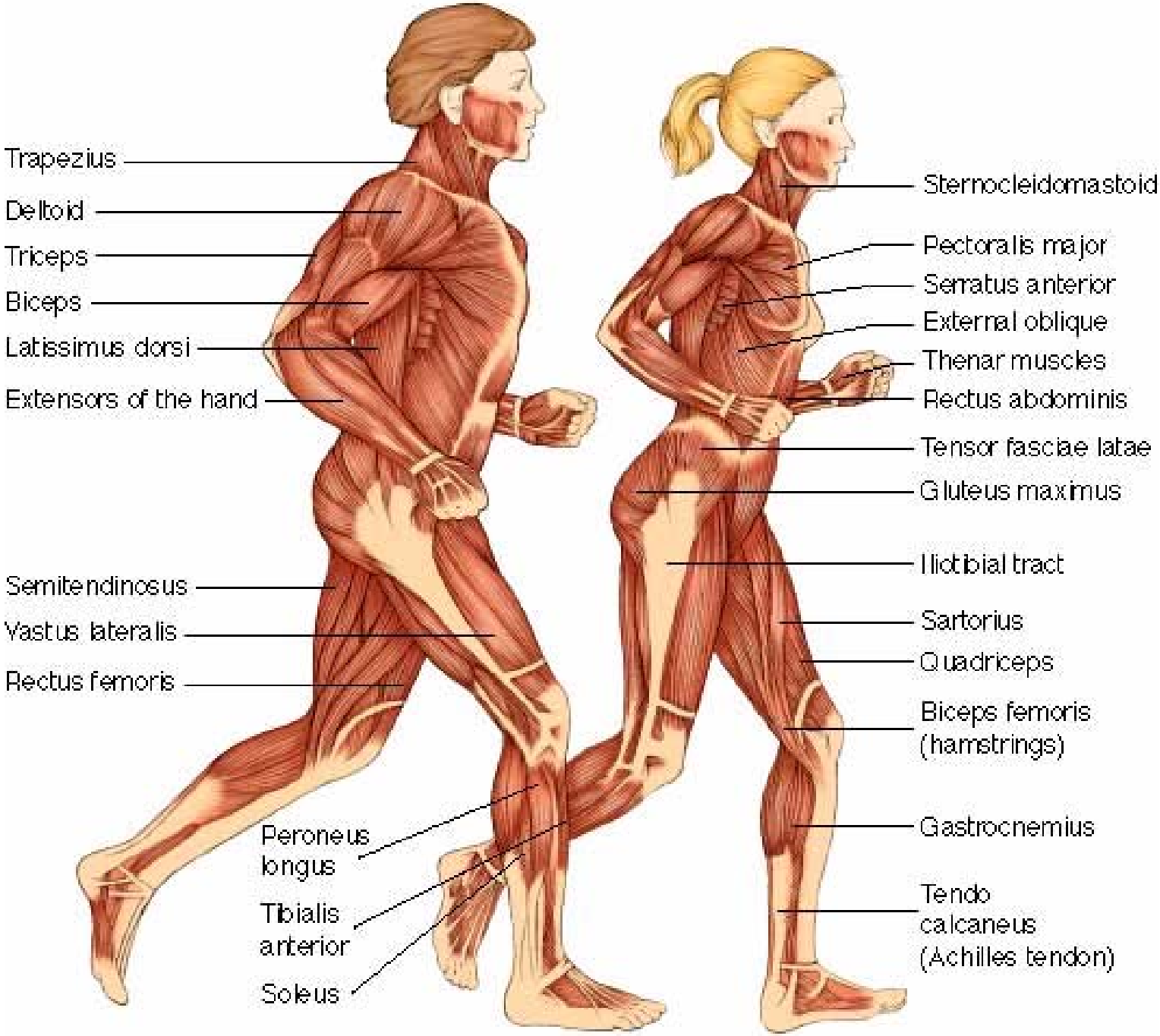
Muscles that Move the Superior Appendages

Danil Hammoudi.MD


Trapezius
Deltoid
Triceps
Biceps
Latissimus dorsi
Extensors of the hand
Semitendinosus
Vastus lateralis
Rectus femoris
Peroneus longus
Tibialis anterior
Soleus
Sternocleidomastoid
Pectoralis major
Serratus anterior
External oblique
Thenar muscles
Rectus abdominis
Tensor fasciae latae
Gluteus maximus
Iliotibial tract
Sartorius
Quadriceps
Biceps femoris (hamstrings)
Gastrocnemius
Tendo calcaneus (Achilles tendon)

Agonist

A muscle that causes motion.

