

# Muscles of The Lower Limb

Source : Snell's Clinical Anatomy By Regions (9th Edition)

**TABLE 10.1 Muscles of the Gluteal Region**

Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
Gluteus maximus	Outer surface of ilium, sacrum, coccyx, sacrotuberous ligament	Iliotibial tract and gluteal tuberosity of femur	Inferior gluteal nerve	L5; S1, 2	Extends and laterally rotates hip joint; through iliotibial tract, it extends knee joint
Gluteus medius	Outer surface of ilium	Lateral surface of greater trochanter of femur	Superior gluteal nerve	L5; S1	Abducts thigh at hip joint; tilts pelvis when walking to permit opposite leg to clear ground
Gluteus minimus	Outer surface of ilium	Anterior surface of greater trochanter of femur	Superior gluteal nerve	L5; S1	Abducts thigh at hip joint; tilts pelvis when walking to permit opposite leg to clear ground
Tensor fasciae latae	Iliac crest	Iliotibial tract	Superior gluteal nerve	L4; 5	Assists gluteus maximus in extending the knee joint
Piriformis	Anterior surface of sacrum	Upper border of greater trochanter of femur	1st and 2nd sacral nerves	L5; S1, 2	Lateral rotator of thigh at hip joint
Obturator internus	Inner surface of obturator membrane	Upper border of greater trochanter of femur	Sacral plexus	L5; S1	Lateral rotator of thigh at hip joint
Gemellus superior	Spine of ischium	Upper border of greater trochanter of femur	Sacral plexus	L5; S1	Lateral rotator of thigh at hip joint
Gemellus inferior	Ischial tuberosity	Upper border of greater trochanter of femur	Sacral plexus	L5; S1	Lateral rotator of thigh at hip joint
Quadratus femoris	Lateral border of ischial tuberosity	Quadrate tubercle of femur	Sacral plexus	L5; S1	Lateral rotator of thigh at hip joint

**TABLE 10.2 Muscles of the Anterior Fascial Compartment of the Thigh**

Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
Sartorius	Anterior superior iliac spine	Upper medial surface of shaft of tibia	Femoral nerve	L2, 3	Flexes, abducts, laterally rotates thigh at hip joint; flexes and medially rotates leg at knee joint
Iliacus	Iliac fossa of hip bone	With psoas into lesser trochanter of femur	Femoral nerve	L2, 3	Flexes thigh on trunk; if thigh is fixed, it flexes the trunk on the thigh as in sitting up from lying down
Psoas	Transverse processes, bodies, and intervertebral discs of the 12th thoracic and five lumbar vertebrae	With iliacus into lesser trochanter of femur	Lumbar plexus	L1, 2, 3	Flexes thigh on trunk; if thigh is fixed, it flexes the trunk on thigh as in sitting up from lying down
Pectineus	Superior ramus of pubis	Upper end of linea aspera of shaft of femur	Femoral nerve	L2, 3	Flexes and adducts thigh at hip joint
<b>Quadriceps femoris</b>					
Rectus femoris	Straight head: anterior inferior iliac spine Reflected head: ilium above acetabulum	Quadriceps tendon into patella, then via ligamentum patellae into tubercle of tibia	Femoral nerve	L2, 3, 4	Extension of leg at knee joint; flexes thigh at hip joint
Vastus lateralis	Upper end and shaft of femur	Quadriceps tendon into patella, then via ligamentum patellae into tubercle of tibia	Femoral nerve	L2, 3, 4	Extension of leg at knee joint
Vastus medialis	Upper end and shaft of femur	Quadriceps tendon into patella, then via ligamentum patellae into tubercle of tibia	Femoral nerve	L2, 3, 4	Extension of leg at knee joint; stabilizes patella
Vastus intermedius	Anterior and lateral surfaces of shaft of femur	Quadriceps tendon into patella, then via ligamentum patellae into tubercle of tibia	Femoral nerve	L2, 3, 4	Extension of leg at knee joint; articularis genus retracts synovial membrane

