

## MUSCLES OF THE APPENDICULAR SKELETON

### LOWER LIMB

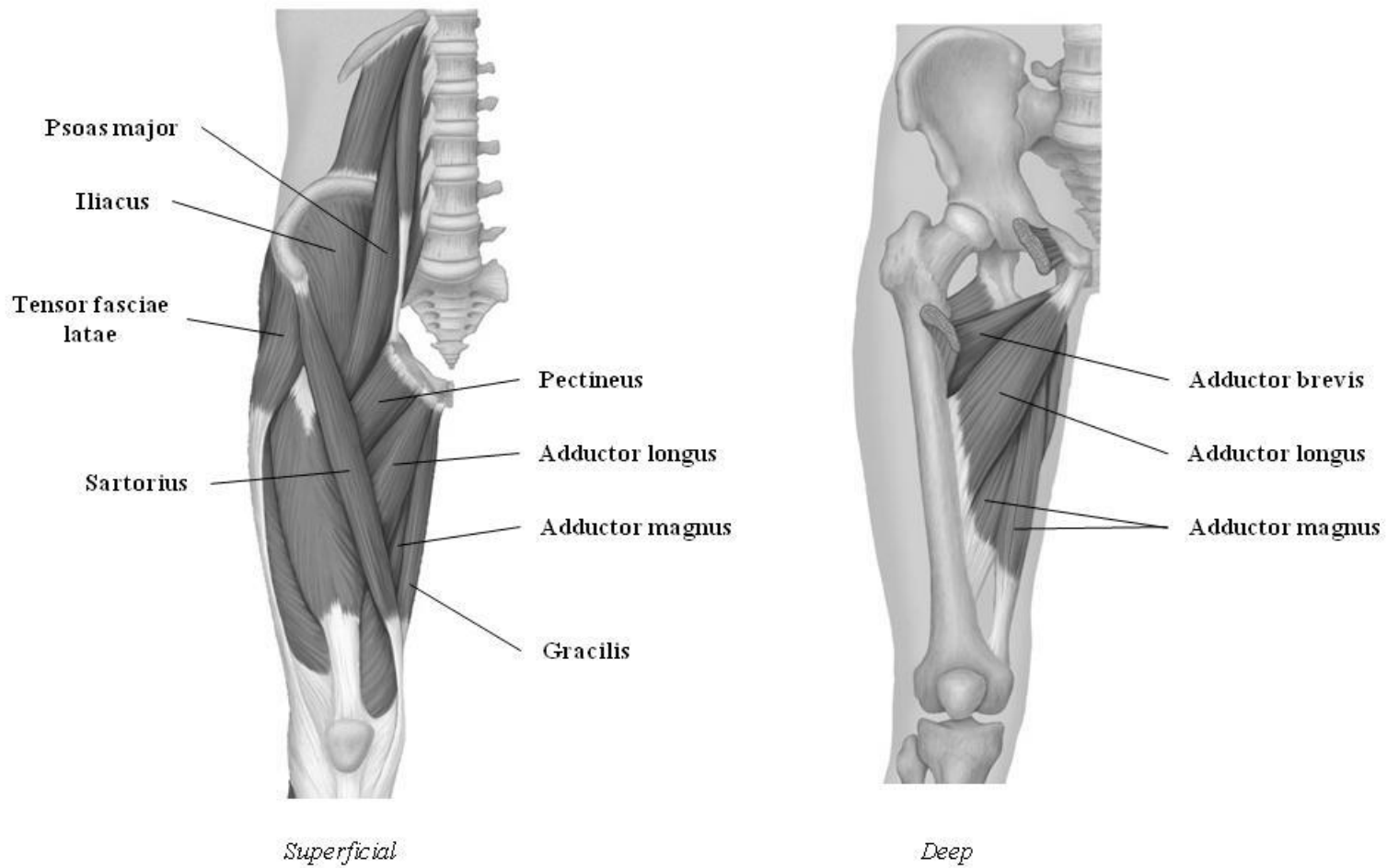
The muscles that act on the lower limb fall into three groups: those that move the thigh, those that move the lower leg, and those that move the ankle, foot, and toes.