Antagonist

A muscle that can move the joint opposite to the movement produced by the agonist.

Target

The primary muscle intended for exercise.

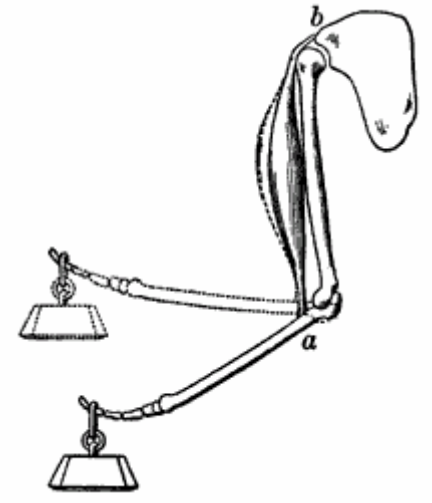
Synergist

A muscle that assists another muscle to accomplish a movement.

Stabilizer

A muscle that contracts with no significant movement.

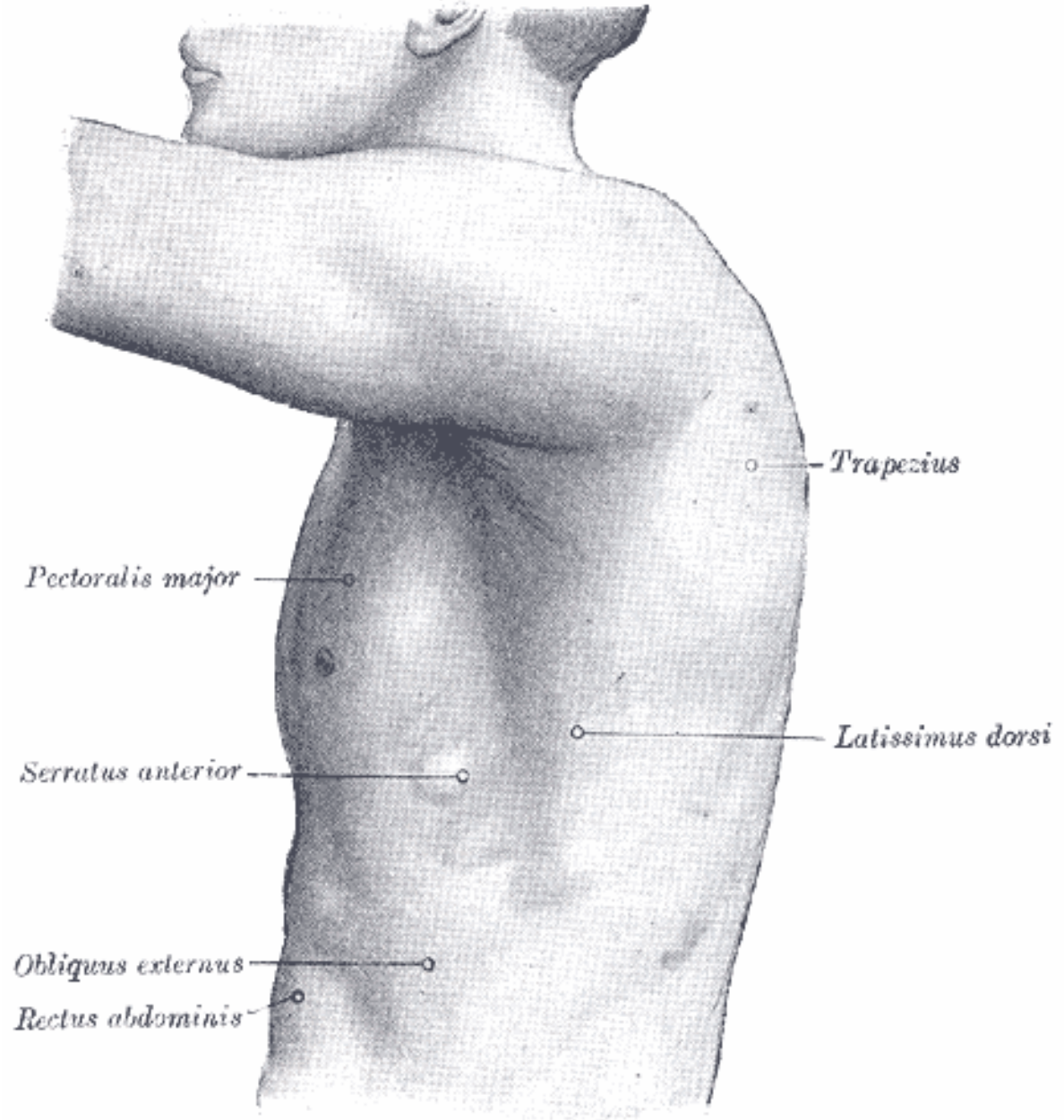
Muscle Attatchments

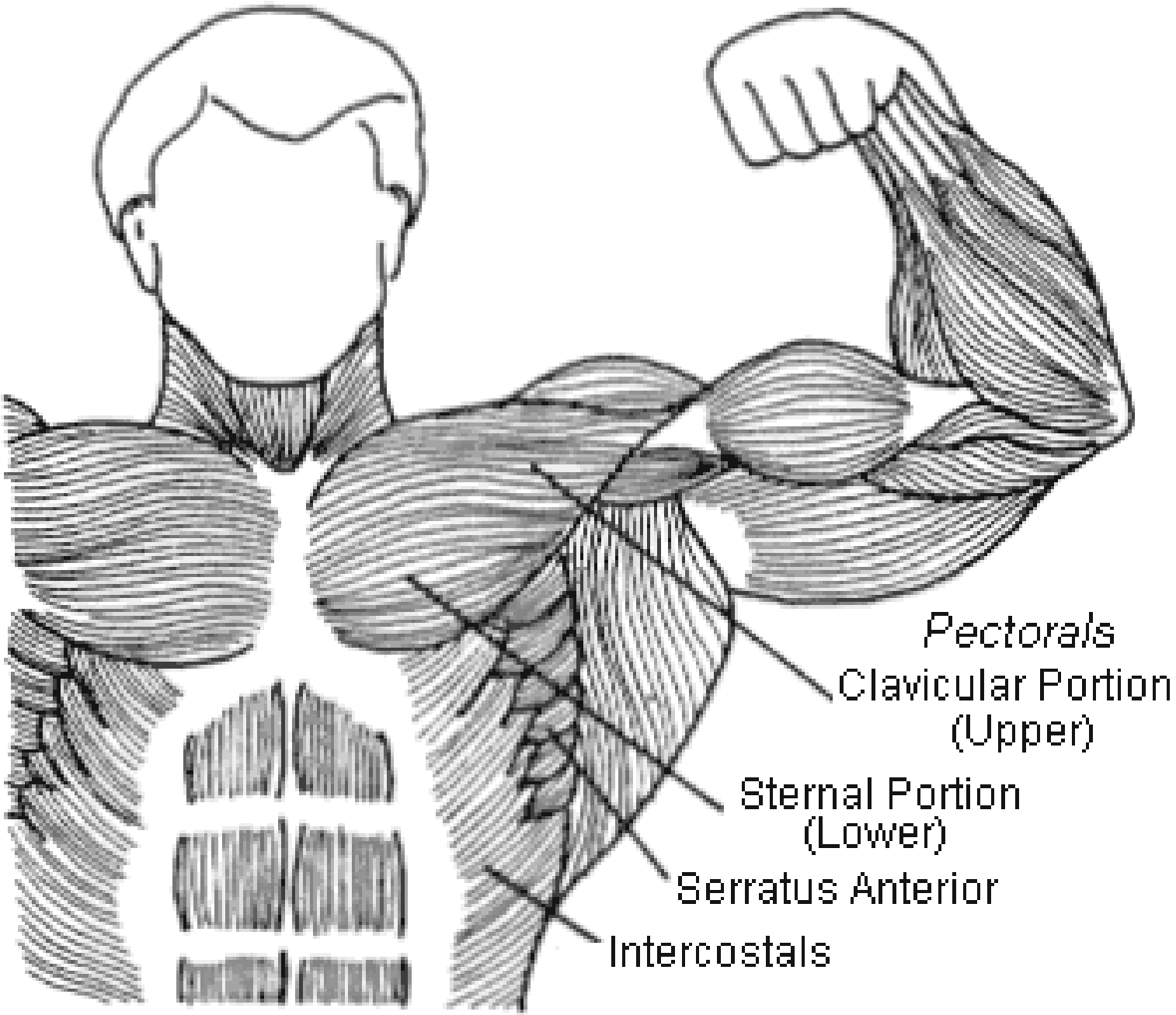


Origin (b): muscle attatchment that moves least, generally more proximal.
Insertion (a): muscle attatchment that moves most, generally more distal.

