Corrective Exercise Seminar Series
Knee & Ankle

I. How is the knee and ankle intended to move?

Joints involved:

- Patellofemoral Joint
- Talocrural Joint

Muscles Involved:

- Hamstrings
- Quadriceps
- Tibialis Ant.
- Peroneus longus
- All Extensors
- Gastrocnemius
- Soleus

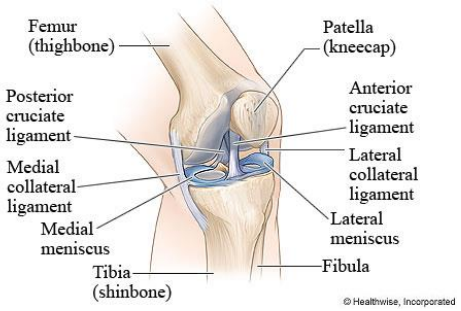


Image Ia.

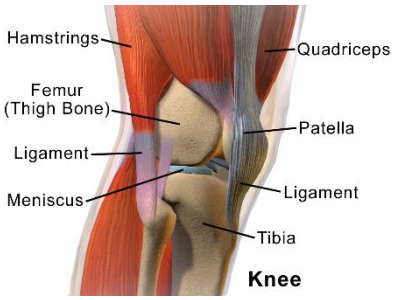


Image Ib.

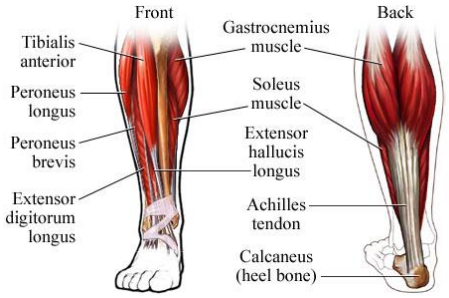
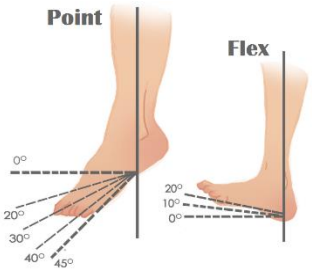
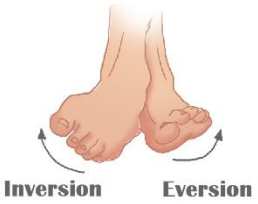
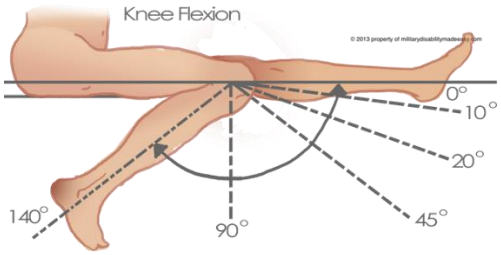


Image Ic.





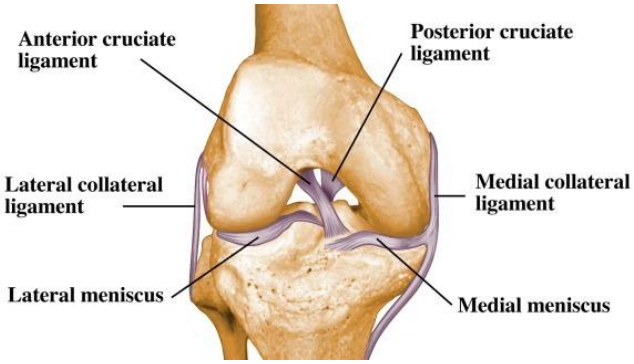


See above for range of motion of both the knee and ankle joint.

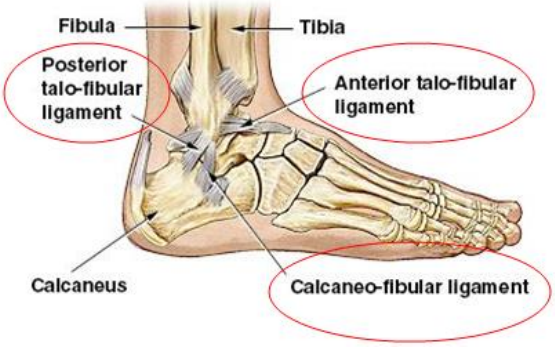
- Flexion/Extension
- Inversion/Eversion

II. Why do we have pain?

Limitations in any of these primary movements can be caused by muscle restriction and impaired proper function. Improper muscle function in the ankle or knee can lead to problems at the hip or back. Knee and ankle mobility and stability are both important to function properly and avoid injury. You'll notice in both joints, the primary pain is related to ligament and cartilage. Both joints must endure force from walking and other activities, then disperse the force throughout the upper chain. If either joint fails or is not efficient in this process, more force can be placed on other joints in the body, risking injury.



The knee is surrounded by ligaments and cartilage to help it move as intended and support force through the joint. Common pain can result from injury or minor tears/damage to the cartilaginous fibers, such as the meniscus. The ankle is a joint that is usually forgotten about. Over time our ankles become stiff and immobile. As the muscles of the ankle tighten we begin to lose range of motion of our foot. This can create balance problems and an increased risk of rolling an ankle. When this injury occurs, ligaments are being stretched passed their range and function.



a. What are some exercises to avoid and some exercises to do more often?
   Rather than specific exercises to avoid, there is a correct way we need to make sure we are using our muscles. Try not to allow your knees to cave in during any exercise. Overtime this may cause injury to the inner ligaments of your knee. Practice stretching your calf muscles and doing the alphabet with your feet. This is a great exercise to improve ankle mobility. When climbing stairs or exercising be cautious of your knee in space, meaning pay attention to how your knee tracks. Technique is one deciding factor of where you will be working muscles and where you will be causing pain.

III. How do we improve discomfort?

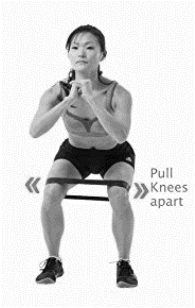
We can improve discomfort by addressing the movement patterns that are inhibited and work to create motor patterns for proper movement. Technique training, motor control learning, and corrective exercise will help alleviate pain as well as prevent injury.

IV. Mobility to Stability

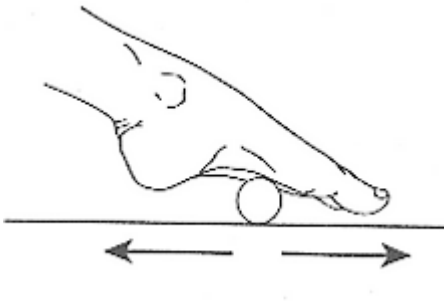
Mobility to stability is a process that is imperative for motor learning. We need to activate our muscles then learn how to integrate the proper movement into daily life. Doing both mobility and stability exercises is ying and yang for our musculoskeletal system. If we have excess mobility in a stability joint or excess stability in a mobility joint we risk injury. Everyone is different, find out where your focus should be and make sure to do both types of movements. See the exercises below.

a. Mobility & Stability Exercises

Half Kneeling Dorsiflexion



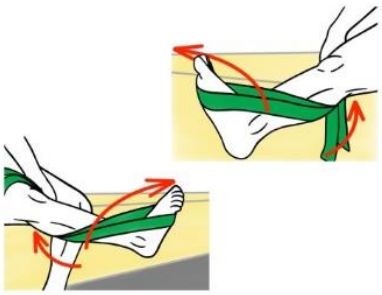
Squat with Band



Plantar Fascia Golf Ball Roll

Soleus and Gastrocnemius Stretch

Lateral Band Walks



Ankle Band Activation

Or

A-Z mobility