
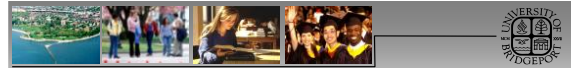



## Ankle and Foot Orthopaedic Tests Orthopedics and Neurology DX 612

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University of Bridgeport College of Chiropractic

## Ankle & Foot Anatomy



- Stability of the ankle is dependent upon functional placement of the talus.





## Ankle Sprain



- Please describe the grades of an ankle sprain...

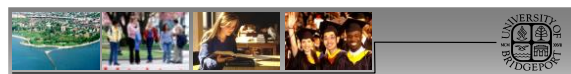


## Ankle Sprain

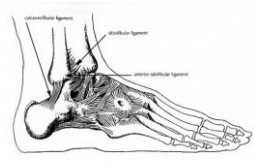


- Lateral ankle sprain is most common

**Lateral Ankle Sprain**  
Because most sports involve running, lateral ankle sprain is the most common sports ligament injury.

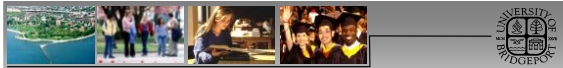


## Lateral Ankle Sprain



- Anterior talofibular ligament is most often sprained

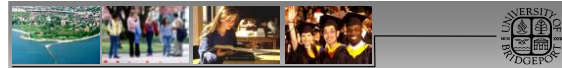
Ligament Anatomy of the Foot  
Inversion or turning in of the foot causes the most common sprain of any ligament by tearing the anterior talofibular ligament.



## Drawer's Foot Sign



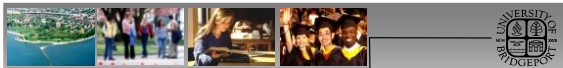
- Anterior drawer will be positive with gapping secondary to trauma



## Anterior Drawer's Test

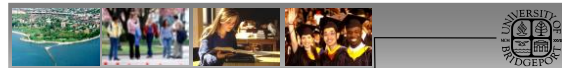


- Indicates sprain of anterior talofibular ligament



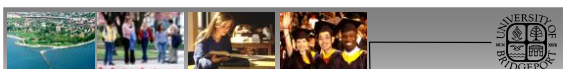
## Posterior Drawer Test

- Posterior drawer employs just the opposite forces to challenge the posterior talofibular ligament.

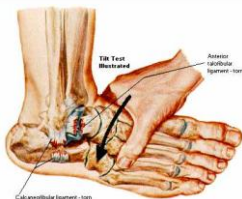


## Lateral Stability Test Talar Tilt Test

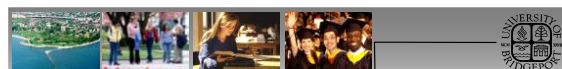
- Sprain injury to calcaneofibular and/or anterior talofibular ligaments



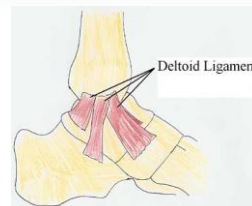
## Talar Tilt Test



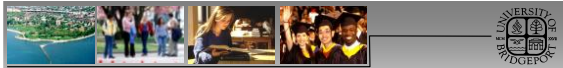
- What is your diagnosis or assessment of this condition?
- What is your plan?



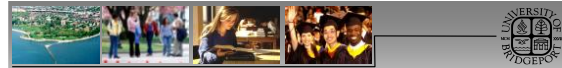
## Medial Ankle Sprain



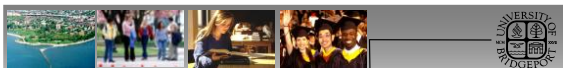
- Medial stability test secondary to trauma with gapping indicates potential deltoid ligament sprain



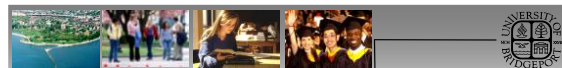
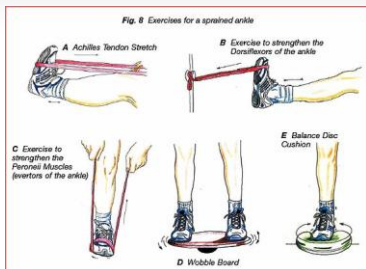
## Ankle Examination



