadriceps tendon, which runs from the kneecap into the thigh, is used. Finally, cadaver graft (allograft) can be used.

  • Because the regrowth takes time, it may be six months or more before an athlete can return to sports after surgery.

  • **Procedure.** Surgery to rebuild an anterior cruciate ligament is done with an arthroscope using small incisions. Arthroscopic surgery is less invasive. The benefits of less invasive techniques include less pain from surgery, less time spent in the hospital, and quicker recovery times.
Patellofemoral Syndrome

- Definition: Patellofemoral syndrome is a broad term used to describe pain in the front of the knee and around the patella, or kneecap.

- It is sometimes called "runner's knee" or "jumper's knee" because it is common in people who participate in sports—particularly females and young adults.

- The pain and stiffness it causes can make it difficult to climb stairs, kneel down, and perform other everyday activities.

- Many things may contribute to the development of patellofemoral syndrome - mainly: alignment of the kneecap and overuse from vigorous athletics or training.
Patellofemoral Syndrome Causes

• Overuse

  • In many cases, patellofemoral syndrome is caused by vigorous physical activities that put repeated stress on the knee - such as jogging, squatting, & climbing stairs.

  • It can also be caused by a sudden change in physical activity: frequency of activity (increasing the number of days) or duration (length of training time) or intensity (how hard you train) or a combination of all 3.

  • Other factors that may contribute to patellofemoral pain include:
    • Use of improper sports training techniques or equipment (this falls under prevention).
    • Changes in footwear or playing surface.
Patellofemoral Syndrome Causes

- Patellar Malalignment
  - Patellofemoral syndrome can also be caused by abnormal tracking of the kneecap in the trochlear groove.
  - In this condition, the patella is pushed out to one side of the groove when the knee is bent. This abnormality may cause increased pressure between the back of the patella and the trochlea, irritating soft tissues.
  - Factors that contribute to poor tracking of the kneecap include:
    - **Problems with the alignment of the legs between the hips and the ankles.** Problems in alignment may result in a kneecap that shifts too far toward the outside or inside of the leg, or one that rides too high in the trochlear groove—a condition called patella alta.
    - **Muscular imbalances or weaknesses, especially in the quadriceps muscles at the front of the thigh.** When the knee bends and straightens, the quadriceps muscles and quadriceps tendon help to keep the kneecap within the trochlear groove. Weak or imbalanced quadriceps can cause poor tracking of the kneecap within the groove.
7 Most Common Sports Injuries

Patellofemoral Syndrome Prevention

• Patellofemoral syndrome is usually fully preventable by maintaining appropriate conditioning of the muscles around the knee, particularly the quadriceps and the hamstrings

• There are additional steps that you can take to prevent recurrence of patellofemoral knee pain. They include:
  • Wearing appropriate shoes for your activities
  • Warming up thoroughly before physical activity
  • Incorporating stretching & flexibility exercises for the quadriceps & hamstrings into your warm-up routine, & stretching after physical activity
  • Increasing training gradually
  • Reducing any activity that has hurt your knees in the past
  • Maintaining a healthy body weight to avoid over-stressing your knees
Patellofemoral Syndrome Treatment

• Non-Surgical

  • **Rest:** Avoid putting weight on the leg if you can
  
  • **Ice:** To reduce pain & swelling. Apply for 20 minutes every 3-4 hours until the pain is gone
  
  • **Compress your leg.** Use an elastic bandage around the leg to keep down swelling
  
  • **Elevate:** Keep knee above your heart as often as possible
  
  • **OTC NSAIDs:** Nonsteroidal anti-inflammatory drugs (NSAIDs), like ibuprofen and naproxen, will help with pain and swelling.
  
