Overuse Injuries & special skeletal injur

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Prevalence of Overuse Injuries

- 30 to 50% of all sport injuries are from overuse

- In some sports such as distance running, swimming, rock climbing ,and pitching the majority of injuries are from overuse

Examples of Overuse Injuries

- Tendonitis
- Tenosynovitis
- Shin splints = posterior tibial tendonitis
- Cuboid Syndrome
- Patellar alignment and compression syndromes
- Runner's knee = illiotibial band tendonitis

Examples of Overuse Injuries

- Swimmer's shoulder and pitcher's shoulder = rotator cuff tendonitis
- Pitcher's or little league elbow = flexor/pronator tendonitis; medial epicondylitis
- Stress fracture
- Osgood Schlatter Disease
- Calcaneal Apophysitis

Examples of Overuse Injuries

- Jumper's Knee = Patellar tendonitis
- Plantar Fascitis/Heal Spur Syndrome

Causes of Overuse Injuries

- Training errors
- Muscle imbalance
- Lack of flexibility
- Malalignment of body structures
- Over training
- Poor equipment
- Poor foot mechanics (over pronation)

Prevention of Overuse Injuries

- Slow progression in training overload
- Increase training overload no more than 10% per week
- Improve flexibility
- Improve muscle strength in agonist vs. antagonist muscles
- Look for worn out equipment/shoes

Rotator Cuff

- Muscles
  - Infraspinatus, teres minor & supraspinatus
  - Subscapularis
- These muscles are put under a great deal of strain in throwing events & racket sports where your arm is above your head.

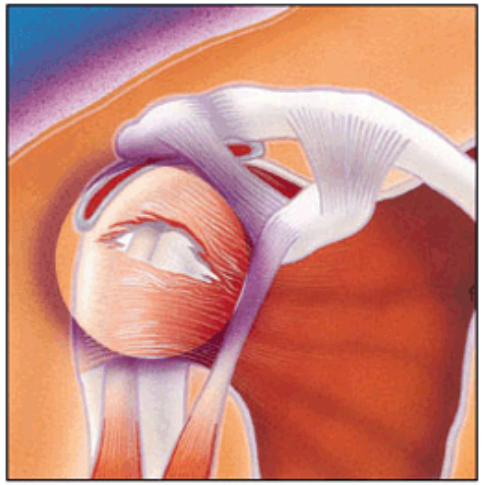
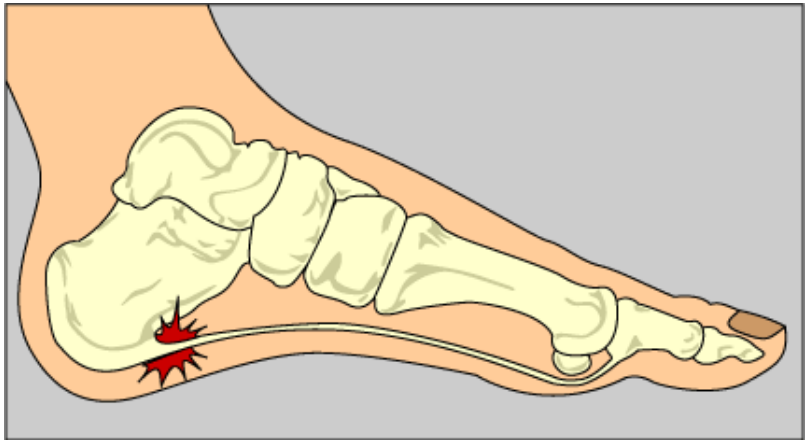


Figure 2: Rotator cuff tear

Plantar Fascitis

- A tear of the plantar fascia on the bottom of the foot at the medial Calcaneal tuberosity.



