

Section 4

Muscles and Movements

HIP ABDUCTORS

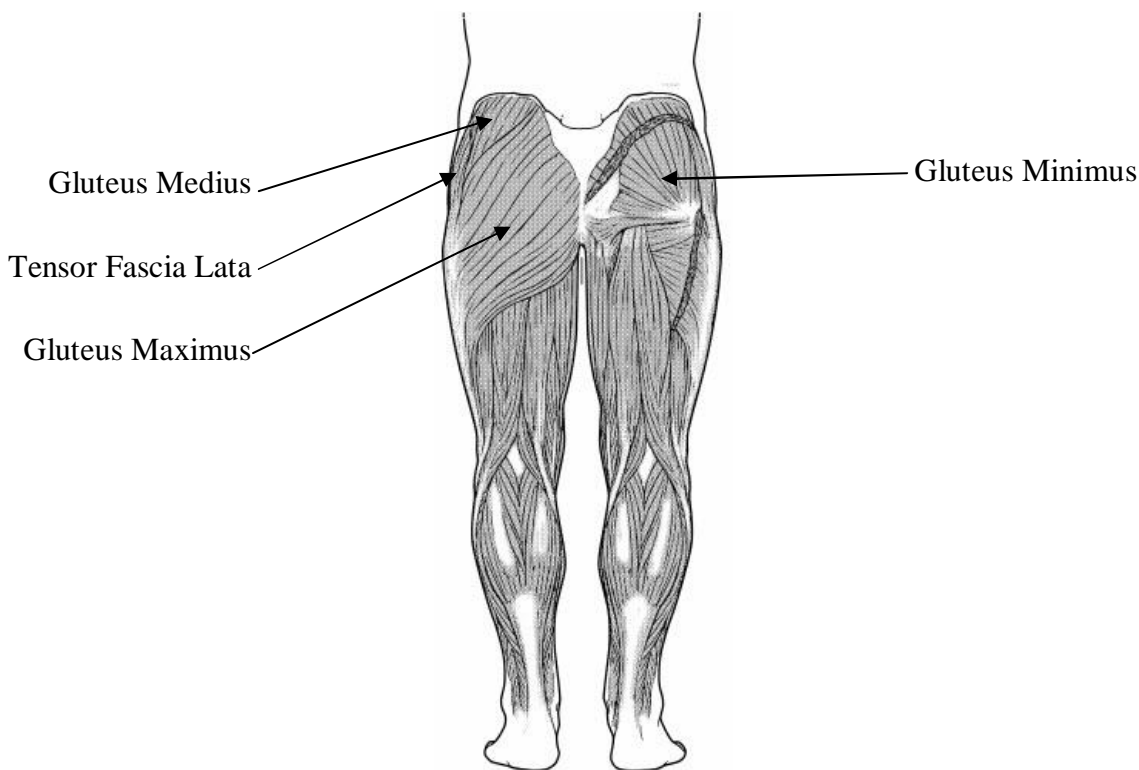


Figure 4-1. Hip Abductors.

The hip abductors are a group of four muscles located in the buttocks region on both sides of the body. Their names are: 1) Gluteus Maximus, 2) Gluteus Medius, 3) Gluteus Minimus and 4) Tensor Fascia Lata. See Figure 4-1 above.

The hip abductors main function is to abduct, or separate, your legs away from the midline of the body. This occurs during any athletic movement requiring you to move from side to side such as playing the infield in baseball, defense in basketball and football, and ice skating. This is illustrated in Figures 4-2a and 4- 2b below.



Figure 4-2a. Neutral hip position.



Figure 4-2b. Hip abduction.

