

## *Section 4*

### Muscles and Movements

## HIP FLEXORS

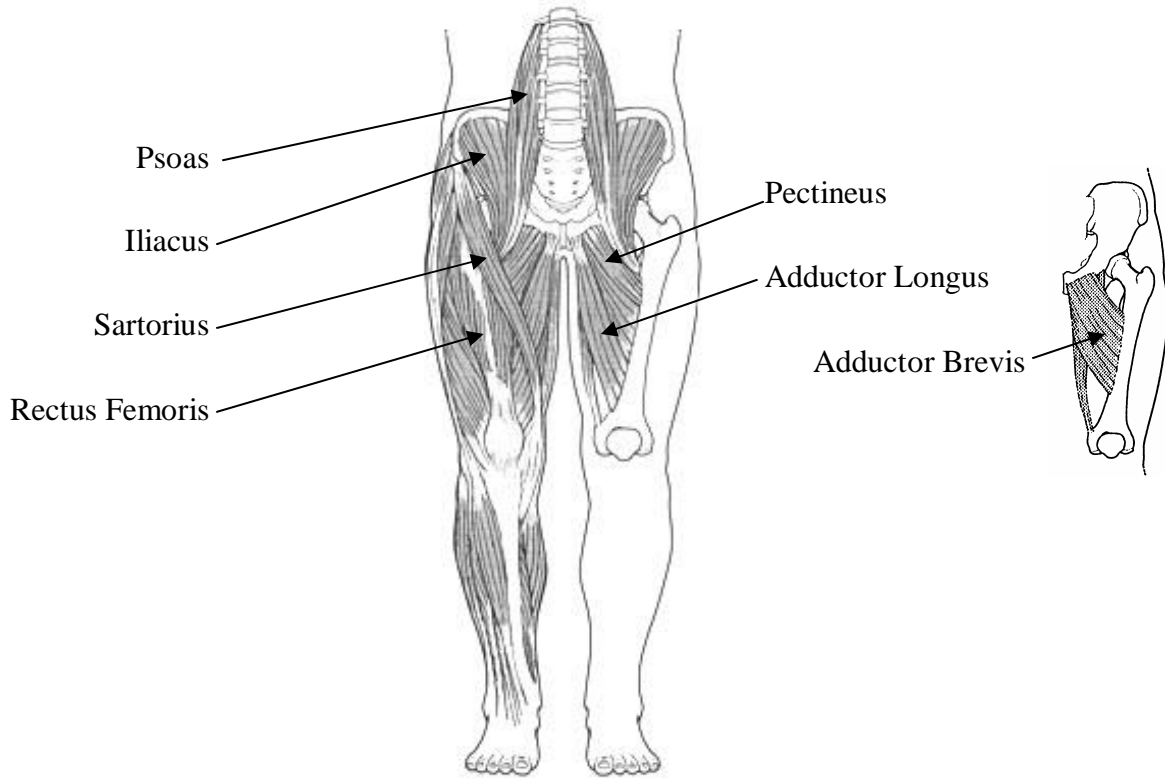


Figure 4-1. Hip Flexors.

The hip flexor muscles (also known as thigh flexors) are a group of seven muscles located on both sides of the body. Their names are: 1) Psoas, 2) Iliacus, 3) Sartorius, 4) Vastus Rectus (a.k.a Rectus Femoris), 5) Adductor Longus, 6) Adductor Brevis and 7) Pectineus. See Figure 4-1 above.

The hip flexors main function is to flex the thigh upon the pelvis. This occurs during activities such as running, jumping, and walking. This is illustrated in Figures 4-2a and 4-2b.



Figure 4-2a. Neutral hip position.



Figure 4-2b. Hip flexion.