- Can progress to development of a heal spur

Plantar Fascitis

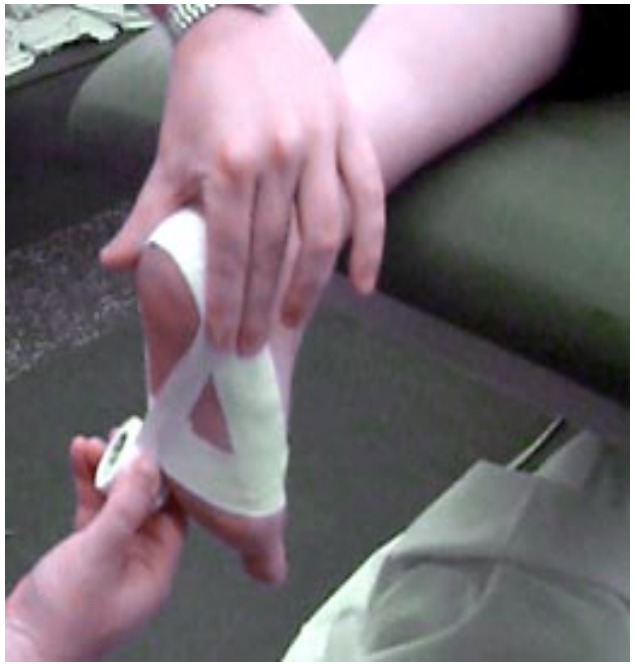
- Location of pain on the bottom of the foot.

Plantar Fascitis

- Taping to support plantar fascia

Plantar Fascitis

- Taping to support plantar fascia



Plantar Fascitis

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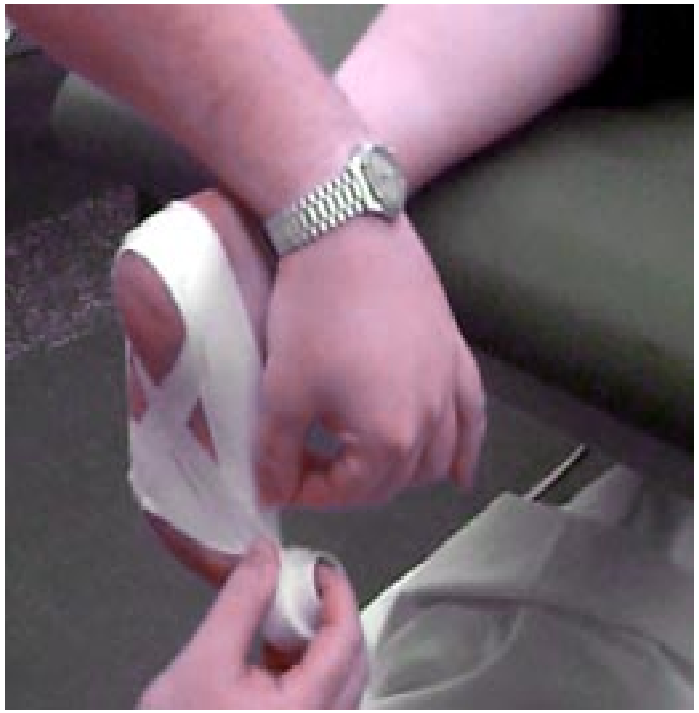

Plantar Fascitis

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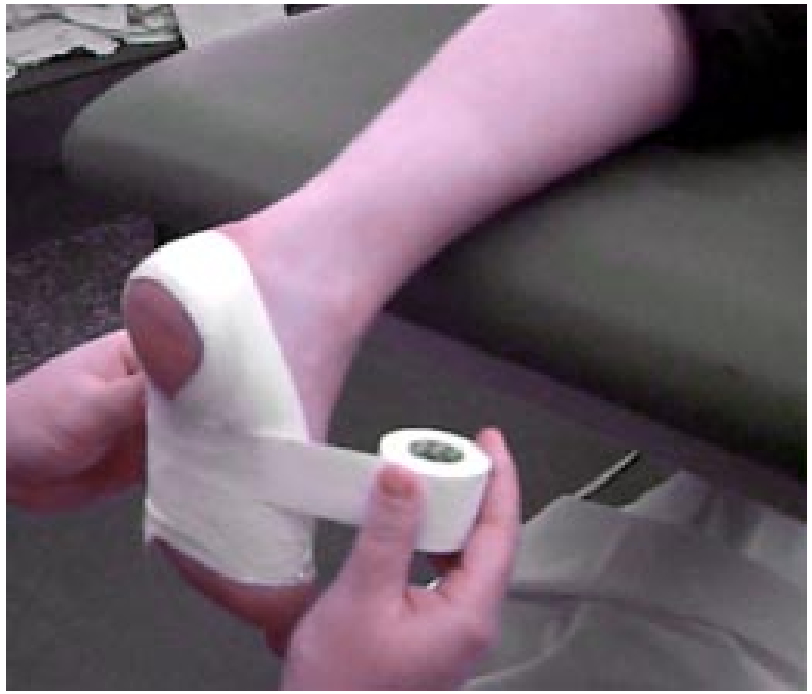