HIP ADDUCTORS

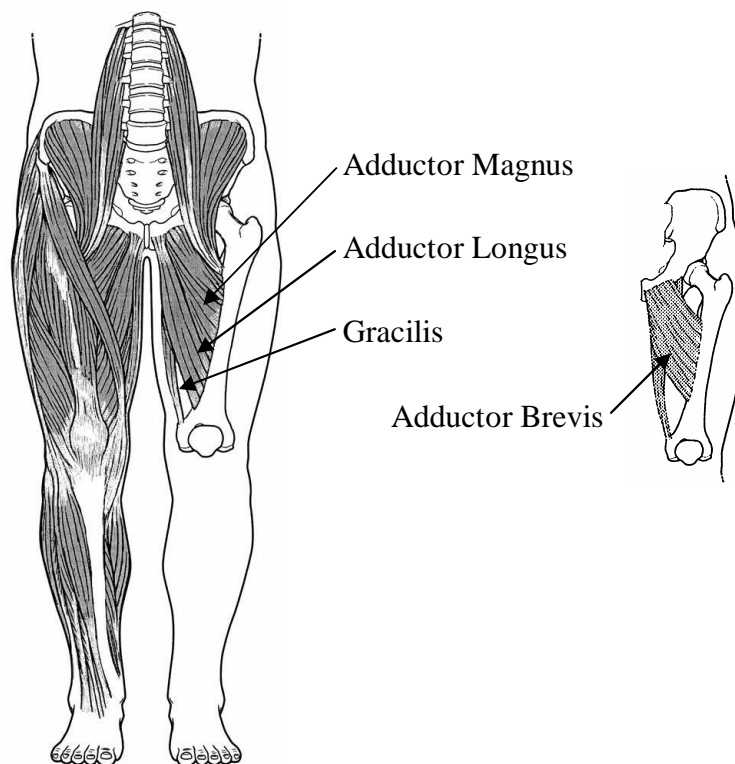


Figure 4-3. Hip Adductors.

The hip adductors are a group of four muscles located in the internal femoral region on both sides of the body. Their names are: 1) Adductor Longus, 2) Adductor Brevis, 3) Adductor Magnus and 4) Gracilis. See Figure 4-3 above.

The hip adductors main function is to adduct or bring your legs towards the midline of the body as well as to cross one leg over the other. This occurs during any athletic movement requiring you to move from side to side such as playing the infield in baseball, defense in basketball and football, and ice skating. They are also used in activities such as horseback riding where inward pressure by your thighs is required to maintain a firm and stable riding posture. This is illustrated in Figures 4-4a and 4-4b.



Figure 4-4a. Neutral hip position.



Figure 4-4a. Hip adduction.