  • These drugs can have side effects
  
  • They should be used only under parental or doctor supervision.
7 Most Common Sports Injuries

Patellofemoral Syndrome Treatment

• Surgical

  • Surgical treatment is very rarely needed and is done only for severe cases that do not respond to nonsurgical treatment. Surgical treatments may include:

    • Debridement. In some cases, removing damaged articular cartilage from the surface of the patella can provide pain relief

    • Lateral release. If the lateral retinaculum tendon is tight enough to pull the patella out of the trochlear groove, a lateral release procedure can loosen the tissue and correct the patellar malalignment

    • Tibial Tubercle Transfer. In some cases, it may be necessary to realign the kneecap by moving the patellar tendon along with a portion of the tibial tubercle—the bony prominence on the tibia (shinbone)
Tennis Elbow

- **Definition:** "Tennis elbow" is a common term for a condition caused by overuse of arm, forearm, and hand muscles that results in elbow pain.
  - You don't have to play tennis to get this, but the term came into use because it can be a significant problem for some tennis players.

**Cause**

- Tennis elbow is caused by either abrupt or subtle injury of the muscle and tendon area around the outside of the elbow.
- Tennis elbow specifically involves the area where the muscles and tendons of the forearm attach to the outside bony area (called the lateral epicondyle) of the elbow.
7 Most Common Sports Injuries

Tennis Elbow Symptoms

• Pain slowly increasing around the outside of the elbow.
  • Less often, pain may develop suddenly.
• Pain is worse when shaking hands or squeezing objects.
• Pain is made worse by stabilizing or moving the wrist with force.
  • Examples include lifting, using tools, opening jars, or even handling simple utensils such as a toothbrush or knife and fork.
7 Most Common Sports Injuries

Tennis Elbow Treatments

- **Rest**: Avoid any activity that causes pain to the ligament.

- **Ice**: To reduce pain & swelling. Apply for 20 minutes every 3-4 hours until the pain is gone.

- **Compression**: Use an elastic bandage around the elbow to keep the swelling down.

- **OTC NSAIDs**: Nonsteroidal anti-inflammatory drugs (NSAIDs), like ibuprofen and naproxen, will help with pain and swelling.
  - These drugs can have side effects.
  - They should only be used under parental or doctor supervision.

- **Cortisone-type medication**: May use an OTC topical or an injection into the area by your doctor.
Heat Illness

Definition

• Heat illness or heat-related illness is a broad term used to refer to a spectrum of disorders that occurs due to environmental exposure to heat.

• It includes minor conditions such as heat cramps, heat syncope, and heat exhaustion as well as the more severe condition known as heat stroke.

• These various conditions are exacerbated by physical exertion in the extreme environmental conditions.

Heat Cramps

• Severe, sometimes disabling

• Cramps typically begin suddenly in the hands, calves, or feet.

• Hard, tense muscles

• Treatment: It is important for an athlete to be pulled from practice and made to rehydrate to prevent further injury.
Heat Illness

Heat Exhaustion

• Requires immediate attention.

• Symptoms include the following:
  • Fatigue
  • Nausea
  • Headache
  • Excessive thirst
  • Muscle aches and cramps
  • Weakness
  • Confusion or anxiety
  • Drenching sweats
  • cold, clammy skin
  • Slowed or weakened heartbeat
  • Dizziness
  • Fainting
  • Agitation
Heat Illness

Heat Exhaustion Treatment

• Immediately move to a cooler location.

• Lie down & loosen clothing.

• Apply cool cloths to as much surface area of the body as possible.

• Sip water - rehydrate.

• Seek medical attention if you have and continue to vomit.
Heat Illness

Heat Stroke

- Symptoms include the following:
  - Nausea and vomiting
  - Headache
  - Dizziness or vertigo
  - Fatigue
  - Hot, flushed, dry skin
  - Rapid heart rate
  - Confusion, delirium, or loss of consciousness
  - Decreased sweating
  - Shortness of breath
  - Decreased urination
  - Blood in urine or stool
  - Increased body temperature
    - (104 degrees to 106 degrees F)
  - Convulsions
Heat Illness

Heat Stroke Treatment

• Call 911 Immediately

• Move to a cooler location ASAP

• Lie down & loosen clothing

• Reduce body temperature with cool cloths or bath

• **DO NOT GIVE FLUIDS!!!!**
Heat Acclimatization

• This NATA consensus lists seven key recommendations for a 14-day heat-acclimatization period prior to full-scale athletic participation by secondary school students, as follows:

1. During the first five days of the heat-acclimatization process, athletes may not participate in more than one practice per day.