#### Muscles Moving the Thigh (Marieb / Hoehn – Chapter 10; Pgs. 363 – 369; Figures 1 & 2)

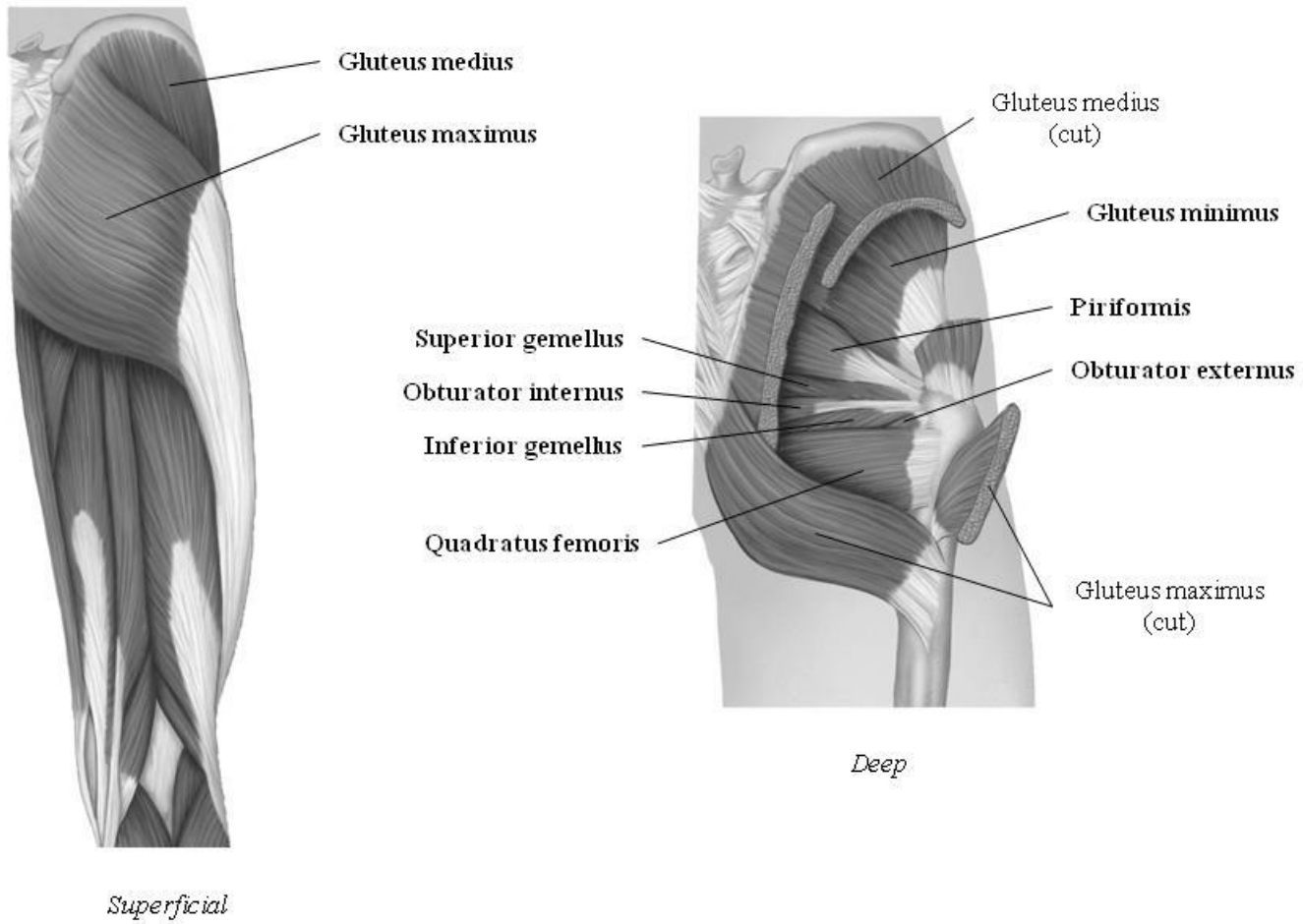
MUSCLE:	ORIGIN:	INSERTION:	INNERVATION:	ACTION:
<b>ANTERIOR:</b>				
<b>Iliacus*</b> (part of Iliopsoas)	iliac fossa / crest of os coxa; ala of sacrum	lesser trochanter of femur	femoral nerve	flexes thigh
<b>Psoas major*</b> (part of Iliopsoas)	T <sub>12</sub> – L <sub>5</sub> vertebrae	lesser trochanter of femur	----- (spinal nerves)	flexes thigh
<b>Tensor fasciae latae*</b>	iliac crest / anterior superior iliac spine of os coxa	iliotibial tract (connective tissue)	gluteal nerves	flexes / abducts thigh
<b>Sartorius*</b>	anterior superior iliac spine of os coxa	medial surface of proximal tibia	femoral nerve	flexes / adducts / laterally rotates thigh
<b>Pectineus*</b>	pubis	lesser trochanter of femur	obturator nerve	adducts / flexes / medially rotates thigh
<b>Adductor brevis*</b> (part of Adductors)	pubis	linea aspera of femur	obturator nerve	adducts / flexes / medially rotates thigh
<b>Adductor longus*</b> (part of Adductors)	pubis	linea aspera of femur	obturator nerve	adducts / flexes / medially rotates thigh