HIP FLEXORS

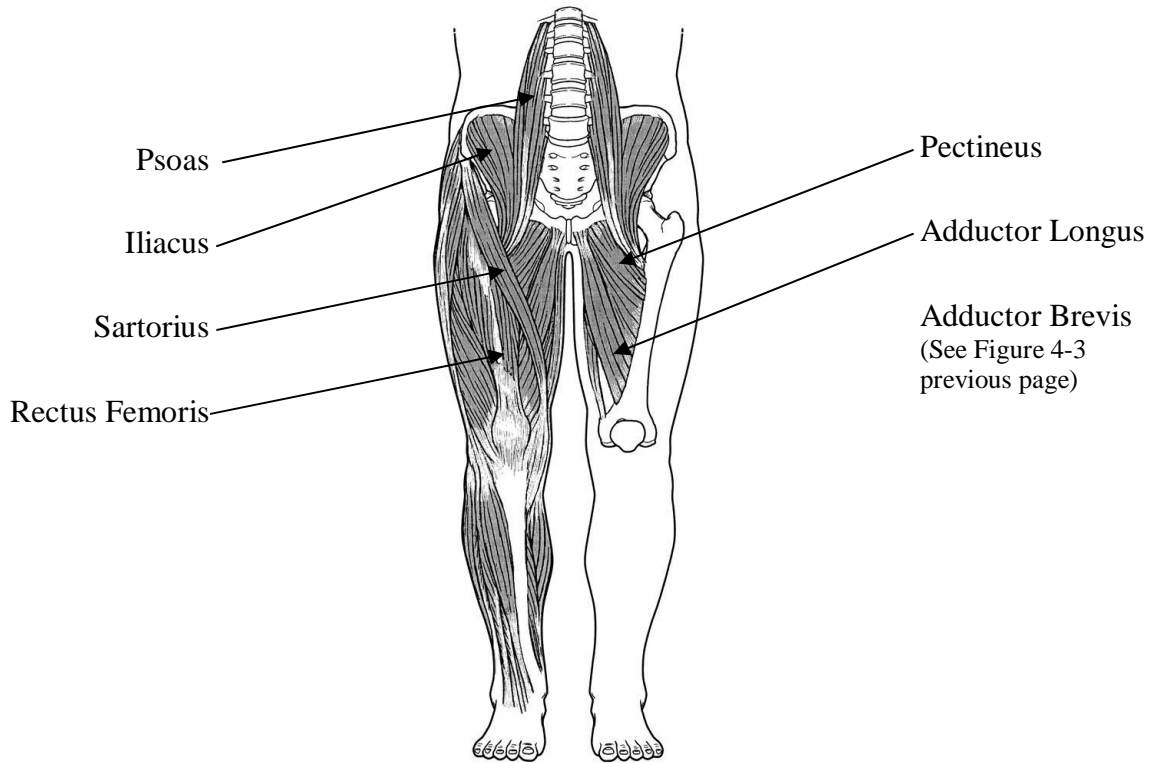


Figure 4-5. Hip Flexors.

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 4-5 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 4-6a and 4-6b.



Figure 4-6a. Neutral hip position.



Figure 4-6b. Hip flexion.

HIP EXTENSORS

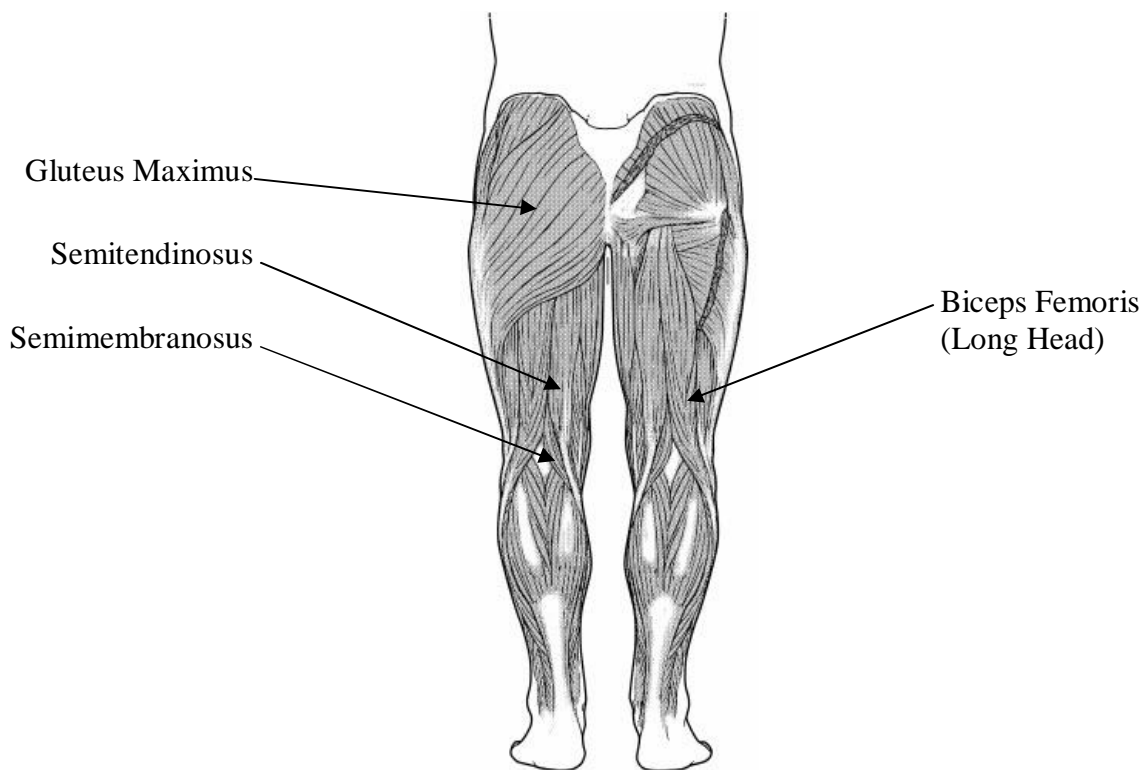


Figure 4-7. Hip Extensors.

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 4-7 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 4-8a and 4-8b.



Figure 4-8a. Neutral hip position.



Figure 4-8b. Hip extension.