2. If a practice is interrupted by inclement weather or heat restrictions, the practice should recommence once conditions are deemed safe, but total practice time should not exceed three hours per day.

3. A one-hour maximum walk-through is permitted during the first five days of the heat-acclimatization period; however, a three-hour recovery period should be inserted between the practice and walk-through (or vice versa).
Heat Illness Prevention

Heat Acclimatization

4. During the first two days of the heat-acclimatization period, in sports requiring helmets or shoulder pads, a helmet should be the only protective equipment permitted (goalies, as in the case of field hockey and related sports, should not wear full protective gear or perform activities that would require protective equipment). During days three through five, only helmets and shoulder pads should be worn. Beginning on day six, all protective equipment may be worn and full contact may begin.

5. Beginning no earlier than the sixth day and continuing through the 14th day, double-practice days must be followed by a single-practice day. On single-practice days, one walk-through is permitted, but it must be separated from the practice by at least three hours of continuous rest. When a double-practice day is followed by a rest day, another double-practice day is permitted after the rest day.
Heat Acclimatization

6. On a double-practice day, neither practice’s duration should exceed three hours total, and student-athletes should not participate in more than five total hours of practice. Warm-up, stretching, cool-down, walkthrough, conditioning and weight-room activities are included as part of the practice time. The two practices should be separated by at least three continuous hours in a cool environment.

7. Because the risk of heat illnesses during the pre-season heat-acclimatization period is high, the consensus statement strongly recommends that an athletic trainer be on site before, during, and after all practices.
Healing Time

- Increased Healing Time:
  - Poor nutrition
  - Illnesses (Example: Diabetes)
  - Medication (Corticosteroids)
  - Excessive scar tissue
  - Returning to play too soon

- Reduced Healing Time:

  - When the injury occurs, you can take an important first step by following the RICE first aid principles (Rest, Ice, Compression, and Elevation).
Healing Time

• Start this process as soon as possible:

1. **Active rest:** During this phase your goal is to reduce the effects of the injury, including pain and swelling & keep the non-injured muscles active through strength and flexibility training. Attempt to maintain cardiovascular fitness through aerobic activities that do not involve the injured area.

2. **Reconditioning:** The goal of this phase is to correct deficits created by the injury using strengthening, stretching, body awareness training and cardiovascular conditioning.

3. **Practical Movement Training:** After you have developed a basic level of conditioning in your injured muscle or joint, the next step is to gradually train your body to perform sport-specific movements such as jumping, sprinting and agility drills.
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3. **Practical Movement Training:** After you have developed a basic level of conditioning in your injured muscle or joint, the next step is to gradually train your body to perform sport-specific movements such as jumping, sprinting and agility drills.
Basic Athletic Training

Skin Conditions & MRSA

Coaching Education & Licensure E-Book

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MRSA

- Methicillin-resistant Staphylococcus aureus (MRSA) is a bacterium that causes infections in different parts of the body. It's tougher to treat than most strains of staphylococcus aureus -- or staph -- because it's resistant to some commonly used antibiotics.

- The symptoms of MRSA depend on where you're infected. Most often, it causes mild infections on the skin, like sores or boils. But it can also cause more serious skin infections or infect surgical wounds, the bloodstream, the lungs, or the urinary tract.

- Though most MRSA infections aren't serious, some can be life-threatening. Many public health experts are alarmed by the spread of tough strains of MRSA. Because it's hard to treat, MRSA is sometimes called a "super bug".
MRSA Causes

- Garden-variety staph are common bacteria that can live in our bodies. Plenty of healthy people carry staph without being infected by it. In fact, one third of everybody has staph bacteria in their noses.