Cuboid Syndrome

- Subluxation of one of the tarsal bones on the lateral side of the foot.
- Results from a quick inversion of the foot and ankle.

Cuboid Syndrome

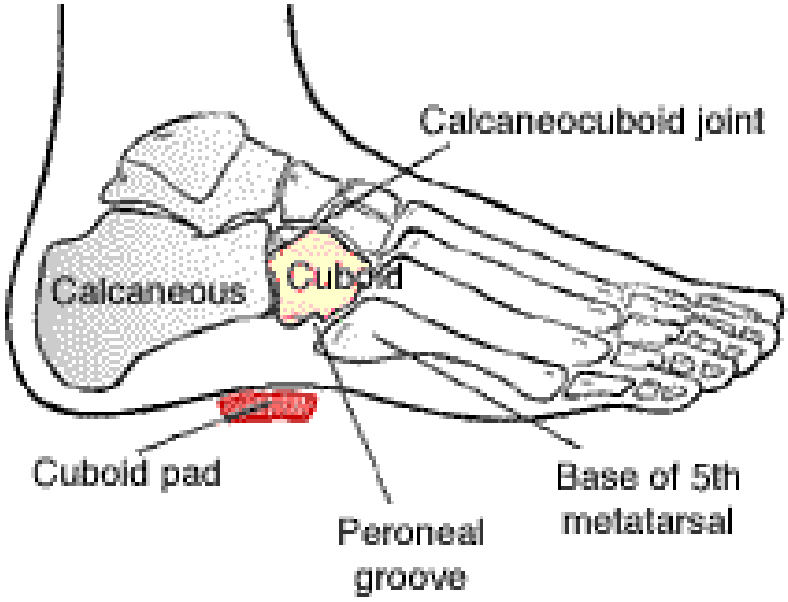
- The cuboid is pulled downward by the peroneous longus tendon as it runs along the bottom of the foot.

Cuboid Syndrome

- Pain runs along the lateral aspect of the foot, up around the back of the ankle and then up the lateral aspect of the lower leg along the preens longus muscle

Cuboid Syndrome

- Treatment includes a pad tapped under the cuboid to support the subluxated bone.



Subluxed Cuboid Syndrome

Posterior Tibial Tendonitis

- Also known as medial shin splint syndrome.
- Shin splint is a non-specific term which should not be used.
- Microscopic tearing of the insertion of the muscle into the tibia.

Posterior Tibial Tendonitis

- Treatment includes reducing inflammation by using NSAID's, ice, reduced activity, taping of the lower leg and arch of the foot.
- Control of excess pronation.

Posterior Tibial Tendonitis

- Alternative to taping.