KNEE FLEXORS (HAMSTRINGS)

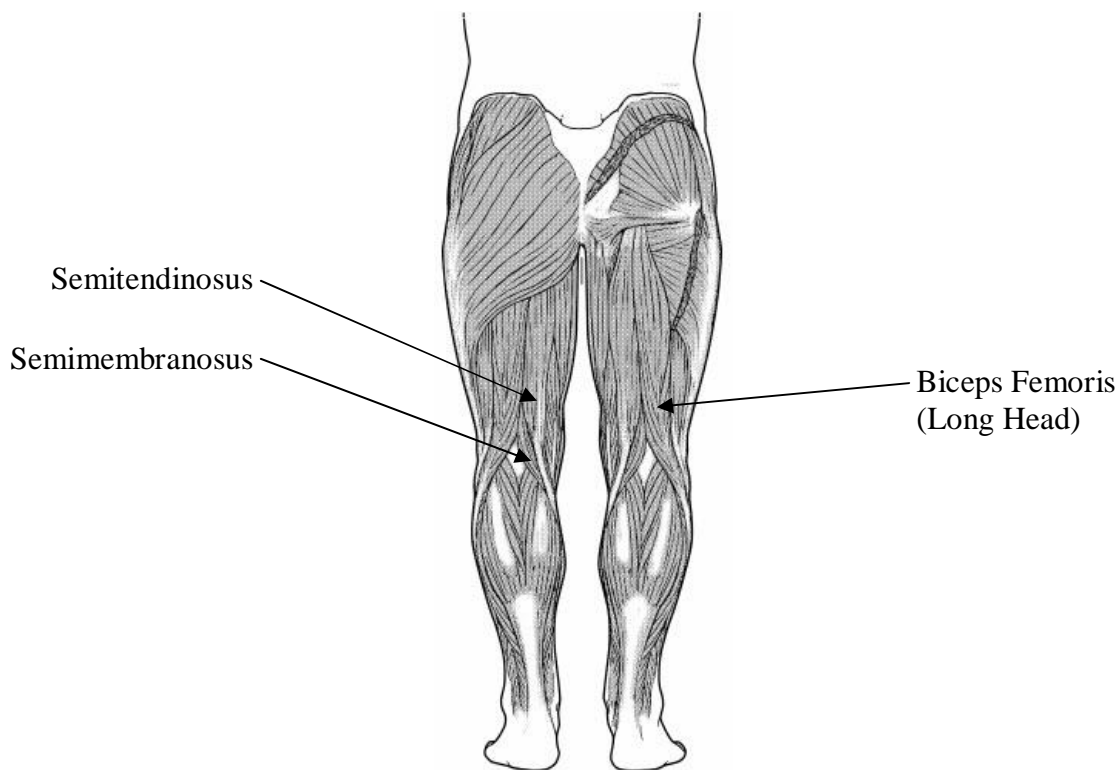


Figure 4-9. Knee Flexors.

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 4-9 above.

The hamstrings have two functions: 1) flexion of the leg behind the thigh, also known as knee flexion, as seen in Figure 4-10b below and 2) extension of the thigh behind the hip, also known as hip extension, as seen in Figure 4-8b on the previous page. In Exercise #5, the hamstrings will flex the knee and in Exercises #7 and #8 the hamstrings will extend the hip and slightly flex the knee.



Figure 4-10a. Neutral position.



Figure 4-10b. Knee flexion.

KNEE EXTENSORS (QUADRICEPS)