- But staph can be a problem if it manages to get into the body, often through a cut. Once there, it can cause an infection. Staph is one of the most common causes of skin infections in the U.S. Usually, these are minor and don't need special treatment. Less often, staph can cause serious problems like infected wounds or pneumonia.

- Staph can usually be treated with antibiotics. But over the decades, some strains of staph -- like MRSA -- have become resistant to antibiotics that once destroyed it. MRSA was first discovered in 1961. It's now resistant to methicillin, amoxicillin, penicillin, oxacillin, and many other common antibiotics.

- While some antibiotics still work, MRSA is constantly adapting. Researchers developing new antibiotics are having a tough time keeping up.
MRSA Susceptible

- MRSA is spread by contact. So, you could get MRSA by touching another person who has it on the skin. Or you could get it by touching objects that have the bacteria on them. MRSA is carried by about 2% of the population (or 2 in 100 people), although most of them aren't infected.

- MRSA infections are common among people who have weak immune systems and are in hospitals, nursing homes, and other health care centers. Infections can appear around surgical wounds or invasive devices, like catheters or implanted feeding tubes.

- According to the CDC, invasive MRSA infections that began in hospitals declined 8% between 2011 and 2013.

- Alarmingly, MRSA is also showing up in healthy people who have not been hospitalized. This type of MRSA is called community-associated MRSA, or CA-MRSA.

- CA-MRSA skin infections have been identified among certain populations that share close quarters or have more skin-to-skin contact. Examples are team athletes, military recruits, prison inmates, and children in daycare. But more and more CA-MRSA infections are being seen in the general community, especially in certain geographic regions.
MRSA Possible Complications

• MRSA infections can resist the effects of many common antibiotics, so they are more difficult to treat. This can allow the infections to spread and sometimes become life-threatening.

• MRSA infections may affect your:
  • Bloodstream
  • Lungs
  • Heart
  • Bones
  • Joints
MRSA Symptoms

- Staph skin infections, including MRSA, generally start as swollen, painful red bumps that might resemble pimples or spider bites. The affected area might be:
  - Warm to the touch
  - Full of pus or other drainage
  - Accompanied by a fever
- These can quickly turn into deep, painful abscesses that require surgical draining. Sometimes the bacteria remain confined to the skin. But they can also burrow deep into the body, causing potentially life-threatening infections in bones, joints, surgical wounds, the bloodstream, heart valves and lungs.
MRSA Risk Factors

HA-MRSA

• **Being hospitalized.** MRSA remains a concern in hospitals, where it can attack those most vulnerable — older adults and people with weakened immune systems.

• **Having an invasive medical device.** Medical tubing — such as intravenous lines or urinary catheters — can provide a pathway for MRSA to travel into your body.

• **Residing in a long-term care facility.** MRSA is prevalent in nursing homes. Carriers of MRSA have the ability to spread it, even if they're not sick themselves.

CA-MRSA

• **Participating in contact sports.** MRSA can spread easily through cuts and abrasions and skin-to-skin contact.

• **Living in crowded or unsanitary conditions.** Outbreaks of MRSA have occurred in military training camps, child care centers and jails.

• **Men having sex with men.** Homosexual men have a higher risk of developing MRSA infections.
MRSA Prevention

HA-MRSA

- In the hospital, people who are infected or colonized with MRSA often are placed in contact precautions as a measure to prevent the spread of MRSA. Visitors and health care workers caring for people in isolation may be required to wear protective garments and must follow strict hand hygiene procedures. Contaminated surfaces and laundry items should be properly disinfected.

CA-MRSA

- **Wash your hands.** Careful hand washing remains your best defense against germs. Scrub hands briskly for at least 15 seconds, then dry them with a disposable towel and use another towel to turn off the faucet. Carry a small bottle of hand sanitizer containing at least 62 percent alcohol for times when you don't have access to soap and water.