Runners' Knee or IT tendonitis

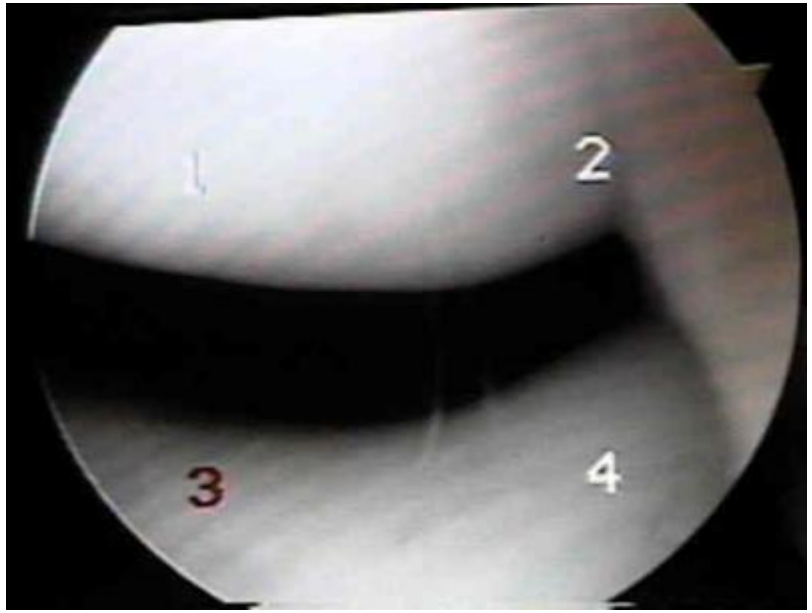
- Tendonitis involving the illiotibial band as it crosses over the lateral aspect of the femur at the knee.
- Friction of the IT band over the lateral epicondyle of the femur.

Runners' Knee or IT tendonitis

- Treatment with NSAID's, ice, reduced activity, stretching, and control of excessive pronation.

Medial Synovial Plica Syndrome

- A band of tissue normally found in the interior of the knee but it becomes tight and inflamed causing pain.

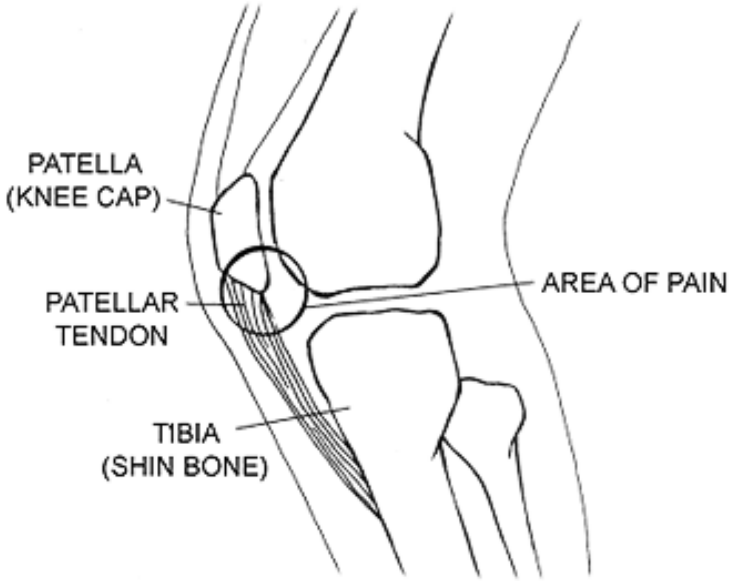


Medial Synovial Plica Syndrome

- Normal site of pain on the medial side of the knee.
- Treatment to control inflammation to include ice, reduced activity, and NSAID's.