## Subtalar Examination



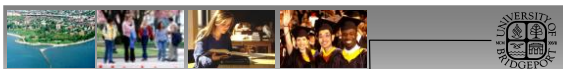
## Ankle Rehabilitation



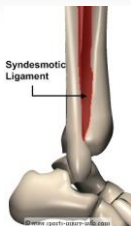
## High Ankle Sprain Syndesmotic Ligament Sprain



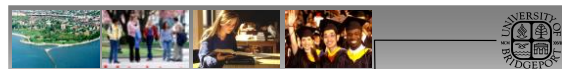
- Stabilize the mortise by opposing the fibula in the fibular notch (incisura fibularis tibiae)



## Syndesmosis



- Four ligaments
- anterior-inferior tibiofibular
  - interosseous
  - posterior- inferior fibular
  - inferior transverse tibiofibular
  - interosseous



## Potts Compression or Squeeze Test

- Squeeze test



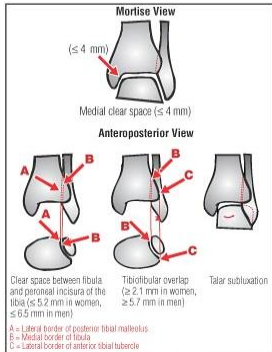
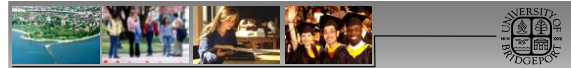


FIGURE 4. Syndesmotic radiographic criteria. A finding outside any of these criteria indicates a syndesmosis injury.  
 Reproduced with permission from Shalh JB. Complex ankle fracture dislocations with syndesmotic diastasis. *In* *J Bone Joint Surg* 1999; 81A:2011.

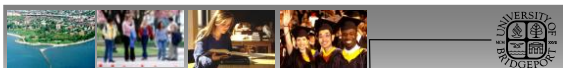


FIGURE 5. Radiograph of a grade 3 sprain in a 24-year-old semiprofessional football player. Multiple radiographic signs of syndesmotic injury are present. The medial clear space is greater than 4 mm (arrow), the fibula is widely displaced from the incisural notch of the tibia (arrowhead), and the talus is displaced laterally and is no longer congruent with the distal tibia (open arrow).



## High Ankle Sprain

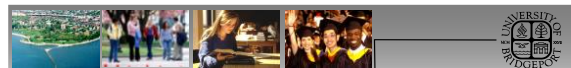
- Stress radiographs



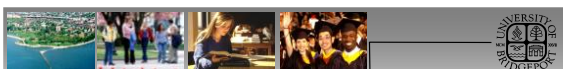
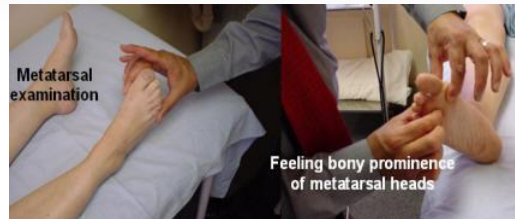
## Syndesmotic Fixation Technique



- Syndesmotic screws



## Metatarsal Examination

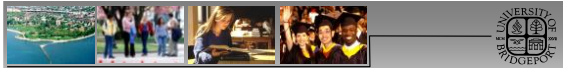


## Plantar and Achilles Examination



## Tarsal Examination

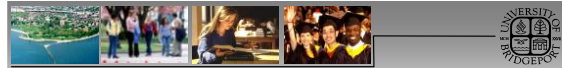




## Homan's Test Deep Vein Thrombophlebitis



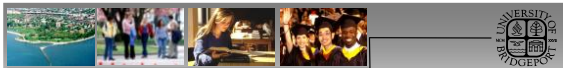
- Supine with knee flexed
- Abrupt forcible dorsiflexion of foot
- Positive test produces pain in calf or popliteal region



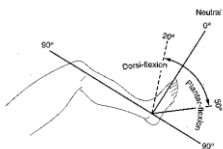
## Homan's



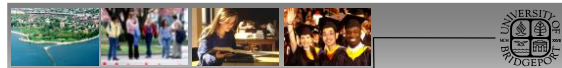
- Incorrect position for performance of Homan's test
- Clinically unreliable and insensitive for DVT
- Positive test possible with DVT