- **Keep wounds covered.** Keep cuts and abrasions clean and covered with sterile, dry bandages until they heal. The pus from infected sores may contain MRSA, and keeping wounds covered will help prevent the bacteria from spreading.
MRSA Prevention

CA-MRSA

• **Keep personal items personal.** Avoid sharing personal items such as towels, sheets, razors, clothing and athletic equipment. MRSA spreads on contaminated objects as well as through direct contact.

• **Shower after athletic games or practices.** Shower immediately after each game or practice. Use soap and water. Don't share towels.

• **Sanitize linens.** If you have a cut or sore, wash towels and bed linens in a washing machine set to the hottest water setting (with added bleach, if possible) and dry them in a hot dryer. Wash gym and athletic clothes after each wearing.
Most Common Skin Infections

Fungal Infections

• Caused by dermatophytes, fungal organisms living in soil, on animals, or on humans.

• The infectious organisms responsible for fungal infections include trichophyton tonsuring and trichophyton rubric.

• Tinea capitis – a common fungal infection of the scalp manifested by gray scaly patches accompanied by mild hair loss in many cases.

• Tinea corporis – a fungal infection on the body commonly referred to as “ring worm,” a name gleaned from its characteristic ring-like appearance.

• Tinea cruris – a fungal infection in the groin area commonly referred to as “jock itch”.

• Tinea pedis – the most common fungal infection in humans in North America and Europe, which affects the feet, and is commonly referred to as “athlete’s foot”.

• Treatment: Athletes in non-contact sports or with localized cases of fungal infections may initially be treated with topical preparations for two to four weeks. More widespread, inflammatory or otherwise difficult-to-treat cases may require the use of systemic anti-fungal drugs which can have substantial side effects.
Most Common Skin Infections

**Viral Infections**

- Caused by the herpes simplex virus and molluscum contagiosum virus.

- Herpes simplex virus – HSV is a painful, often recurring, infection consisting of clusters of small fluid filled sacs on a base of red skin.

- Viruses may remain dormant in the body for years manifesting themselves in situations of depressed immunity and stress.

- Molluscum contagiosum – MC is a highly infectious viral disease caused by the poxvirus - It is common in children and is manifested by smooth flesh-colored, dome-shaped bump with a depression (umbilication) in the center.

  - Treatment: Treatments include destruction of the lesions with a sharp curette or antiviral medications, depending on the virus for which the athlete is treated
Most Common Skin Infections

Bacterial Infections

- Humans are natural hosts for many bacterial species that colonize the skin as normal flora.

- Staphylococcus aureus and streptococcus bacteria account for a wide variety of bacterial infections.

- Predisposing factors to infection include minor trauma, preexisting skin disease, poor hygiene and depressed immune system of the host.

- Impetigo – a common bacterial infection caused by staph a., characterized by thin walled sacs of fluid that rupture into a honey colored crust commonly occurring on the face.

- Folliculitis/furunculosis/carbunculosis – Folliculitis is a superficial infection of the hair follicles characterized by redness, fluid or pus filled sacs at the base of hair follicles.

- Furuncles are deeper infections of the hair follicle characterized by inflamed nodules that drain fluid, which can join together to form larger nodules called carbuncles.

- Treatment: Affected athletes must complete, at minimum, a 72-hour course of directed antibiotic therapy; also, due to the communicable nature of bacterial infections, active lesions must not be covered to allow for participation in sports.
Basic Athletic Training

Shock

Coaching Education & Licensure E-Book

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Causes

- Severe blood loss or bleeding
- Severe blood restriction
- Loss of fluids - dehydration
- Fractures (any broken bone)
- Internal injuries

Signs & Symptoms

- Low Blood Pressure
- Rapid & Weak Pusle
- Shallow & Rapid Respiration
- Pale, Cool, Clammy skin
- Dilated pupils
Effects on the Body

• When cells don't receive enough oxygen the organs become comprised and begin to fail. All organs may be affected.
  
  • As the brain is affected, the patient may become confused or lose consciousness (coma).

  • There may be chest pain as the heart itself doesn't get an adequate oxygen supply.

  • Diarrhea may occur as the large intestine becomes irritated due to hypotension.