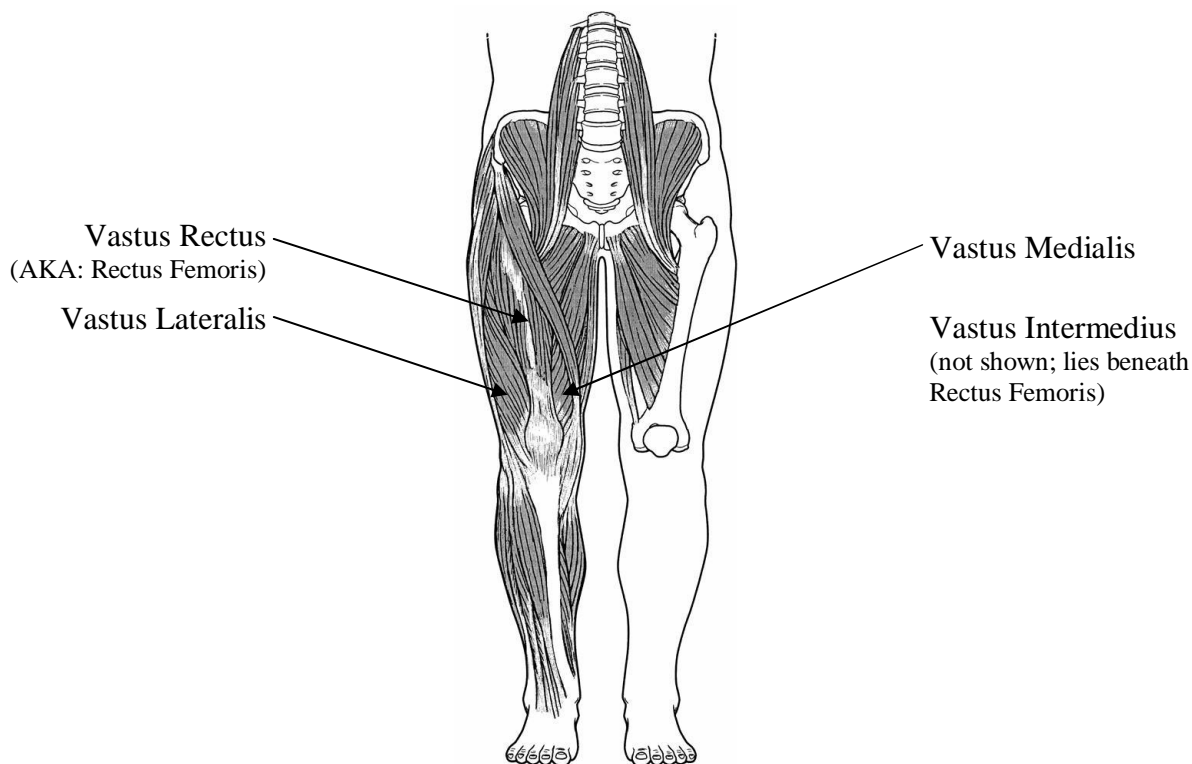


Figure 4-11. Knee Extensors.

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 4-11 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 4-12a and 4-12b.



Figure 4-12a. Knee flexion while standing.



Figure 4-12b. Knee extension while standing.

ANKLE PLANTAR-FLEXORS

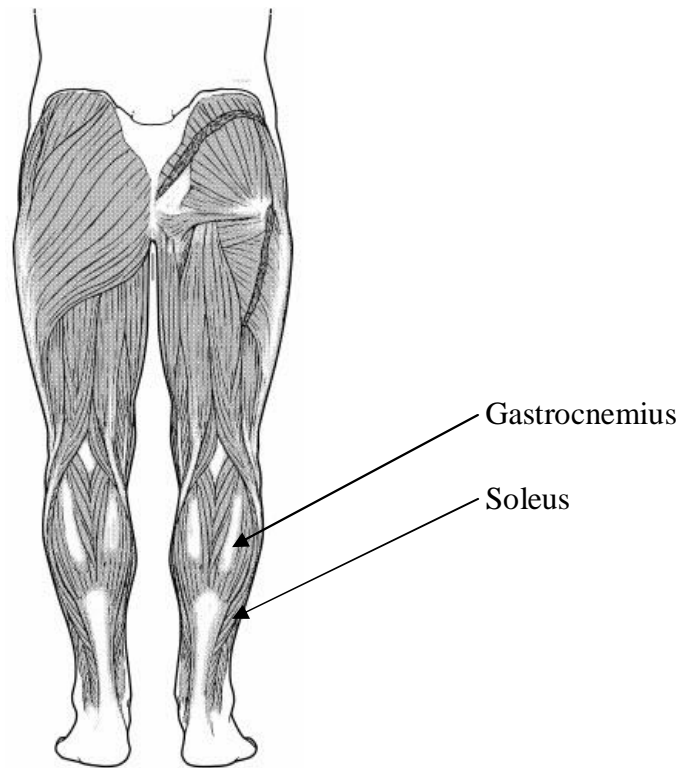


Figure 4-13. Ankle Plantar-flexors.

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 4-13 above.

The Ankle Plantar-Flexors main function is to plantarflex the ankle. This occurs during jumping, running and walking. This is illustrated in Figures 4-14a and 4-14b.



Figure 4-14a. Neutral ankle position.



Figure 4-14b. Ankle plantar-flexion.