Abduction: Lateral movement away from the midline of the body
Adduction: Medial movement toward the midline of the body
Circumduction: circular movement (combining flexion, extension, adduction, and abduction) with no shaft rotation
Extension: Straightening the joint resulting in an increase of angle
Eversion: Moving sole of foot away from medial plane
Flexion: Bending the joint resulting in a decrease of angle
Hyperextension: extending the joint beyond anatomical position
Inversion: Moving sole of foot toward medial plane
Pronation: Internal rotation resulting in appendage facing downward
Protrusion: Moving anteriorly (eg: chin out)
Supination: External rotation resulting in appendage facing upward
Retrusion: Moving posteriorly (eg: chin in)
Rotation: Rotary movement around the longitudinal axis of the bone

Muscles that move the shoulder




Pectorals
Clavicular Portion
(Upper)
Sternal Portion
(Lower)
Serratus Anterior
Intercostals

- Muscles that move the shoulder are located on the chest and the back.

Pectoralis minor*. The primary action of this muscle is to draw the scapula anteriorly and downward.
This muscle originates on ribs 3-5, and it inserts on the coracoid process of the scapula.

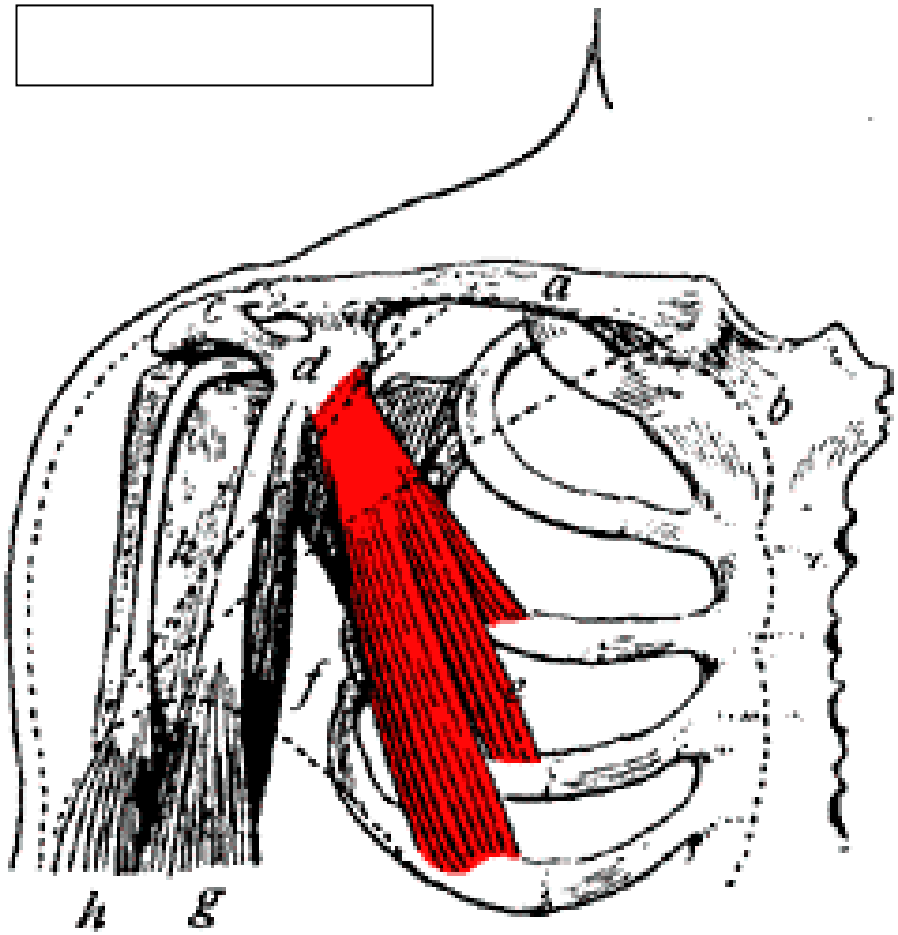
Serratus anterior. This muscle is named for its appearance on the chest, which is similar to the edge of a serrated knife. Its primary action is to hold the scapula firmly against the rib cage.
This is important when pushing an object or punching.