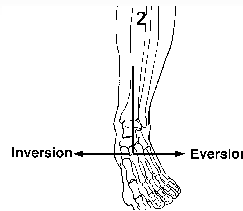
## Ankle ROM



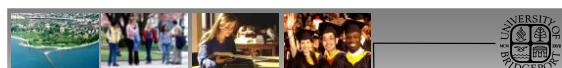
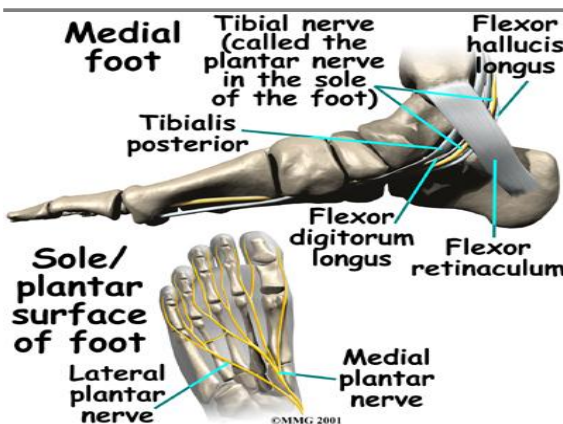
- Plantar flexion
- Dorsiflexion



## Ankle ROM



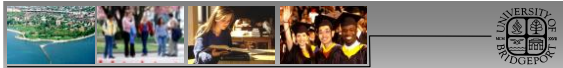
- Inversion
- Eversion



## Tarsal Tunnel Syndrome



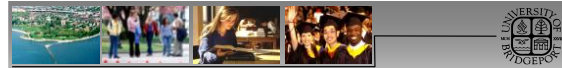
- Analogous to carpal tunnel syndrome in the wrist...



## Scratch Collapse Test



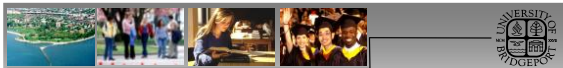
- Scratch along tibial nerve
- Collapse of arms indicates a positive test for compression of the tibial nerve
- <http://medicine.wustf.edu/~wumpa/outlook/fa/12006.backOnYourFeetAgain.htm>



## Tinel's Sign



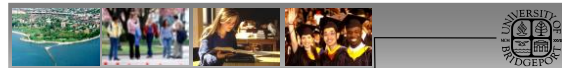
- Tap tibial nerve at medial aspect of ankle
- Sign is present if paresthesias are produced in foot



## Tourniquet Test



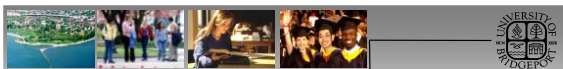
- Apply sphygmomanometer to affected ankle and inflate to pressure 10 mm of Hg above systolic for 1-2 minutes



## Tourniquet Test



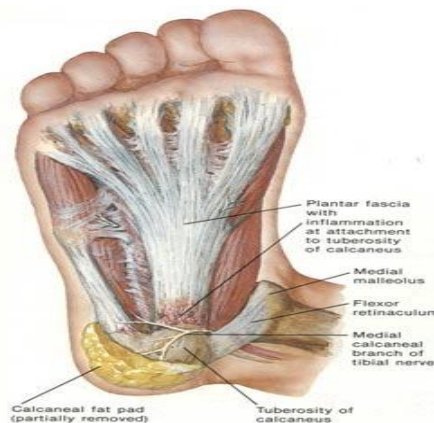
- Suspect tibial compression if pain is elicited or exacerbated with test.

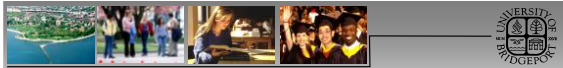


## Strain of Plantar Fascia



- Related to tight achilles tendon and gastrocnemius muscles
- Common in runners and dancers
- May lead to plantar fasciitis

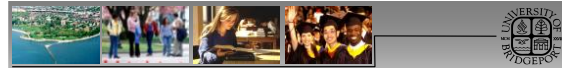




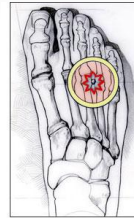
## Metatarsalgia



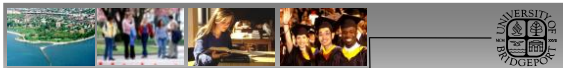
- Sharp or shooting pain in toes
- Lack of shock absorption
- Resolved with foot orthotics
- Exercise



