SKELETAL MUSCLE ANATOMY
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ANATOMICAL TERMS OF MOTION
Flexion is a bending movement that decreases the angle between two parts.

Ex: lifting arm, bending arm at elbow, lifting leg at knee
• Extension describes a straightening movement that increases the angle between body parts.
• Ex: pulling arm back, straightening arm or knee
When a joint can move backward and forwards, flexion is in the anterior direction and extension is in the posterior direction.
Abduction & Adduction

- Abduction refers to a motion that pulls a structure or part away from the midline of the body.
- Adduction refers to a motion that pulls a structure or part toward the midline of the body, or towards the midline of a limb.
• Lateral rotation (or external rotation) refers to rotation away from the center of the body.
• Medial rotation (or internal rotation) refers to rotation towards the axis of the body.
• Pronation of the forearm is when the hand and forearm are turned inward.

• Supination of the forearm occurs when the forearm and hand are rotated outward.
PRONATION & SUPINATION

- Pronation of the foot occurs when the sole of the foot is turned outward.
- Supination of the foot occurs when the sole of the foot is rotated inward.
- Very similar to eversion & inversion.
DORSIFLEXION & PLANTAR FLEXION

- Dorsiflexion brings the toes closer to the shin.
- Plantar flexion decreases the angle between the sole of the foot and the back of the leg, such as standing on tip toes.
HEAD, FACE & NECK MUSCLES
1. FRONTALIS

- Raises Eyebrows

Frontalis

Origin: cranial aponeurosis

Insertion: skin of eyebrows
2. ORBICULARIS OCULI

- Blinks and closes eye

orbicularis oculi

Origin: frontal bone and maxilla
Insertion: tissue around the eyes
3. ORBICULARIS ORIS

- Closes and protrudes lips; the kissing muscle

**orbicularis oris**

Origin: mandible and maxilla
Insertion: skin and muscle around the mouth
4. ZYGOMATICUS MINOR

- Elevates upper lip

zygomaticus minor

Origin: zygomatic bone; medial to zygomaticus major
Insertion: skin and muscle at upper lip
5. ZYGOMATICUS MAJOR

- Raises corners of mouth; the smile muscle

zygomaticus major

Origin: zygomatic bone; lateral to zygomaticus minor
Insertion: tissue around the mouth
6. BUCCINATOR

• Compresses cheek; the whistling muscle

buccinator

Origin: maxilla and mandible near molars
Insertion: tissue around the mouth
7. MASSETER

• Closes jaw; chewing muscle

masseter

Origin: zygomatic bone
Insertion: mandible
8. TEMPORALIS

- Closes jaw; another chewing muscle

Origin: temporal bone
Insertion: mandible; coronoid process
9. DEPRESSOR ANGULI ORIS

- Pulls down on corners of mouth; frown muscle

**depressor anguli oris**

Origin: mandible; anterolateral base
Insertion: tissue around mouth
10. STERNOCLEIDOMASTOID

- Flexes neck; rotates head

Sternocleidomastoid

Origin: sternum and clavicle

Insertion: temporal bone; mastoid process
11. PLATYSMA

- Pulls corners of mouth inferiorly and widens it; may convey a look of sadness or fright

**platysma**

_Origin:_ connective tissue covering superior chest muscles
_Insertion:_ base of mandible and tissue around mouth
ANTERIOR OR TORSO
12. PECTORALIS MAJOR

- Adducts and medially rotates the arm

pectoralis major

Origin: sternum, clavicle and ribs 1-6
Insertion: proximal humerus
13. PECTORALIS MINOR

- Depresses and downwardly rotates scapula

Origin: ribs 3-5
Insertion: scapula; coracoid process
14. SERRATUS ANTERIOR

- Pulls scapula anteriorly and down

Origin: ribs 1-8
Insertion: scapula; medial margin
15. INTERNAL INTERCOSTALS

- Depress ribs, decrease size of thoracic cavity as in exhaling

Origin: superior surface of ribs 2-12
Insertion: inferior surface of ribs 1-11
16. EXTERNAL INTERCOSTALS

- Lift ribs, increase size of thoracic cavity as in inhaling

Origin: inferior surface of ribs 1-11
Insertion: superior surface of ribs 2-12
17. INTERNAL OBLIQUE

- Compress abdomen, flex and rotate vertebral column

**internal oblique**
(deep to external obliques)

Origin: lumbar fascia, anterior iliac crest, inguinal ligament
Insertion: costal cartilage of ribs 7-10, abdominal aponeurosis, pubic bone
18. EXTERNAL OBLIQUE

- Rotate and flex vertebral column

Origin: external surfaces of ribs 5-12
Insertion: anterior iliac crest and abdominal aponeurosis

external obliques
19. RECTUS ABDOMINIS

- Flexes vertebral column

rectus abdominis

Origin: pubic crest and pubic symphysis
Insertion: costal cartilages of ribs 5-7, xiphoid process
20. TRANSVERSE ABDOMINIS

- Compress abdomen

(deep to obliques)

Origin: anterior iliac crest, inguinal ligament, lumbar fascia, cartilages of ribs 6-12

Insertion: abdominal aponeurosis, xiphoid process, pubic symphysis
POSTERIOR TORSO
21. LATISSIMUS DORSI

- Adduction, extension and medial rotation of arm

Origin: T7-T12 and lumbar vertebrae, iliac crest, sacrum, ribs 10-12, inferior scapula
Insertion: proximal humerus
22. TRAPEZIUS