Trapezius. This is a very large muscle, and you should learn three primary actions, depending upon which fibers of the muscle are activated:

(1) The superior fibers elevate the scapula;
(2) the middle fibers adduct the scapula;
(3) the inferior fibers depress the scapula.

Pectoralis minor

- The primary action of this muscle is to **draw the scapula anteriorly and downward.**
- This muscle originates on ribs 3-5, and it inserts on the coracoid process of the scapula.



Pectoralis minor

Movement

- Scapula
- Abduction
- Downward Rotation (During Abduction)
- Depression

Attachments

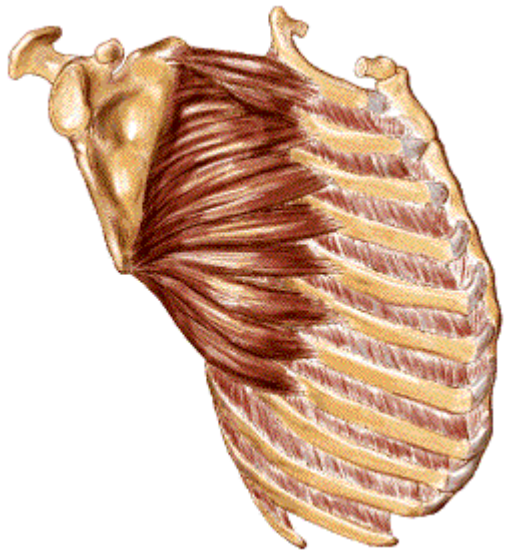
- Origin
- Ribs (3 rd to 5 th)
  - Anterior Surface

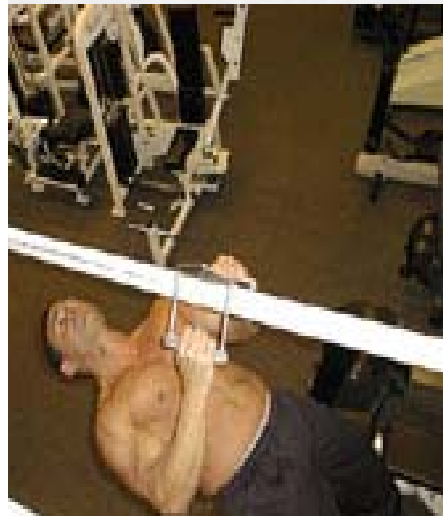
Insertion

- Scapula (Superior Anterior)
  - Caracoid Process (Medial Border)

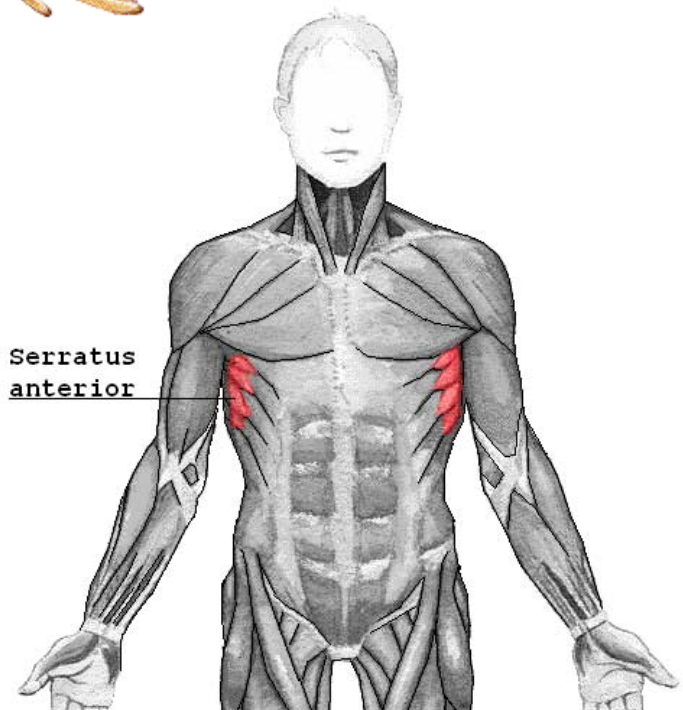
Serratus anterior.