MUSCLE:	ORIGIN:	INSERTION:	INNERVATION:	ACTION:
<b>Adductor magnus*</b> (part of Adductors)	pubis / ischium	linea aspera of femur	obturator nerve / sciatic nerve	adducts / flexes / medially rotates thigh
<b>Gracilis*</b>	pubis / ischium	medial surface of proximal tibia	obturator nerve	adducts / flexes / medially rotates thigh
POSTERIOR:				
<b>Gluteus maximus*</b>	ilium / sacrum / coccyx	iliotibial tract / gluteal tuberosity of femur	gluteal nerves	extends thigh
<b>Gluteus medius*</b>	lateral surface of ilium	greater trochanter of femur	gluteal nerves	abducts / medially rotates thigh
<b>Gluteus minimus*</b>	lateral surface of ilium	greater trochanter of femur	gluteal nerves	abducts / medially rotates thigh
<b>Piriformis*</b>	anterolateral surface of sacrum	greater trochanter of femur	----- (spinal nerves)	laterally rotates thigh
<b>Obturator</b> (externus / internus)	pubis / ischium	greater trochanter of femur	----- (spinal nerves)	laterally rotates thigh
<b>Gemellus*</b> (superior / inferior)	ischial spine / tuberosity of os coxa	greater trochanter of femur	----- (spinal nerves)	laterally rotates thigh
<b>Quadratus femoris*</b>	ischial tuberosity of os coxa	proximal end of femur	----- (spinal nerves)	laterally rotates thigh