- Elevation and upward rotation of scapula; extends neck

Origin: occipital bone and all cervical and thoracic vertebrae
Insertion: scapular spine and clavicle
• Elevates the scapula, as in shrugging the shoulders

Origin: transverse processes of C1-C4
Insertion: medial border of scapula between spine and superior angle
24. RHOMBOIDEUS MAJOR

- Retraction of scapula; as in pulling the shoulder blades together

Origin: spinous process of T2-T5
Insertion: medial border of scapula inferior to spine
25. RHOMBOIDEOUS MINOR

- Retraction of scapula

(superior to rhomboideoeus major)

Origin: spinous processes of C7 & T1
Insertion: medial margin of scapula superior to spine
26. TERES MAJOR

- Adduction of arm

Origin: inferior lateral margin of scapula
Insertion: crest of lesser tubercle of humerus
27. INFRASPINATUS

- External rotation of humerus

Origin: infraspinous fossa of scapula
Insertion: greater tubercle of humerus
28. ERECTOR SPINAE

- A group of muscles that extend the vertebral column and allow for side-to-side rotation

Origin: iliac crest, sacrum, vertebrae
Insertion: angles of the ribs, vertebrae, posterior skull
29. DELTOIDEOUS

- Abducts the arm

Origin: scapular spine and acromion, clavicle
Insertion: humerus; deltoid tuberosity
30. BICEPS BRACHII

• Flexes the elbow and supinates the forearm

Origin: scapula; supraglenoid tubercle and coracoid process
Insertion: proximal radius at radial tuberosity
31. BRACHIALIS

- Flexes the elbow

Origin: distal humerus
Insertion: proximal ulna
32. BRACHIORADIALIS

- Flexes the elbow

Origin: distal lateral humerus
Insertion: styloid process of radius
33. TRICEPS BRACHII

- Extends the elbow

Origin: scapula and proximal posterior humerus
Insertion: olecranon process of ulna
• Several muscles that flex fingers, hand & wrist; includes
  - Flexor carpi
  - Flexor digitorum
  - Flexor pollicis longus
  - Palmaris longus

Various origins and insertions.
35. EXTENSORS OF THE HAND & WRIST

• Several muscles that extend the fingers, hand & wrist

• Includes:
  • Extensor carpi muscles
  • Extensor digitorum
  • Extensor indicis
  • Extensor digit minimi
  • Extensor pollicis muscles

Various origins and insertions.
LEG & HIP
36. RECTUS FEMORIS

- Extends lower leg; straightens knee

**rectus femoris**

(part of quadriceps group)

Origin: ilium, anterior inferior iliac spine
Insertion: patella & tibial tuberosity
37. VASTUS LATERALIS

- Extends lower leg; straightens knee

vastus lateralis

(part of quadriceps group)

Origin: greater trochanter of femur
Insertion: patella and tibial tuberosity
38. VASTUS MEDIALIS

- Extends lower leg; straightens knee

**vastus medialis**

(part of quadriceps group)

Origin: proximal femur; intertrochanteric line
Insertion: patella and tibial tuberosity
39. SARTORIUS

- Flexes thigh

sartorius

Origin: anterior iliac spine
Insertion: proximal tibia
40. TIBIALIS ANTERIOR

- Dorsiflexes and inverts the foot

Origin: proximal tibia
Insertion: first tarsal and metatarsal of foot
41. FIBULARIS LONGUS

- Plantar flexion and eversion of the foot
- Also known as peroneus longus

Origin: proximal fibula
Insertion: first metatarsal and medial cuneiform
42. SEMITENDINOSUS

- Flexes leg; bends knee

**semitendinosus**

part of hamstring group - red

Origin: ischial tuberosity
Insertion: proximal tibia, medial to tibial tuberosity
43. SEMIMEMBRANOSUS

- Flexes leg; bends knee

semimembranosus

part of hamstring group - red

Origin: ischial tuberosity
Insertion: posterior medial condyle of tibia
44. BICEPS FEMORIS

- Flexes leg; bends knee

biceps femoris

part of hamstring group - red

Origin: ischial tuberosity
Insertion: proximal fibula and lateral condyle of tibia
45. SOLEUS

- Plantar flexes the foot

(deep to gastrocnemius)

Origin: proximal, posterior tibia and fibula
Insertion: posterior calcaneous
46. GASTROCNEMIUS

- Plantar flexes the foot and flexes the knee

Origin: medial and lateral condyles of femur
Insertion: posterior calcaneous
47. GLUTEUS MAXIMUS

- Extends and laterally rotates thigh at hip, abducts the thigh

Origin: posterior ilium and posterior inferior surface of sacrum and coccyx
Insertion: gluteal tuberosity of femur and anterior lateral tibial condyle
48. GLUTEUS MEDIUS

- Abduction of thigh at hip, medial and lateral rotation of thigh

Origin: outer surface of ilium
Insertion: lateral and superior surfaces of the greater trochanter of the femur
49. GLUTEUS MINIMUM

- Abduction of thigh at hip, medial rotation of thigh

Origin: outer surface of ilium
Insertion: anterior surface of the greater trochanter of the femur
50. ADDUCTOR MUSCLES OF THE HIP

- A group of muscles that adduct the hip.
- Includes:
  - adductor longus
  - adductor brevis
  - adductor magnus
  - pectineus
  - gracilis

Various origins and insertions.