  • Kidneys may fail and the body may stop producing urine.

  • The skin becomes clammy and pale.
Basic Athletic Training

Treatment

• The first course of action is to make certain that the **ABCs** have been assessed. The so-called ABCs are:

  • **Airway**: assessment of whether the patient is awake enough to try to take their own breaths and/or if there is anything blocking the mouth or nose.

  • **Breathing**: assessment of the adequacy of breathing and whether it may need to be assisted with mouth-to-mouth resuscitation.

  • **Circulation**: assessment of the adequacy of the blood pressure and determination of whether intravenous lines are needed for delivery of fluid or medications to support the blood pressure.
Treatment

• As we learned before most often shock occurs when there is a loss of blood or severe blood delivery restriction.

  • **Severe Bleeding:** assess if there is a blood loss emergency and then immediately work to stop the bleeding.

  • **Severe Blood Delivery Restriction:** assess the situation to determine if there is a challenge with blood delivery. If something is impeding the circulation of blood, determine if it is safe enough to affect that situation.

• Loss of blood or restriction of the delivery of blood will eventually cause organ failure which includes the brain. Reducing the amount of time the body is in shock will dramatically decrease the long term effects of shock on the person’s body and organs.

  • **Warmth:** keeping the person warm is a critical aspect of keeping them out of shock.

  • **Hydration:** maintaining the best possible hydration levels will also keep the cells functioning as normal as possible for as long as possible.
Overview

• The reality is that most physical athletic injuries are relatively minor. But the even more pressing issue is that ABSOLUTELY EVERY incident must be handled appropriately and professionally.

• In today’s litigious society it is not always the injured athlete’s parents that will create the issue for you as a coach. Be advised that the athlete’s parents who feel their child is not being treated fairly or getting a fair shot hears this when they get home:

  • You’re never going to believe what coach did today - John got hurt in a drill and coach said “come on John I know your tougher than that get back in the drill” and the next time it was John’s turn he hurt the same thing and had to be taken to the training room.

  • That story is enough to start the ball rolling!
Side-Bar: Case Study

- As a coach for 3 decades I know how busy everyone gets with families, outside jobs, club activities, coaching clinics, birthday parties, date nights and the list can seemingly go on infinitely - but this is not an area that can be taken lightly!!

- Do not just copy an emergency plan from the internet fill in a few blanks and call it good!

- I had an athlete compound fracture his ankle and we had a comprehensive emergency plan that we had discussed and covered once a month in terms of coaches duties in case of a traumatic incident.
  - We executed the emergency plan without hesitation and evaluated our actions after practice because we knew that the School District Legal Team would be asking them as well.
  - We came through with flying colors because they said our diligence to reviewing the emergency plan monthly made our reaction time and execution reasonable & prudent!
Need

Professionalism

• Having an emergency plan shows forethought and insight into creating the best environment possible for the athletes.

• It also fulfills the duty owed to athletes that play and are recruited to play at that institution.

• This will be covered more in-depth in the section on the legal aspects of the emergency plan but “professional foreseeability” is crucial.

  • This means that if an emergency situation has a reasonable possibility of occurring during a practice or competition - it should be addressed within the emergency plan.
Need

Legal

• Standard of Care
  • All stakeholders have a legal duty as professionals to ensure high-quality care of the participants.

• Negligence
  • Providing the appropriate care that a reasonable and prudent person would provide. This is challenging because the question becomes what is “Reasonable & Prudent” based on “my experiences.”

• Reaction Time
  • Having an emergency plan that every staff member understands & is prepared to execute reduces the time it takes to respond to any incident - which positively impacts the above legal concerns
1. Each institution or organization that sponsors athletic activities must have a written emergency plan. The emergency plan should be comprehensive and practical, yet flexible enough to adapt to any emergency situation.

2. Emergency plans must be written documents and should be distributed to certified athletic trainers, team and attending physicians, athletic training students, institutional and organizational safety personnel, institutional and organizational administrators, and coaches. The emergency plan should be developed in consultation with local emergency medical services personnel.