\* Need to be familiar with on both ADAM and the human cadaver



**Figure 1:** Anterior muscles that move the thigh, superficial and deep views

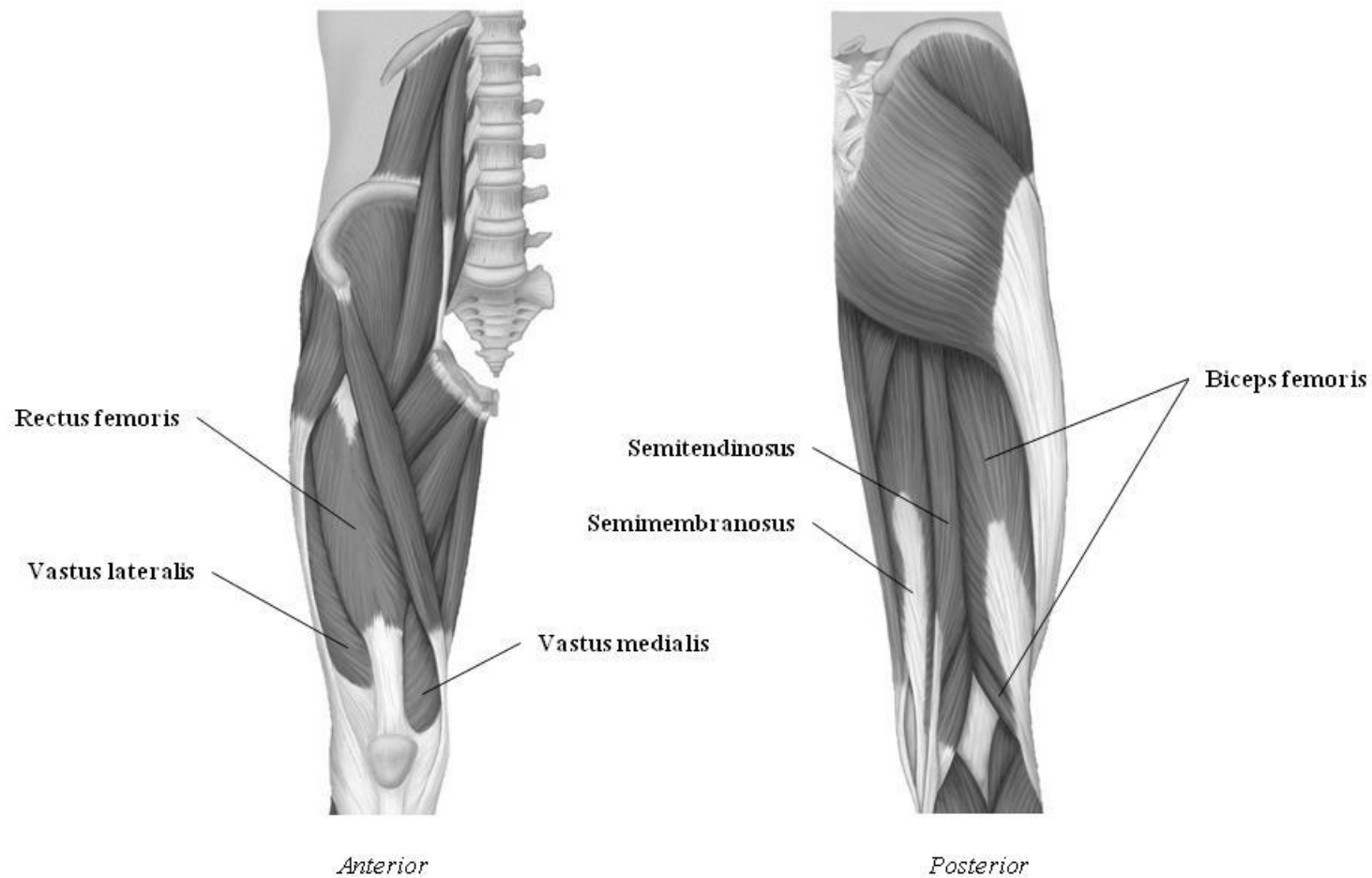


**Figure 2:** Posterior muscles that move the thigh, superficial and deep views

Muscles Moving the (lower) Leg (Marieb / Hoehn – Chapter 10; Pgs. 363 – 369; Figure 4)

MUSCLE:	ORIGIN:	INSERTION:	INNERVATION:	ACTION:
<b>ANTERIOR:</b>				
<b>Rectus femoris*</b> (part of Quadriceps)	anterior inferior iliac spine / margin of acetabulum of os coxa	tibial tuberosity of tibia	femoral nerve	extends leg (lower)
<b>Vastus lateralis*</b> (part of Quadriceps)	greater trochanter / linea aspera of femur	tibial tuberosity of tibia	femoral nerve	extends leg (lower)
<b>Vastus medialis*</b> (part of Quadriceps)	anterior and lateral surface of proximal femur	tibial tuberosity of tibia	femoral nerve	extends leg (lower)
<b>Vastus intermedius*</b> (part of Quadriceps)	anterior and lateral surface of proximal femur	tibial tuberosity of tibia	femoral nerve	extends leg (lower)
<b>POSTERIOR:</b>				
<b>Biceps femoris*</b> (part of Hamstrings)	ischial tuberosity of ischium / linea aspera of femur	head of fibula / lateral condyle of tibia	sciatic nerve	flexes leg (lower)
<b>Semitendinosus*</b> (part of Hamstrings)	ischial tuberosity of ischium	medial surface of tibia	sciatic nerve	flexes leg (lower)
<b>Semimembranosus*</b> (part of Hamstrings)	ischial tuberosity of ischium	medial condyle of tibia	sciatic nerve	flexes leg (lower)
<b>Popliteus</b>	lateral condyle of femur	proximal tibia	sciatic nerve	flexes / medially rotates leg (lower)