Serratus Magnus
Boxer's Muscle





- This muscle is named for its appearance on the chest, which is similar to the edge of a serrated knife.
- Its primary action is to **hold the scapula firmly against the rib cage**.
- The Serratus Anterior muscle attaches to the ribs and the shoulder blade. Its main functions are to assist in raising the arm and to expand the ribs while breathing in.
- This is important when **pushing an object or punching.**



Serratus anterior

Movement

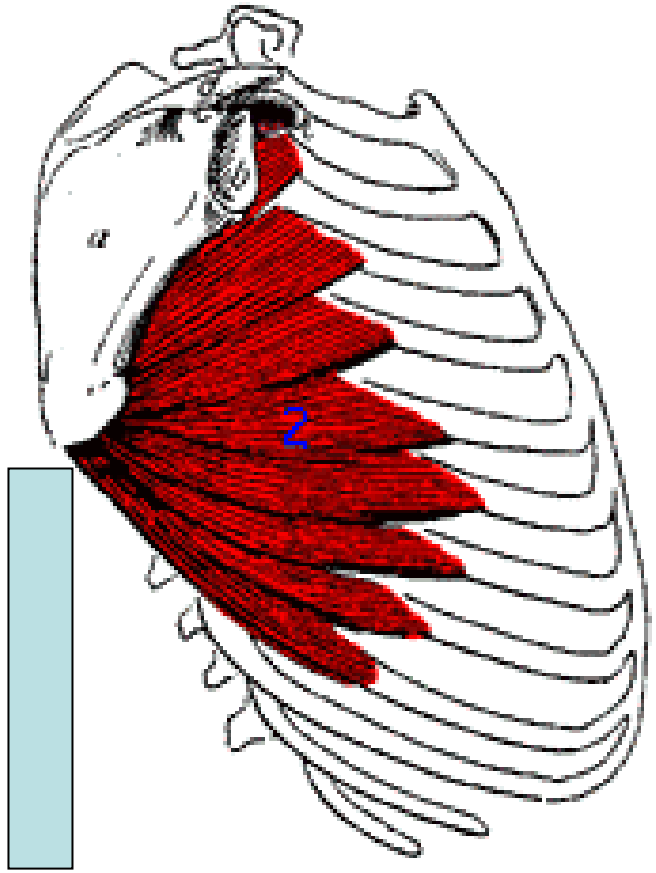
- Scapula
- Abduction [1, 2]
- Upward Rotation [2]
- Elevation (Weak) [1]

