

Table 1-12

Major Muscles That Act at the Hip Joint

Muscle	Origin	Insertion	Primary Function(s)	Selected Exercises
Iliopsoas: Iliacus and psoas major and minor	Transverse processes of T12 and L1 through L5; iliac crest and fossa	Lesser trochanter of femur	Flexion and external rotation	Straight-leg sit-ups, running with knees lifted up high, leg raises, hanging knee raises
Rectus femoris	Anterior-inferior spine of ilium and upper lip of acetabulum	Superior aspect of patella and patellar tendon	Flexion	Running, leg press, squat, jumping rope
Gluteus maximus	Posterior 1/4 of iliac crest and sacrum	Gluteal line of femur and iliotibial band	Extension and external rotation; Superior fibers: abduction	Cycling, plyometrics, jumping rope, squats, stair-climbing machine
Biceps femoris	Long head: ischial tuberosity; Short head: lower, lateral linea aspera	Lateral condyle of tibia and head of fibula	Extension, abduction, and slight external rotation	Cycling, hamstring curls with knee in external rotation
Semitendinosus	Ischial tuberosity	Proximal anterior-medial aspect of tibia	Extension, adduction, and slight internal rotation	Same as biceps femoris
Semimembranosus	Ischial tuberosity	Posterior aspect of medial tibial condyle	Extension, adduction, and slight internal rotation	Same as biceps femoris
Gluteus medius and minimus	Lateral surface of ilium	Greater trochanter of femur	Abduction (all fibers); Anterior fibers: internal rotation; Posterior fibers: external rotation	Side-lying leg raises, walking, running
Adductor magnus	Pubic ramus and ischial tuberosity	Medial aspects of femur	Adduction	Side-lying bottom-leg raises, resisted adduction
Adductor brevis and longus	Pubic ramus and ischial tuberosity	Linea aspera of femur	Adduction	Side-lying bottom-leg raises, resisted adduction
Tensor fasciae latae	Anterior iliac crest and ilium just below crest	Iliotibial band	Flexion, abduction, and internal rotation	Hanging knee raises, side-lying leg raises, running
Sartorius	Anterior superior iliac spine	Proximal anterior medial tibia just below the tuberosity	Flexion and external rotation of the hip; flexion of the knee	Knee lift with hip external rotation, wide stance onto bench
Pectineus	Superior pubic ramus	Lesser trochanter and linea aspera of femur	Flexion, adduction, and external rotation	Hanging knee raises, side-lying bottom-leg raises, resisted external rotation of the thigh
Six deep external (lateral) rotators: Piriformis, obturator internus, obturator externus, superior gemellus, inferior gemellus, and quadratus femoris	Multiple origin points for six muscles on pubis, ischium, sacrum, and obturator foramen	On and just below greater trochanter, and trochanteric fossa of femur	External rotation	Resisted external rotation of the thigh
Gracilis	Pubic symphysis and arch	Medial tibia just below the condyle	Adduction	Side-lying bottom-leg raises, resisted adduction

Table 1-13

Major Muscles That Act at the Knee Joint

Muscle	Origin	Insertion	Primary Function(s)	Selected Exercises
Rectus femoris	Anterior-inferior spine of ilium and upper lip of acetabulum	Superior aspect of patella and patellar tendon	Extension (most effective when the hip is extended)	Cycling, leg press machine, squats, vertical jumping, stair climbing, jumping rope, plyometrics
Vastus lateralis, intermedius, and medialis	Along the surfaces of the lateral, anterior, and medial femur	Patella and tibial tuberosity via the patellar tendon	Extension	Same as for rectus femoris, resisted knee extension
Biceps femoris	Long head: ischial tuberosity; Short head: lower, lateral linea aspera	Lateral condyle of tibia and head of fibula	Flexion and external rotation	Cycling, lunging, hamstring curls
Semitendinosus	Ischial tuberosity	Proximal anterior medial aspect of tibia	Flexion and internal rotation	Same as biceps femoris
Semimembranosus	Ischial tuberosity	Posterior aspect of medial tibial condyle	Flexion and internal rotation	Same as biceps femoris
Gracilis	Pubic symphysis and pubic arch	Medial tibia just below the condyle	Flexion	Side-lying bottom-leg raises, resisted adduction
Sartorius	Anterior superior iliac spine	Proximal anterior medial tibia just below the tuberosity	Flexion and external rotation of the hip; flexion of the knee	Knee lift with hip external rotation, wide stance onto bench
Popliteus	Lateral condyle of the femur	Proximal tibia	Knee flexion; internal rotation of the lower leg to "unlock the knee"	Same as biceps femoris

Figure 1-38
Anterior tibial compartment muscles—prime movers for dorsiflexion and inversion

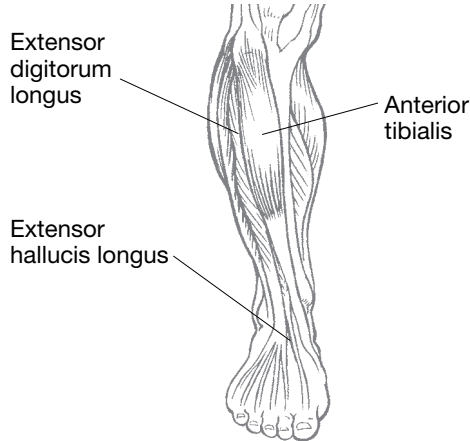


Figure 1-40
Lateral tibial compartment muscles, prime movers for eversion

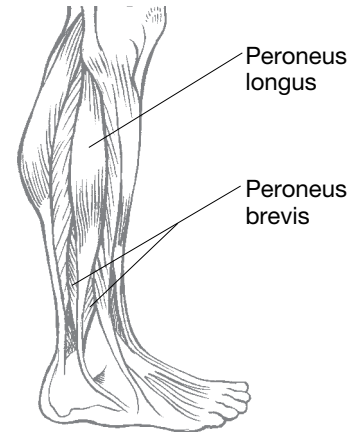


Figure 1-39
Posterior tibial compartment muscles primarily responsible for plantarflexion of the ankle