\* Need to be familiar with on both ADAM and the human cadaver



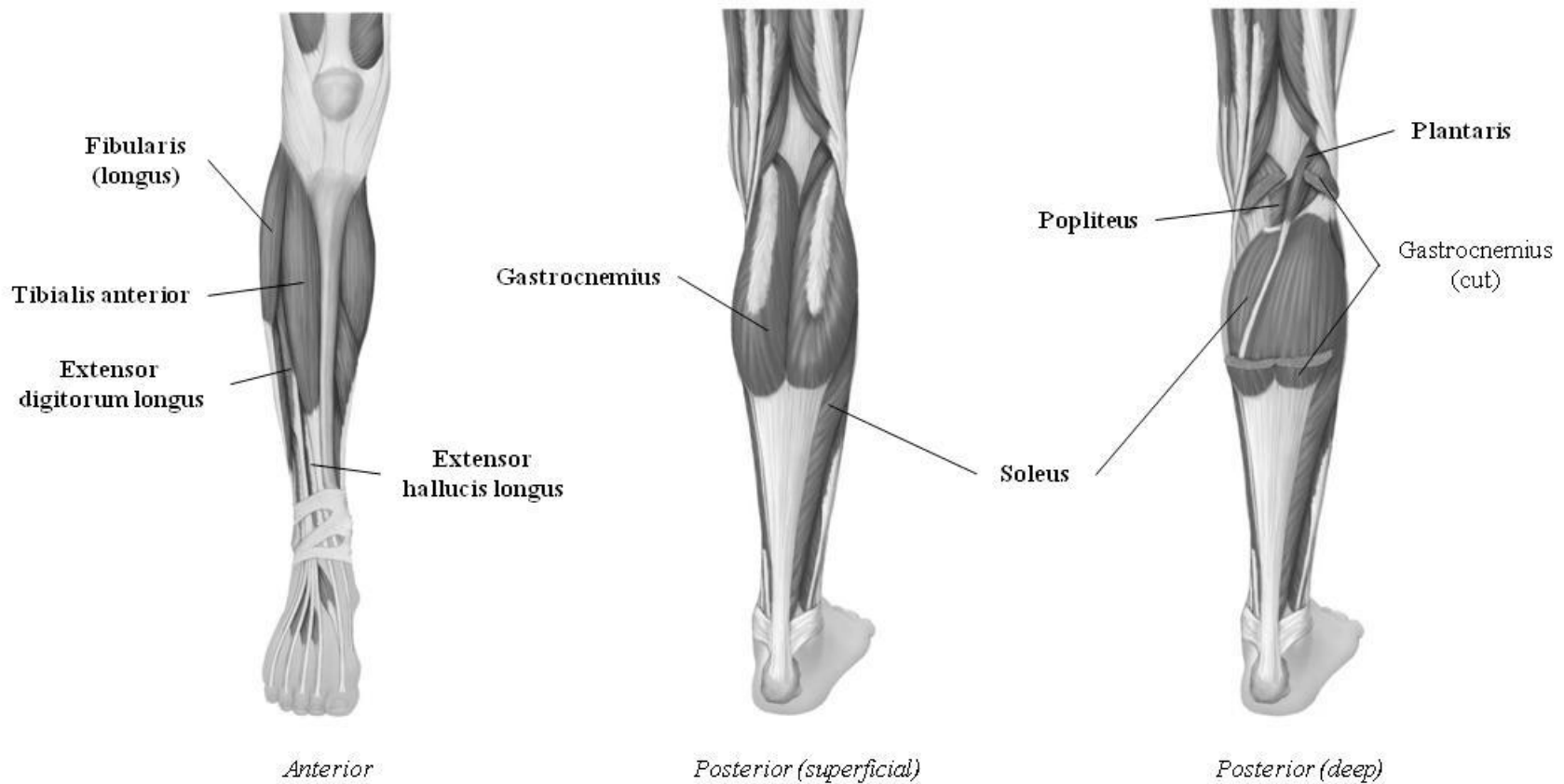
**Figure 3:** Muscles that move the (lower) leg, anterior and posterior views (note: Vastus intermedius and popliteus not shown)