## HIP EXTENSORS

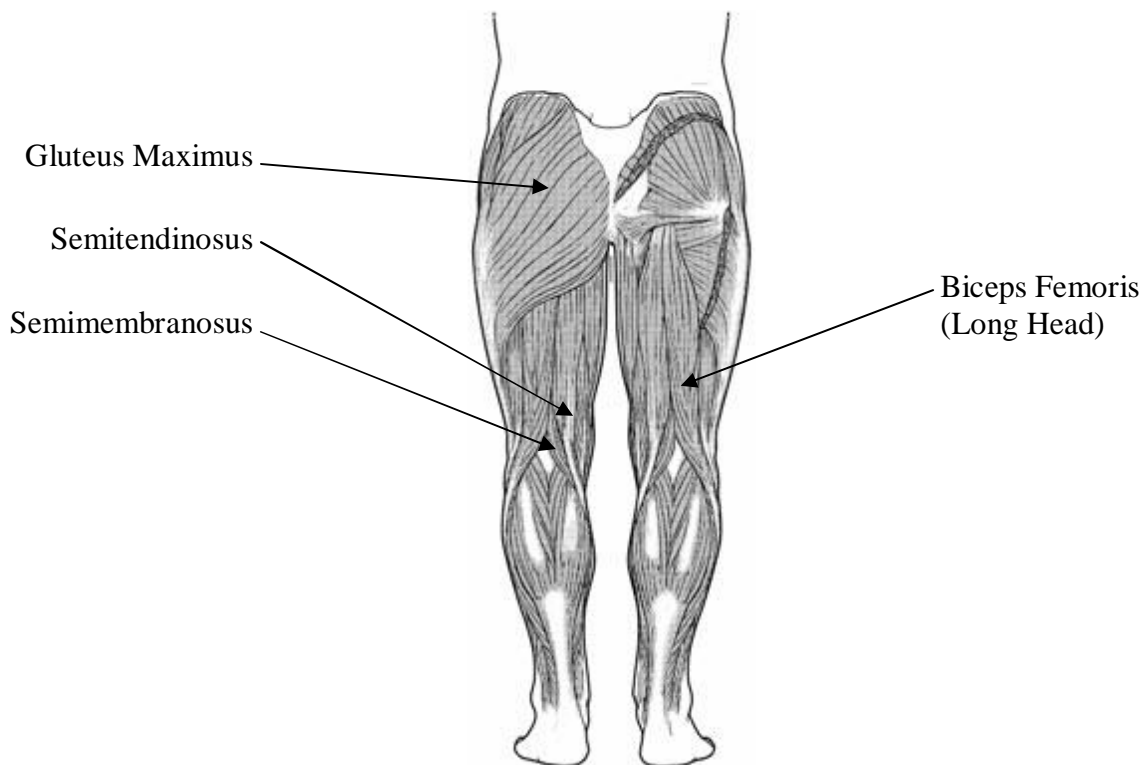


Figure 4-3. Hip Extensors.

The hip, or thigh, extensors consist of 4 muscles located in the buttocks region and behind the thigh. Their names are: 1) Gluteus Maximus, 2) Semimembranosus, 3) Semitendinosus, 4) Long Head of Biceps Femoris. See Figure 4-7 above. Note: The Semimembranosus, Semitendinosus and Biceps Femoris are commonly known as the hamstrings. See Figure 4-3 above.

The main function of the hip, or thigh extensors, is to extend the thigh behind your body. This occurs during activities such as running, jumping, walking, skating, and swimming. This is illustrated in Figures 4-4a and 4-4b.



Figure 4-4a. Neutral hip position.



Figure 4-4b. Hip extension.