3. An emergency plan for athletics identifies the person involved in carrying out each specific duty in the emergency plan and outlines those duties in detail. Sports medicine professionals, officials, and coaches should be trained in automatic external defibrillation, CPR, first aid, and prevention of disease transmission.
4. The emergency plan should specify the equipment needed to carry out the tasks required in the event of an emergency. In addition, the emergency plan should outline the location of the emergency equipment. Further, the equipment available should be appropriate to the level of training of the personnel involved.

5. Establishment of a clear mechanism for communication to appropriate emergency care service providers and identification of the mode of transportation for the injured participant are critical elements of an emergency plan.

6. The emergency plan should be specific to the activity venue. That is, each activity site should have a defined emergency plan that is derived from the overall institutional or organizational policies on emergency planning.
Emergency Plan Development

7. Emergency plans should incorporate the emergency care facilities to which the injured individual will be taken. Emergency receiving facilities should be notified in advance of scheduled events and contests. Personnel from the emergency receiving facilities should be included in the development of the emergency plan for the institution or organization.

8. The emergency plan specifies the necessary documentation supporting the implementation and evaluation of the emergency plan. This documentation should identify responsibility for documenting actions taken during the emergency, evaluation of the emergency response, and institutional personnel training.

9. The emergency plan should be reviewed and rehearsed annually, although more frequent review and rehearsal may be necessary. The results of these reviews and rehearsals should be documented and should indicate whether the emergency plan was modified, with further documentation reflecting how the plan was changed.
10. All personnel involved with the organization and sponsorship of athletic activities share a professional responsibility to provide for the emergency care of an injured person, including the development and implementation of an emergency plan.

11. All personnel involved with the organization and sponsorship of athletic activities share a legal duty to develop, implement, and evaluate an emergency plan for all sponsored athletic activities.

12. The emergency plan should be reviewed by the administration and legal counsel of the sponsoring organization or institution in conjunction with the coaching staffs in each sport.
Skin Condition Cleaning Protocol

• Based on the information you’ve received in this course, develop a set of appropriate protocols for cleaning all appropriate surfaces to ensure that no skin conditions will appear.

• Be sure to consider budget, implementation, manpower, and safety.

• This should be a comprehensive plan that considers all aspects of preventing skin conditioning.
CONCUSSION PROTOCOL

• For this assignment to be complete, you will need to upload your Certificate of Completion from NHFSLearn’s free course, “Concussion In Sports”.

• To access this course you will go to https://nfhslearn.com/courses/61151/concussion-in-sports, Select the State of Iowa and hit “Order Course”. This will enroll you in the course. Once completed, you can submit your certificate of completion from the course in place of this assignment.
Traumatic Injury Emergency Plan

• Please create a Traumatic Injury Emergency Action Plan that you can use at either, the facility you will be coaching at, and/or if you have not been hired at, the school district that you live in.

• Please make sure the plan includes all the following
  • The address of the practice facility you are creating this for.
  • All Personnel that will be present at practices and games
  • All steps necessary to make sure an athlete gets prompt care from EMS after a traumatic injury.
    • Make sure steps are flexible enough that they can be used to treat a spectrum of traumatic injuries.
    • Make sure each step has a Coach or Important person’s assigned to each role to ensure prompt care in these high stress situations.
  • The nearest EMS facility and Google Maps the time it takes to get to the practice facility you are creating this plan for.
Heat Illness Avoidance and Treatment Plan

• Based on the Information that you’ve received in this course, develop a set of appropriate protocols for avoiding all heat related complications in both practice and competition. Discuss how to identify and treat the different types of heat related illnesses.

• Be sure to consider budget, implementation, manpower, and safety.

• This should be a comprehensive plan that considers in-season, off-season, and pre-season training periods
  • This should work in conjunction with your emergency plan.
• Watch the instructional video on the taping techniques & procedures.

• Videotape YOURSELF performing the various techniques & procedures.
  • Be certain to videotape yourself introducing each individual taping procedure.

