

## **Anatomy and Physiology 121: Muscles of the Human Body**

### Epicranius

- Covers upper cranium
- Raises eyebrows, surprise, headaches
- Parts
  - Frontalis
  - Occipitalis
  - Epicranial aponeurosis

### Orbicularis oculi

- Ring (sphincter) around eye
- Blinking, closing, squinting

### Orbicularis oris

- Sphincter muscle of mouth
- Subcutaneous (between skin and mouth)
- Lip movements, closing, puckering

### Buccinator

- Wall of cheek
- Forward from ramus of jaw to corner of mouth
- Compression of cheek (holds food, blows air, purses lips)

### Zygomaticus

- From zygomatic arch to corner of mouth
- Corner of mouth drawn upward (smiling or laughing)

### Platysma

- Sheetlike muscle, from chin, over neck, down to chest
- Pouting, lowers mandible

### Masseter

- Thick flattened muscle (jaw muscle)
- Extends from zygomatic arch to mandible
- Raises jaw, chewing

### Temporalis

- Fan shaped muscle above and in front of the ear
- From temporal bone, beneath zygomatic arch, to mandible
- Raises mandible

### Sternocleidomastoid

- Long muscle in side of neck
- Originates from anterior surface of sternum and upper surface of clavicle
- Inserts at mastoid process of temporal bone
- Turns head, flexes neck, elevates sternum

### Trapezius

- Triangular muscle, large, upper back
- Raise shoulder, rotate scapula, pull scapula medially, pull shoulder downward
- Originates at occipital and cervical and thoracic vertebrae
- Inserts clavicle, spine and scapula

### Pectoralis minor

- Sternal ends of ribs to coracoid process of scapula
- Pulls scapula forward and downward

### Pectoralis major

- Fan shaped, large, thick muscle
- Originates from clavicle, sternum and ribs
- Inserts intertubercular groove of humerus
- Flexes, adducts, and rotates arm medially

### Latissimus dorsi

- Triangular muscle, wide flat sheet
- From lower back, around side to armpit
- Originates from vertebrae, inserts on humerus
- Extends adducts and rotates the arm medially, pulls shoulder back and down

### Deltoid

- Origin: acromion process, spine of scapula, clavicle
- Inserts: humerus
- Abducts, extends and flexes arm
- Thick muscle of top shoulder joint

### Biceps brachii

- Large fleshy muscle on anterior side of arm
- Connects scapula to radius
- Flexes and rotates hand laterally

### Triceps brachii

- Only muscle on posterior of arm
- Connects humerus and scapula to ulna
- Extends the forearm

### Supinator

- Origin: lateral side of humerus and ulna
- Insertion: lateral surface of radius
- Rotates forearm laterally (supinates hand)

### Pronator teres

- Origin: medial end of humerus and ulna
- Insertion: lateral surface radius
- Rotates forearm medially

### Pronator quadratus

- Origin: anterior distal end of ulna
- Insertion: anterior distal end of radius
- Rotates forearm medially

## Muscles of the Abdominal Wall

### External oblique

- Origin: outer surface of lower ribs
- Insertion: iliac crest and linea alba
- Thin sheet of muscle slanting downward from lower ribs to pelvic girdle
- Tension of abdomen and compression of gut

### Internal oblique

- Origin: iliac crest and inguinal ligament
- Insertion: linea alba, ribs and pubic crest
- Thin sheet of muscle located beneath external oblique, runs up and forward
- Action same as external oblique

### Transverse abdominis

- Origin: costal cartilages of lower ribs, processes of lumbar vertebrae, iliac crest and inguinal ligament
- Insertion: linea alba and pubic bone
- Thin sheet of muscle, located beneath internal oblique, deepest muscle on side
- Action same as external oblique

### Rectus abdominis

- Origin: pubic crest and symphysis
- Insertion: costal cartilages and xiphoid process
- Segmented, long, straplike muscle covering front of abdominal wall
- Flexion of vertebral column and tension

### Gluteus maximus

- Largest muscle in body, mostly covers buttock
- Originates from sacrum, coccyx and posterior side of ilium

- Inserts posterior surface of femur
- Extend the thigh

### Adductor longus

- Large, long triangular muscle
- Originates from pubic bone
- Inserts on posterior surface of femur
- Adducts, flexes and rotates the thigh

### Gracilis

- Long, thin, straplike muscle
- Originates from lower edge of pubis
- Inserts on medial side of tibia
- Adducts the thigh and flexes leg at knee

### Extensors of the Leg: The Quadriceps

- Large, fleshy group of muscles on front and sides of leg
- Primary extensor of leg
- Composed of four (three) muscles
  - Rectus femoris
  - Vastus lateralis
  - Vastus medialis
  - Vastus intermedius

Rectus femoris – middle muscle of anterior leg

Vastus lateralis – anterior lateral side of leg

Vastus medialis – anterior medial side of leg

- Originates from iliac spine and femur
- Connect by common patellar tendon to patella, then to patellar ligament to tibia

### Flexors of the Leg: The Hamstrings

- Large fleshy muscle composing the posterior part of the leg
- Primary flexors of leg
- Composed of three muscles

- Biceps femoris
- Semitendinosus
- Semimembranosus

Biceps femoris – two origins, one attached to the ischium, the other to the femur; inserts on tibia and fibula, lateral muscle

Semitendinosus – originates from ischium and inserts on tibia; central to medially located muscle

Semimembranosus – most medially located, originates from ischium and inserts on tibia

Sartorius

- Elongated, straplike muscle, passes obliquely from lateral surface of ilium to the medial surface of the tibia
- Flexes leg and thigh, rotates leg laterally and abducts leg

Tibialis anterior

- Spindly, long muscle on front of leg, covers shin
- Originates from anterior surface of tibia
- Inserts on medial bones of ankle and foot
- Dorsiflexion and inversion of foot

Gastrocnemius

- Largest muscle of lower leg, major muscle of calf
- Originates by two heads from posterior surface of femoral condyles
- Inserts on posterior surface of calcaneus
- Plantar flexion of foot and flexion of knee

Soleus

- Thick, flat muscle beneath gastrocnemius, other muscle of the calf
- Originates from tibia and fibula
- Inserts on the posterior surface of calcaneus
- Plantar flexion of foot