## KNEE FLEXORS (HAMSTRINGS)

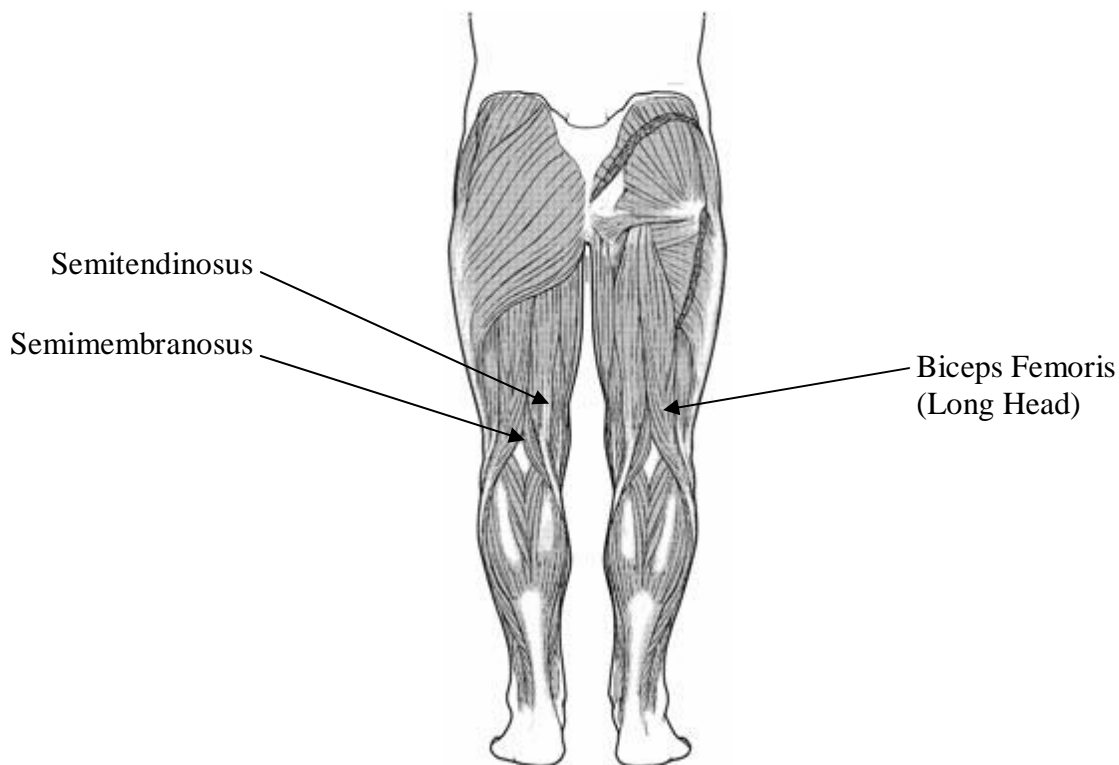


Figure 4-5 Knee Flexors.

The knee/leg flexors are a group of three muscles located in the posterior thigh region on both sides of the body. Their names are: 1) Semitendinosus, 2) Biceps Femoris and 3) Semimembranosus. They are commonly known as the hamstrings. See Figure 4-5 above.

The hamstrings have two functions: 1) flexion of the leg behind the thigh, also known as knee flexion, as seen in Figure 4-6a below and 2) extension of the thigh behind the hip, also known as hip extension, as seen in Figure 4-6b below.



Figure 4-6a. Knee flexion.



Figure 4-6b. Hip extension.

## KNEE EXTENSORS (QUADRICEPS)

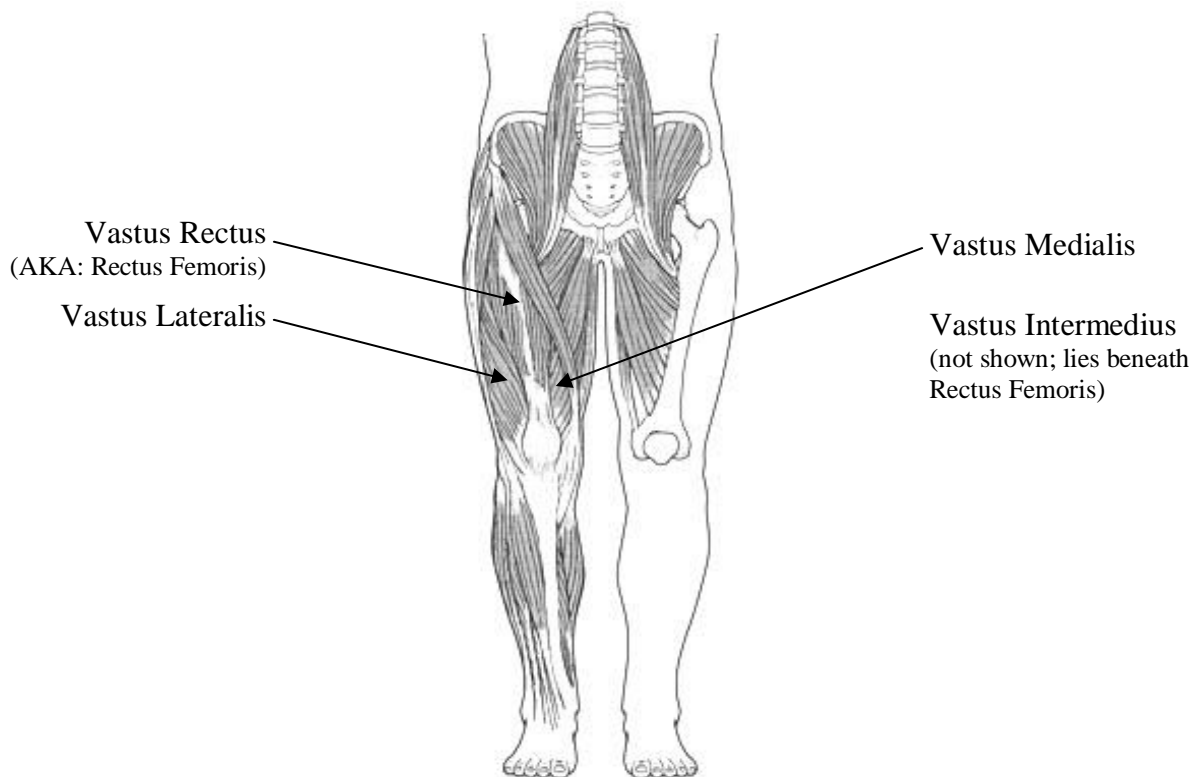


Figure 4-7. Knee Extensors.