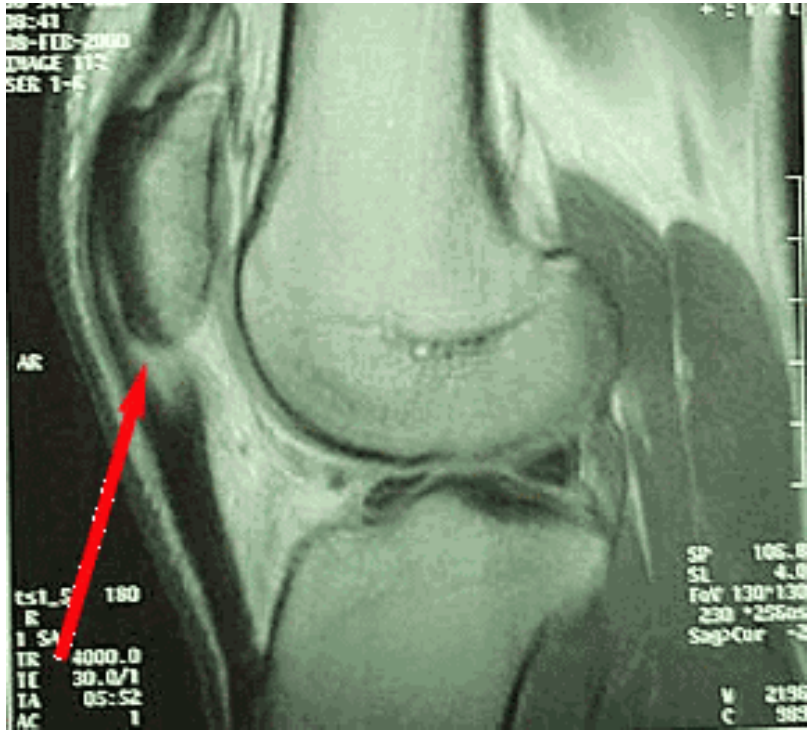
Jumpers' Knee or Patellar Tendonitis

- Most common in jumping sports such as basketball or volleyball.



Jumpers' Knee or Patellar Tendonitis

- MRI of the damaged patellar tendon.



Jumpers' Knee or Patellar Tendonitis

- Treatment to reduce inflammation including ice, reduced activity, eccentric muscle strengthening, and a counter strain strap.

March Fracture (Metatarsal)

- Stress fracture of one of the metatarsal bones of the foot.
- X-ray's may not show injury until three to four weeks after onset of pain.

March Fracture (Metatarsal)

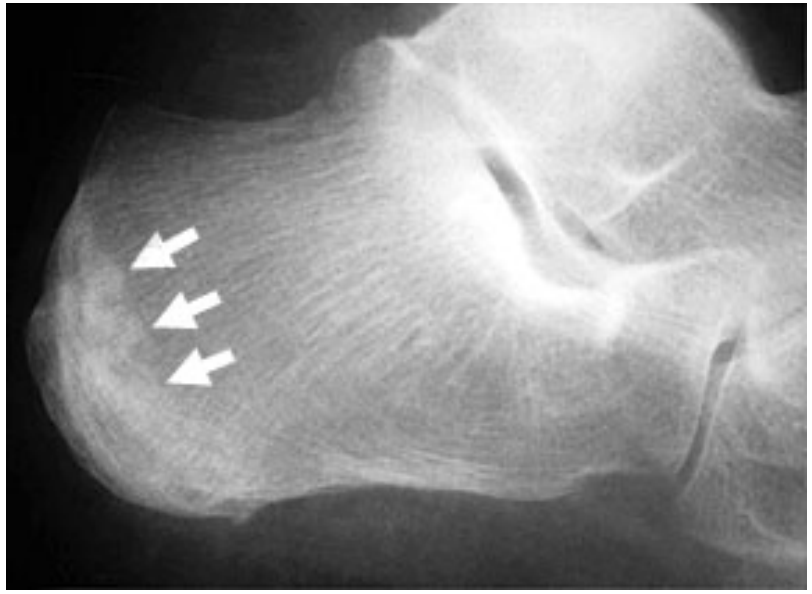
- A bone scan will be diagnostic within 48 hours of onset of pain.
- Bone scan is expensive.
- Alternate activity such as swimming or bike to maintain cardiovascular fitness.

Sever's Disease/Calcaneal Stress Fracture

- Heel pain on the sides of the foot.
- Disturbance of the growth center in the calcaneous.
- Can progress to an actual stress fracture.

Sever's Disease/Calcaneal Stress Fracture

- X-ray showing the stress fracture.
- See commonly in young overweight males (football lineman), runners, or soccer players.
- Alternate activity.