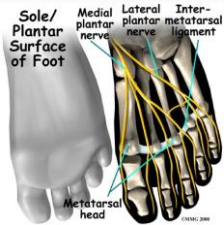
## Morton's Neuroma



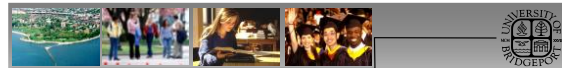
- Pain and paresthesias
- Poorly fitting shoes increase pain
- PRICE
- Change shoes
- Orthotics



## Morton's Neuroma



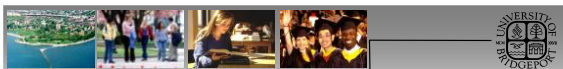
- Medial plantar neuroma
- Thickening of medial plantar nerve, usually between the third and fourth digits



## Morton's Neuroma



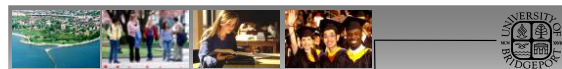
- Palpable pain and clicking
- Reproduce symptoms with manipulation
- Radiographic study indicated



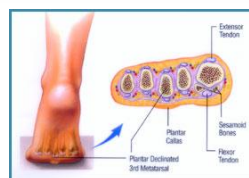
## Metatarsalgia



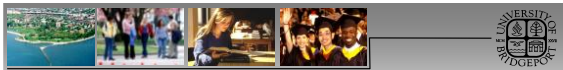
- Patient complains of pain on the dorsum of the foot.
- Palpate both dorsal and plantar aspects of foot.



## Metatarsalgia



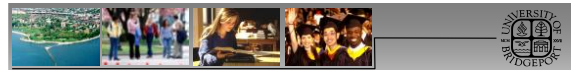
- Pain typically is aggravated during the midstance and propulsion phases of walking or running.



## Metatarsalgia Treatment



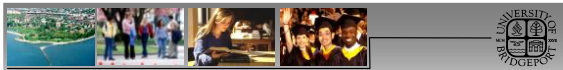
- PRICE
- Inexpensive orthotics are very effective.



## Achilles Tendon



- Strongest tendon in the body
- Provides the power in the push off phase of the gait cycle



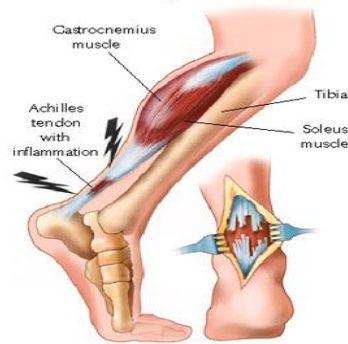
## Achilles Tendonitis



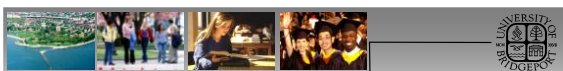
- Over-training
- Lack of stretching
- Poor sleeping posture
- Ill fitting shoes
- Worn shoes
- Lack of shock absorption



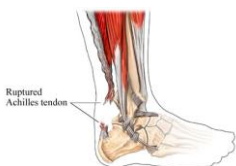
## Side view of lower leg



Surgical view of torn achilles tendon



## Achilles Rupture



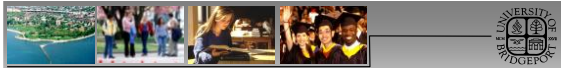
- Pop or snap
- Feels like a gunshot or kick
- Inability to ambulate



## Observation of Ruptured Achilles



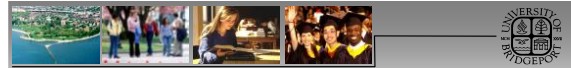




## Thompson's Test



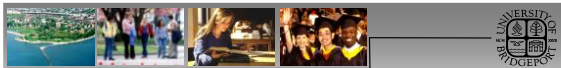
- Flex knee
- Squeeze calf
- Mechanical contraction of gastrocnemius and soleus will not plantar-flex the foot



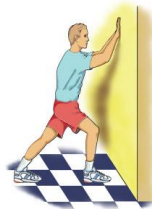
## Achilles Tap Test



- Tap affected achilles tendon
- Exacerbation of pain indicates strain
- Inability to plantarflex foot indicates rupture
- Neurologically intact



## Treatment and Prevention of Pedal Problems



- Stretching
- Rest and massage
- Sleeping posture
- Hydration
- Properly fitting shoes
- Shock absorption orthotics