**TABLE 10.3 Muscles of the Medial Fascial Compartment of the Thigh**

Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
Gracilis	Inferior ramus of pubis, ramus of ischium	Upper part of shaft of tibia on medial surface	Obturator nerve	L2, 3	Adducts thigh at hip joint; flexes leg at knee joint
Adductor longus	Body of pubis, medial to pubic tubercle	Posterior surface of shaft of femur (linea aspera)	Obturator nerve	L2, 3, 4	Adducts thigh at hip joint and assists in lateral rotation
Adductor brevis	Inferior ramus of pubis	Posterior surface of shaft of femur (linea aspera)	Obturator nerve	L2, 3, 4	Adducts thigh at hip joint and assists in lateral rotation
Adductor magnus	Inferior ramus of pubis, ramus of ischium, ischial tuberosity	Posterior surface of shaft of femur, adductor tubercle of femur	Adductor portion: obturator nerve Hamstring portion: sciatic nerve	L2, 3, 4	Adducts thigh at hip joint and assists in lateral rotation; hamstring portion extends thigh at hip joint
Obturator externus	Outer surface of obturator membrane and pubic and ischial rami	Medial surface of greater trochanter	Obturator nerve	L3, 4	Laterally rotates thigh at hip joint

**TABLE 10.4 Muscles of the Posterior Fascial Compartment of the Thigh**

Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
Biceps femoris	Long head: ischial tuberosity	Head of fibula	Long head: tibial portion of sciatic nerve	L5; S1, 2	Flexes and laterally rotates leg at knee joint; long head also extends thigh at hip joint
	Short head: linea aspera, lateral supracondylar ridge of shaft of femur		Short head: common peroneal portion of sciatic nerve		
Semitendinosus	Ischial tuberosity	Upper part of medial surface of shaft of tibia	Tibial portion of sciatic nerve	L5; S1, 2	Flexes and medially rotates leg at knee joint; extends thigh at hip joint
Semimembranosus	Ischial tuberosity	Medial condyle of tibia	Tibial portion of sciatic nerve	L5; S1, 2	Flexes and medially rotates leg at knee joint; extends thigh at hip joint
Adductor magnus (hamstring portion)	Ischial tuberosity	Adductor tubercle of femur	Tibial portion of sciatic nerve	L2, 3, 4	Extends thigh at hip joint

**TABLE 10.5 Muscles of the Anterior Fascial Compartment of the Leg**

Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
Tibialis anterior	Lateral surface of shaft of tibia and interosseous membrane	Medial cuneiform and base of 1st metatarsal bone	Deep peroneal nerve	L4, 5	Extends <sup>b</sup> foot at ankle joint; inverts foot at subtalar and transverse tarsal joints; holds up medial longitudinal arch of foot
Extensor digitorum longus	Anterior surface of shaft of fibula	Extensor expansion of lateral four toes	Deep peroneal nerve	L5; S1	Extends toes; extends foot at ankle joint
Peroneus tertius	Anterior surface of shaft of fibula	Base of 5th metatarsal bone	Deep peroneal nerve	L5; S1	Extends foot at ankle joint; everts foot at subtalar and transverse tarsal joints
Extensor hallucis longus	Anterior surface of shaft of fibula	Base of distal phalanx of great toe	Deep peroneal nerve	L5; S1	Extends big toe; extends foot at ankle joint; inverts foot at subtalar and transverse tarsal joints
Extensor digitorum brevis	Calcaneum	By four tendons into the proximal phalanx of big toe and long extensor tendons to second, third, and fourth toes	Deep peroneal nerve	S1, 2	Extends toes

**TABLE 10.6 Muscles of the Lateral Fascial Compartment of the Leg**

Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
Peroneus longus	Lateral surface of shaft of fibula	Base of 1st metatarsal and the medial cuneiform	Superficial peroneal nerve	L5; S1, 2	Plantar flexes foot at ankle joint; everts foot at subtalar and transverse tarsal joints; supports lateral longitudinal and transverse arches of foot
Peroneus brevis	Lateral surface of shaft of fibula	Base of 5th metatarsal bone	Superficial peroneal nerve	L5; S1, 2	Plantar flexes foot at ankle joint; everts foot at subtalar and transverse tarsal joint; supports lateral longitudinal arch of foot