• Your performance will be reviewed and graded. You must receive a minimum evaluation of 85% on each individual taping procedure.
  • If you have any deficiencies you will be contacted to redo the taping procedure and resubmit it.

• To pass this Course you must pass each of the individual taping and wrapping procedures.

• It is recommended to watch the video and take notes then go back and perform each taping procedure while utilizing the notes and the direct video instructions.
Wrist

• Watch the instructional video on this taping technique.

• You are required to videotape YOURSELF performing this technique.

• Your performance will be reviewed and graded. You must receive a minimum evaluation of 85% on this tape job.

• You will not pass this course without passing each of the individual taping and wrapping requirements.

• Video Notes:

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Thumb

• Watch the instructional video on this taping technique.

• You are required to videotape YOURSELF performing this technique.

• Your performance will be reviewed and graded. You must receive a minimum evaluation of 85% on this tape job.

• You will not pass this course without passing each of the individual taping and wrapping requirements.

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Buddy Taping - Fingers or Toes

- Watch the instructional video on this taping technique.
- You are required to videotape **YOURSELF** performing this technique.
- Your performance will be reviewed and graded. You must receive a minimum evaluation of 85% on this tape job.
- You will not pass this course without passing each of the individual taping and wrapping requirements.
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Elbow

• Watch the instructional video on this taping technique.

• You are required to videotape YOURSELF performing this technique

• Your performance will be reviewed and graded. You must receive a minimum evaluation of 85% on this tape job.

• You will not pass this course without passing each of the individual taping and wrapping requirements.

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Ankle

- Watch the instructional video on this taping technique.
- You are required to videotape **YOURSELF** performing this technique.
- Your performance will be reviewed and graded. You must receive a minimum evaluation of 85% on this tape job.
- You will not pass this course without passing each of the individual taping and wrapping requirements.

**Video Notes:**

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Shin Splints

• Watch the instructional video on this taping technique.

• You are required to videotape YOURSELF performing this technique.

• Your performance will be reviewed and graded. You must receive a minimum evaluation of 85% on this tape job.

• You will not pass this course without passing each of the individual taping and wrapping requirements.

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Great/Turf Toe

- Watch the instructional video on this taping technique.
- You are required to videotape **YOURSELF** performing this technique
- Your performance will be reviewed and graded. You must receive a minimum evaluation of 85% on this tape job.
- You will not pass this course without passing each of the individual taping and wrapping requirements.
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Hand Contusion

• Watch the instructional video on this taping technique.

• You are required to videotape YOURSELF performing this technique

• Your performance will be reviewed and graded. You must receive a minimum evaluation of 85% on this tape job.

• You will not pass this course without passing each of the individual taping and wrapping requirements.

• Video Notes:

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Shoulder/AC Joint Wrap

- Watch the instructional video on this taping technique.
- You are required to videotape **YOURSELF** performing this technique.
- Your performance will be reviewed and graded. You must receive a minimum evaluation of 85% on this tape job.
- You will not pass this course without passing each of the individual taping and wrapping requirements.
- Video Notes:

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Groin-Quad/ Ham- Hip Flexor Wrap

• Watch the instructional video on this taping technique.

• You are required to videotape YOURSELF performing this technique

• Your performance will be reviewed and graded. You must receive a minimum evaluation of 85% on this tape job.

• You will not pass this course without passing each of the individual taping and wrapping requirements.

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Compression Wrap

• Watch the instructional video on this taping technique.

• You are required to videotape YOURSELF performing this technique.

• Your performance will be reviewed and graded. You must receive a minimum evaluation of 85% on this tape job.

• You will not pass this course without passing each of the individual taping and wrapping requirements.

• Video Notes:

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Arch Support

• Watch the instructional video on this taping technique.

• You are required to videotape YOURSELF performing this technique.

• Your performance will be reviewed and graded. You must receive a minimum evaluation of 85% on this tape job.

• You will not pass this course without passing each of the individual taping and wrapping requirements.

• Video Notes:

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