Muscles Moving the Ankle, Foot, and Toes (Marieb / Hoehn – Chapter 10; Pgs. 370 – 375; Figure 4)

MUSCLE:	ORIGIN:	INSERTION:	INNERVATION:	ACTION:
ANTERIOR:				
<b>Tibialis anterior*</b>	lateral condyle / shaft of tibia	medial cuneiform of tarsals / metatarsal 1	fibular nerves	dorsiflexes / inverts foot
<b>Extensor digitorum longus*</b>	lateral condyle of tibia / proximal fibula	middle / distal phalanges 2 – 5	fibular nerves	extends toes
<b>Extensor hallucis longus*</b>	anteromedial shaft of fibula	distal phalanx of great toe	fibular nerves	extends great toe
<b>Fibularis*</b> (longus / brevis)	shaft of fibula	medial cuneiform of tarsals / metatarsals 1 & 5	fibular nerves	plantarflexes / everts foot
POSTERIOR:				
<b>Gastrocnemius*</b> (part of Triceps surae)	medial / lateral condyles of femur	calcaneus	tibial nerve	plantar flexes foot
<b>Soleus*</b> (part of Triceps surae)	proximal tibia / fibula	calcaneus	tibial nerve	plantar flexes foot
<b>Plantaris*</b>	posterior femur	calcaneus	tibial nerve	plantar flexes foot
<b>Flexor digitorum longus*</b>	posterior tibia	distal phalanges 2 – 5	tibial nerve	flexes toes

MUSCLE:	ORIGIN:	INSERTION:	INNERVATION:	ACTION:
<b>Flexor hallucis longus</b>	midshaft of fibula	distal phalanx of great toe	tibial nerve	flexes great toe
<b>Tibialis posterior</b>	proximal tibia / fibula	tarsals / metatarsals 2 – 4	tibial nerve	inverts foot

\* Need to be familiar with on both ADAM and the human cadaver



**Figure 4:** Muscles that move the ankle, foot, and toes; anterior and posterior views (note: Flexor digitorum longus, Flexor hallucis longus, and Tibialis posterior not shown)



Out-of-Class Assignment: Intrinsic Muscles of the Foot

The intrinsic muscles of the foot help to flex, extend, abduct, and adduct the toes. Collectively, along with the tendons of some leg muscles that enter the sole, the foot muscles help support the arches of the foot. Other than a single muscle on the dorsum of the foot, the majority of intrinsic foot muscles are found on the plantar aspect (sole). The plantar muscles occur in multiple layers and are remarkably similar to those in the palm of the hand.

Below is a table listing individual muscles found in the foot. For each muscle, fill in the appropriate origin, insertion, innervation, and action and then correctly label the muscle on the associated figure(s). This exercise is to introduce you to these muscles; **you will not be responsible for these groups of muscles for the practical exam.**

MUSCLE:	ORIGIN:	INSERTION:	INNERVATION:	ACTION:
DORSUM OF FOOT:				
<b>Extensor digitorum brevis</b>				
SOLE OF FOOT (SUPERFICIAL LAYER):				
<b>Flexor digitorum brevis</b>				
<b>Abductor hallucis</b>				
<b>Abductor digiti minimi</b>				

MUSCLE:	ORIGIN:	INSERTION:	INNERVATION:	ACTION:
SOLE OF FOOT (MIDDLE LAYER):				
<b>Flexor accessorius</b>				
<b>Lumbricals</b>				
SOLE OF FOOT (DEEP LAYER):				
<b>Flexor hallucis brevis</b>				
<b>Adductor hallucis</b>				
<b>Flexor digiti minimi brevis</b>				
<b>Plantar interossei</b>				
<b>Dorsal interossei</b>				



*Superficial*



*Middle*



*Deep*