**TABLE 10.7 Muscles of the Posterior Fascial Compartment of the Leg**

Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
<b>Superficial Group</b>					
Gastrocnemius	Lateral head from lateral condyle of femur and medial head from above medial condyle	Via tendo calcaneus into posterior surface of calcaneum	Tibial nerve	S1, 2	Plantar flexes foot at ankle joint; flexes knee joint
Plantaris	Lateral supracondylar ridge of femur	Posterior surface of calcaneum	Tibial nerve	S1, 2	Plantar flexes foot at ankle joint; flexes knee joint
Soleus	Shafts of tibia and fibula	Via tendo calcaneus into posterior surface of calcaneum	Tibial nerve	S1, 2	Together with gastrocnemius and plantaris is powerful plantar flexor of ankle joint; provides main propulsive force in walking and running
<b>Deep Group</b>					
Popliteus	Lateral surface of lateral condyle of femur	Posterior surface of shaft of tibia above soleal line	Tibial nerve	L4, 5; S1	Flexes leg at knee joint; unlocks knee joint by lateral rotation of femur on tibia and slackens ligaments of joint
Flexor digitorum longus	Posterior surface of shaft of tibia	Bases of distal phalanges of lateral four toes	Tibial nerve	S2, 3	Flexes distal phalanges of lateral four toes; plantar flexes foot at ankle joint; supports medial and lateral longitudinal arches of foot
Flexor hallucis longus	Posterior surface of shaft of fibula	Base of distal phalanx of big toe	Tibial nerve	S2, 3	Flexes distal phalanx of big toe; plantar flexes foot at ankle joint; supports medial longitudinal arch of foot
Tibialis posterior	Posterior surface of shafts of tibia and fibula and interosseous membrane	Tuberosity of navicular bone and other neighboring bones	Tibial nerve	L4, 5	Plantar flexes foot at ankle joint; inverts foot at subtalar and transverse tarsal joints; supports medial longitudinal arch of foot

**TABLE 10.9 Muscle of the Dorsum of the Foot**

Muscle	Origin	Insertion	Nerve Supply	Nerve Root	Action
Extensor digitorum brevis	Anterior part of upper surface of the calcaneum and from the inferior extensor retinaculum	By four tendons into the proximal phalanx of big toe and long extensor tendons to second, third, and fourth toes	Deep peroneal nerve	S1, S2	Extends toes

**TABLE 10.8 Muscles of the Sole of the Foot**

Muscle	Origin	Insertion	Nerve Supply	Nerve Root <sup>a</sup>	Action
<b>First Layer</b>					
Abductor hallucis	Medial tuberosity of calcaneum and flexor retinaculum	Base of proximal phalanx of big toe	Medial plantar nerve	S2, 3	Flexes and abducts big toe; braces medial longitudinal arch
Flexor digitorum brevis	Medial tubercle of calcaneum	Four tendons to four lateral toes—inserted into borders of middle phalanx; tendons perforated by those of flexor digitorum longus	Medial plantar nerve	S2, 3	Flexes lateral four toes; braces medial and lateral longitudinal arches
Abductor digiti minimi	Medial and lateral tubercles of calcaneum	Base of proximal phalanx of fifth toe	Lateral plantar nerve	S2, 3	Flexes and abducts fifth toe; braces lateral longitudinal arch
<b>Second Layer</b>					
Quadratus plantae	Medial and lateral sides of calcaneum	Tendon of flexor digitorum longus	Lateral plantar nerve	S2, 3	Assists flexor digitorum longus in flexing lateral four toes
Lumbricals (4)	Tendons of flexor digitorum longus	Dorsal extensor expansion; bases of proximal phalanges of lateral four toes	First lumbrical: medial plantar nerve; remainder: lateral plantar nerve	S2, 3	Extends toes at interphalangeal joints
Flexor digitorum longus tendon	See Table 10.7				
Flexor hallucis longus tendon	See Table 10.7				
<b>Third Layer</b>					
Flexor hallucis brevis	Cuboid, lateral cuneiform, tibialis posterior insertion	Medial tendon into medial side of base of proximal phalanx of big toe; lateral tendon into lateral side of base of proximal phalanx of big toe	Medial plantar nerve	S2, 3	Flexes metatarsophalangeal joint of big toe; supports medial longitudinal arch
Adductor hallucis	Oblique head bases of 2nd, 3rd, and 4th metatarsal bones; transverse head from plantar ligaments	Lateral side of base of proximal phalanx of big toe	Deep branch lateral plantar nerve	S2, 3	Flexes metatarsophalangeal joint of big toe; holds together metatarsal bones
Flexor digiti minimi brevis	Base of 5th metatarsal bone	Lateral side of base of proximal phalanx of little toe	Lateral plantar nerve	S2, 3	Flexes metatarsophalangeal joint of little toe
<b>Fourth Layer</b>					
Interossei					
Dorsal (4)	Adjacent sides of metatarsal bones	Bases of proximal phalanges—first: medial side of second toe; remainder: lateral sides of second, third, and fourth toes—also dorsal extensor expansion	Lateral plantar nerve	S2, 3	Abduction of toes; flexes metatarsophalangeal joints and extends interphalangeal joints
Plantar (3)	Inferior surfaces of 3rd, 4th, and 5th metatarsal bones	Medial side of bases of proximal phalanges of lateral three toes	Lateral plantar nerve	S2, 3	Adduction of toes; flexes metatarsophalangeal joints and extends interphalangeal joints
Peroneus longus tendon	See Table 10.6				
Tibialis posterior tendon	See Table 10.7				