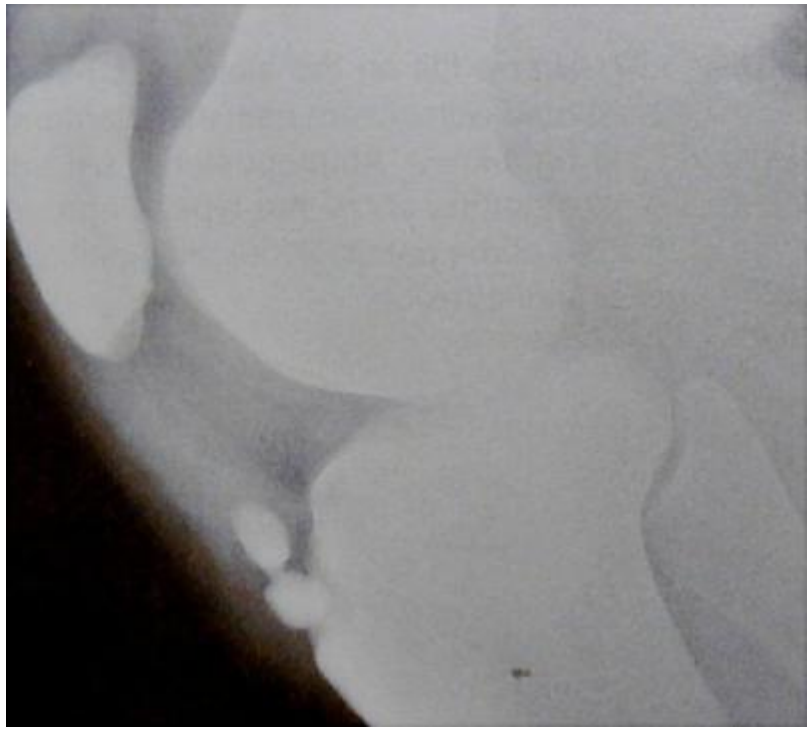


Osgood Schlatter Disease

- Disruption of the apophysis at the proximal end of the tibia from traction of the quadriceps muscle.

Osgood Schlatter Disease

- X-ray showing bone damage from osgood schlatter.
- Will grow out of the pain as the athlete gets older.
- Reduced activity and protection from direct contact.



Other Stress Fractures

- Tibial Stress Fracture
- Femoral neck stress fracture

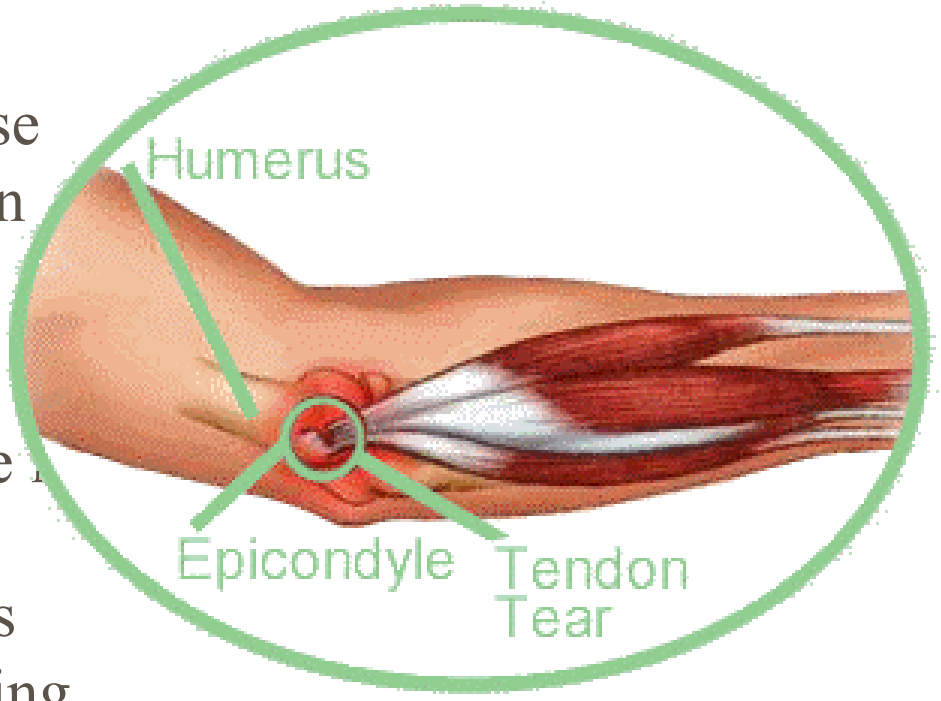
Epicondylitis

- Medial epicondylitis
  - Commonly referred to as “golfer’s elbow”
  - May present as “little leaguer’s elbow”
- Lateral epicondylitis
  - Commonly referred to as “tennis elbow”