The knee/leg extensors are a group of four muscles located in the anterior thigh region on both sides of the body. Their names are: 1) Vastus Rectus (a.k.a. Rectus Femoris), 2) Vastus Medialis, 3) Vastus Lateralis and 4) Vastus Intermedius. They are commonly known as the quadriceps, or quads. These muscles are shown in Figure 4-7 above.

The quadriceps main function is to extend the leg at the knee. This occurs during activities such as running, jumping, kicking, standing and walking. This is illustrated in Figures 4-8a and 4-8b.



Figure 4-8a. Knee in flexion while standing.



Figure 4-8b. Knee in extension while standing.

## ANKLE PLANTAR-FLEXORS

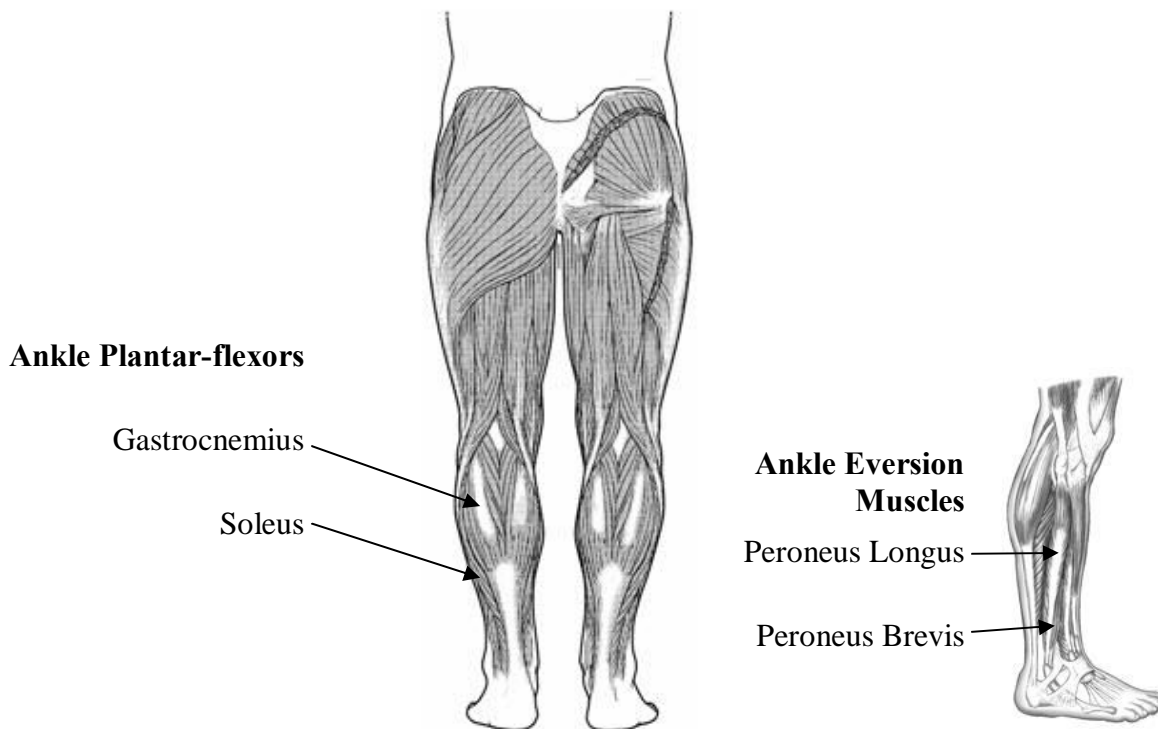


Figure 4-9a. Ankle Plantar-flexors.

Figure 4-9b. Ankle Eversion Muscles.

The Ankle Plantar-flexors are located in the posterior leg region of the body. They are commonly called the calf muscles. Their names are: 1) Gastrocnemius and 2) Soleus. See Figure 4-9 above. Their main function is to plantarflex the ankle. This occurs during jumping, running and walking. This is illustrated in Figures 4-10c and 4-10d.



Figure 4-10c. Neutral ankle position.



Figure 4-10d. Ankle plantar-flexion.

The ankle eversion muscles are located in the lateral lower leg region. Their names are Peroneus Longus and Peroneus Brevis. They provide support and strength to the ankle joint. See Figure 4-9b above.