TRACK AND FIELD INJURIES

Background
1. General Information
   o Track and field contests first recorded in Olympia, Greece in 776 BC
   o Competitive athletic contests including running, jumping, throwing
     ▪ Lack of need for expensive equipment
     ▪ One of most common sports worldwide
   o Participants include both men and women
     ▪ Has grown in popularity throughout recent years
   o Every 4 years, the world’s best compete in the Summer Olympics
2. Injuries
   o Mechanism of injury
     ▪ Acute and overuse
     ▪ Most injuries are overuse injuries that occur during training periods
     ▪ Acute injuries are muscle strains, avulsions, stress fractures
     ▪ Overtraining
       • Decreased physical performance
       • Chronic muscle fatigue
       • Increased resting heart rate
       • Decreased appetite
     ▪ Ligament sprains-common with improper landings such as in pole vaulting
   o Most common track and field injuries involve the leg, thigh, or knee
   o Injury risk is greater in female athletes
     ▪ Significantly higher proportion of females present with stress fractures
       • Prevention through adequate calcium, caloric intake, and optimizing peak bone mass during youth
3. Intrinsic factors
   o Stretching / warm-up
   o Flexibility
   o Strength
   o Increasing age
4. Extrinsic factors
   o Poor weather / field conditions
   o Inappropriate footwear or equipment
   o Inadequate hydration
   o Poor technique
   o Training errors

Leg / Thigh Injuries
1. Rate of injury
   ▪ Account for up to 20% of leg injuries
   ▪ Navicular, tibia, and metatarsal common among track athletes
     ▪ Tibia and fibula more common in distance runners
   o Mechanism of injury
     ▪ Nutritional deficiency
     ▪ Anatomic misalignment
     ▪ Overuse
o Risk factors
  ▪ 6-8x more likely when associated with “Female athlete triad”
    ▪ Disordered eating
    ▪ Amenorrhea
    ▪ Osteoporosis
  ▪ Lower bone density, less lean mass, lower fat diet

o Treatment
  ▪ Plain radiograph is useful as primary diagnostic tool
  ▪ MRI is most sensitive and specific means of diagnosis
  ▪ Rest with possible casting is first-line treatment
  ▪ Surgery is applicable in severe cases

2. Hamstring strains
   ▪ Very common among track and field athletes
   ▪ Biceps femoris is the most commonly injured muscle
   ▪ Knee active range of motion deficit is an accurate measurement predicting recovery time

3. Medial tibial stress syndrome

Knee Injuries
1. Knee meniscal injuries
2. Patellofemoral pain syndrome
3. Iliotibial band syndrome
   o Rate of injury
     ▪ 4.3-7.5% occurrence rate for long distance runners
     ▪ Frequency increased in adolescents undergoing rapid growth phase
   o Mechanism of injury
     ▪ Overuse injury of knee resulting in increased band tension
   Risk factors
     ▪ Increased internal tibial rotation
     ▪ Genu varum
   o Treatment
     ▪ Rest
     ▪ Superficial heat prior to exercise
     ▪ Ice therapy following exercise
     ▪ NSAIDs
     ▪ Surgery if chronic condition
4. Patellar tendonitis “Jumpers Knee”
   o May cause chronic symptoms in affected athletes
5. Osgood-Schlatter Disease

Foot and Ankle Injuries
1. Ankle sprain
   ▪ Lateral ankle sprains are most common
   ▪ Reinjury rate increased with low vs. high grade ankle sprains
   ▪ Ottawa Ankle Rules
2. Morton’s neuroma
   o Rate of injury
     ▪ Common disease entity of the foot
     ▪ 5x more common in females
- Highest prevalence in persons 15-55 years old
  - Mechanism of injury
    - Compression or stretching of lateral and medial plantar nerves
    - Most frequent location is between 3rd and 4th metatarsals
  - Risk factors
    - Excessive toe dorsiflexion
    - Abnormal foot pronation
  - Treatment
    - Metatarsal pads
    - Orthotics
    - Steroid injections

3. Plantar Fasciitis
4. Achilles tendinitis
   - Common injury associated with long distance runners
   - More likely to occur in running on a track surface vs. road running

5. Foot Injuries in Athletes

**Shoulder / Arm Injuries**
1. Shoulder instability
   - Frequently lead to partial or complete rotator cuff tears
   - Degenerative changes noted with weight training greater than 3 kg
2. Rotator cuff tears
   - More commonly seen in field events
3. Acromioclavicular joint injury
   - Field events, pole vault
4. Elbow injuries in throwing athletes
   - Commonly seen in javelin throwers
   - Ulnar collateral ligament (UCL) is most significant injury

**Back Injuries**
1. Cervical spine injuries
2. Lumbar spine injuries
   - Commonly include minor sprains and strains
   - Throwing athletes have increased osteophyte formation in L-spine
   - Highest prevalence located in javelin throwers

**HEENT Injuries**
1. Concussion (sports)
   - Causes may include improper landing or equipment accidents
   - Proper training by personnel is required at track and field events
2. Neck trauma
3. Dental trauma

**Extremity / Skin Injuries**
1. Abrasions / lacerations
   - Occur with falls on track surfaces
   - All lesions should be cleaned, ointment applied, and covered to avoid contamination or transference of blood related pathogens
Medical Considerations

1. Cardiac disorders in athletes
2. Exercise induced asthma
3. Blood doping
4. Exercise induced hyponatremia (EAH)
5. Exertional heat illness (EHI)
6. Exercise induced collapse

References

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Evidence-based Inquiry
1. Does heat or cold work better for acute muscle strain?
2. Does a knee brace decrease recurrent ACL injuries?
3. What are the best prevention strategies for "shin splints" in athletes?
4. Heat or ice for acute ankle sprain?
5. What is the best way to treat Achilles tendinopathy?
6. What is the initial approach to the treatment of shoulder pain?
7. Does stretching before exercise prevent muscle soreness?

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