Medial Epicondylitis

- Irritation of medial epicondyle from overuse of pronation and flexion muscles

- May irritate ulnar nerve
  significant – most common presentation is point tenderness, swelling at site and weakness to affected muscles

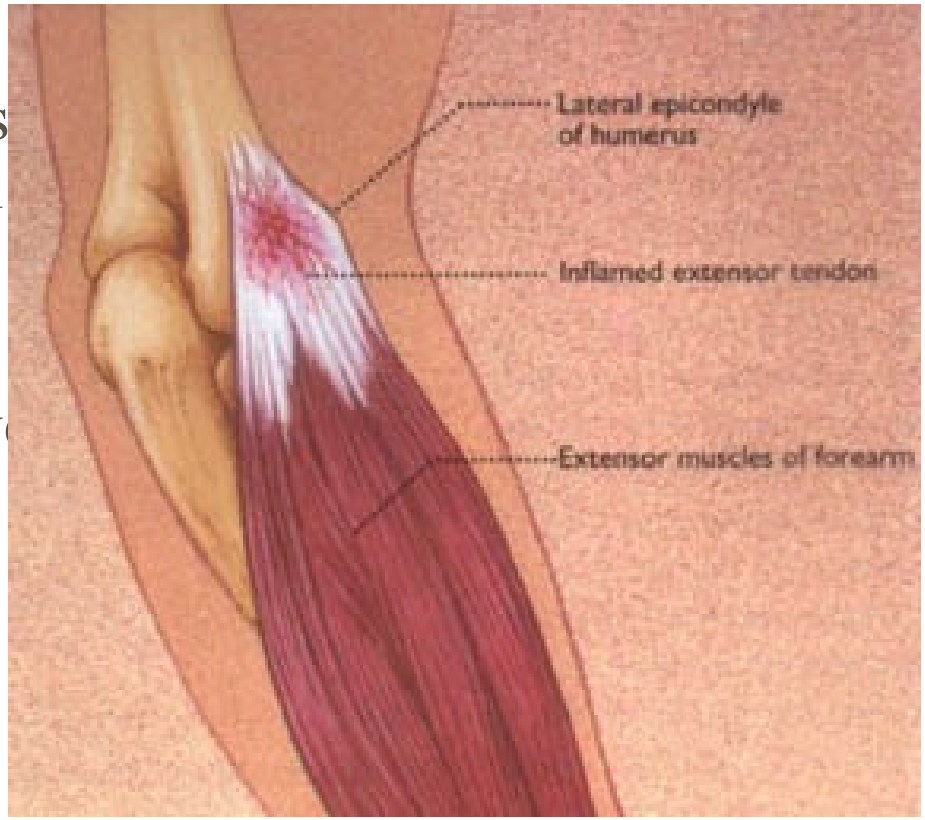


Medial Epicondylitis

- "Little leaguer's elbow" is avulsion of flexor/pronator common tendon from origin at medial epicondyle
- Typically treated conservatively with rest, NSAIDs, flexibility and strengthening exercise program

Lateral Epicondylitis

- Irritation of lateral epicondyle from overus of supination/extension muscles
- Most commonly involv extensor carpi radialis longus and brevis
- Most common presentation is point tenderness, swelling at site and weakness to affected muscles



“Tennis Elbow” Test

- Clinician palpates lateral epicondyle with elbow at 90 – resists extension of wrist
- Positive if painful and/or weak at lateral epicondyle – ECRB involvement
- If test replicated with elbow extended, indicates ECRL involvement

Rupture of Distal Biceps Tendon

- Etiology is eccentric loading of tendon with elbow extended (hyperextension)
- Often accompanied by “pop” at elbow
  - X-ray used to rule out avulsion fracture
- Visible/palpable defect present, typically has considerable swelling/ecchymosis to cubital fossa

General Rules for Management of Overuse Injuries

- Control inflammation and pain.
- Get a specific diagnosis.
- Reduce activity.
- Prevention is better than management.
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General Rules for Prevention of Overuse Injuries

- Increase activity gradually.
- Increase activity levels no more than 10% per week.
- Use of alternative activities.
- Watch for overused or old equipment.
- Control of excessive pronation of the foot.
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