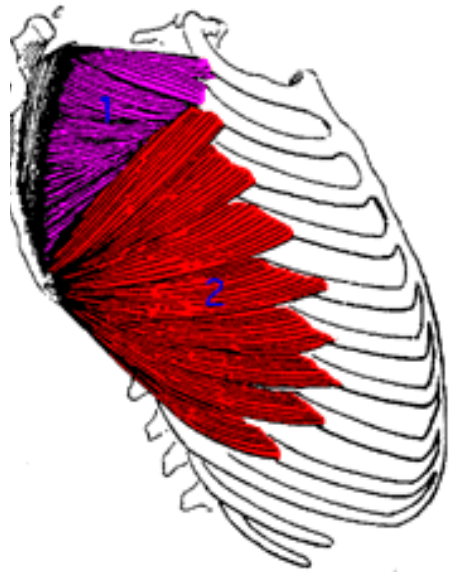
Attachments

- Origin
- Ribs (Surface) [1, 2]
  - Upper 8 or 9

Insertion

- Scapula (Medial) [1, 2]
  - Medial Border
    - Anterior Surface





Trapezius

- This is a very large muscle, and you should learn three primary actions, depending upon which fibers of the muscle are activated:
- (1) The superior fibers elevate the scapula;
- (2) the middle fibers adduct the scapula;
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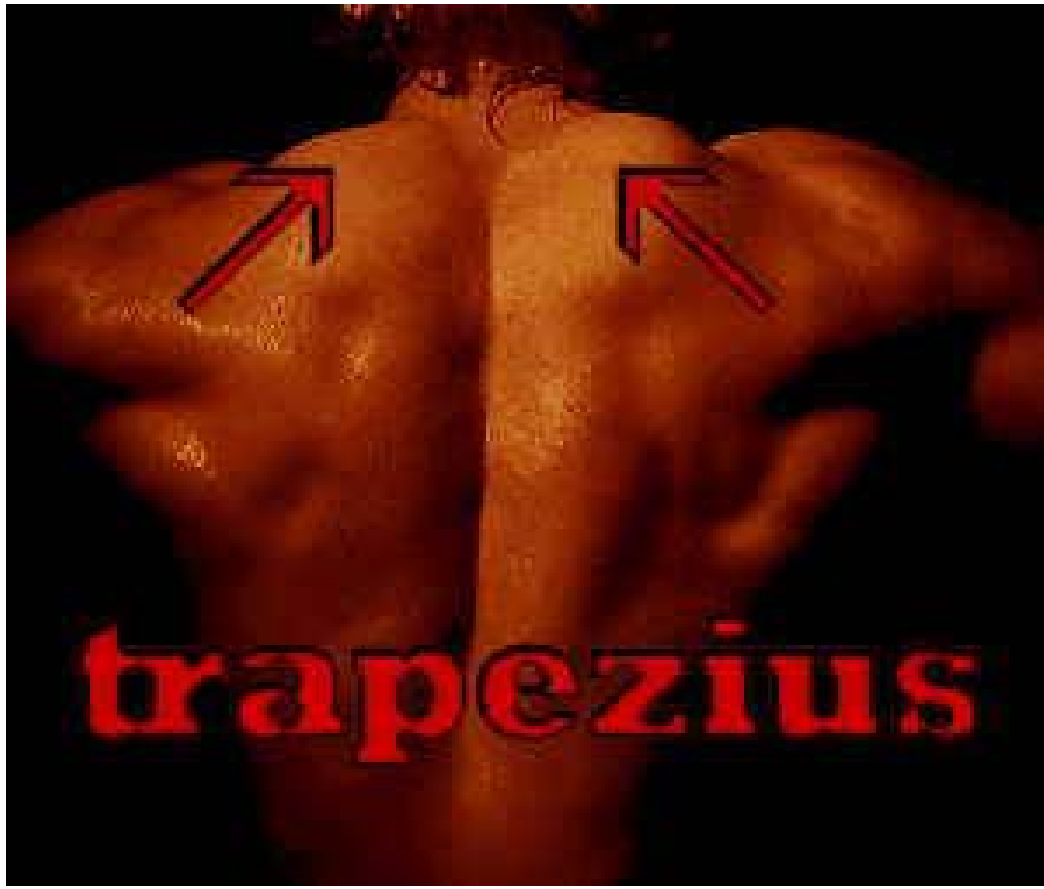
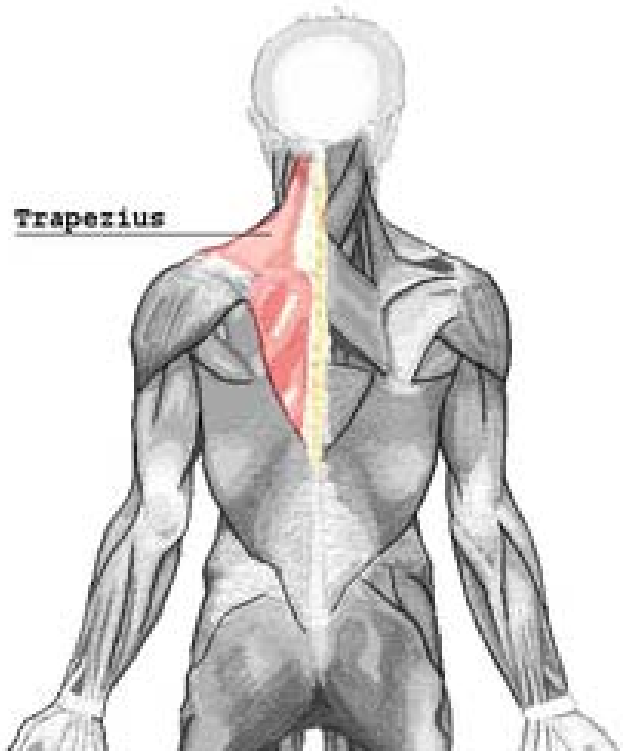
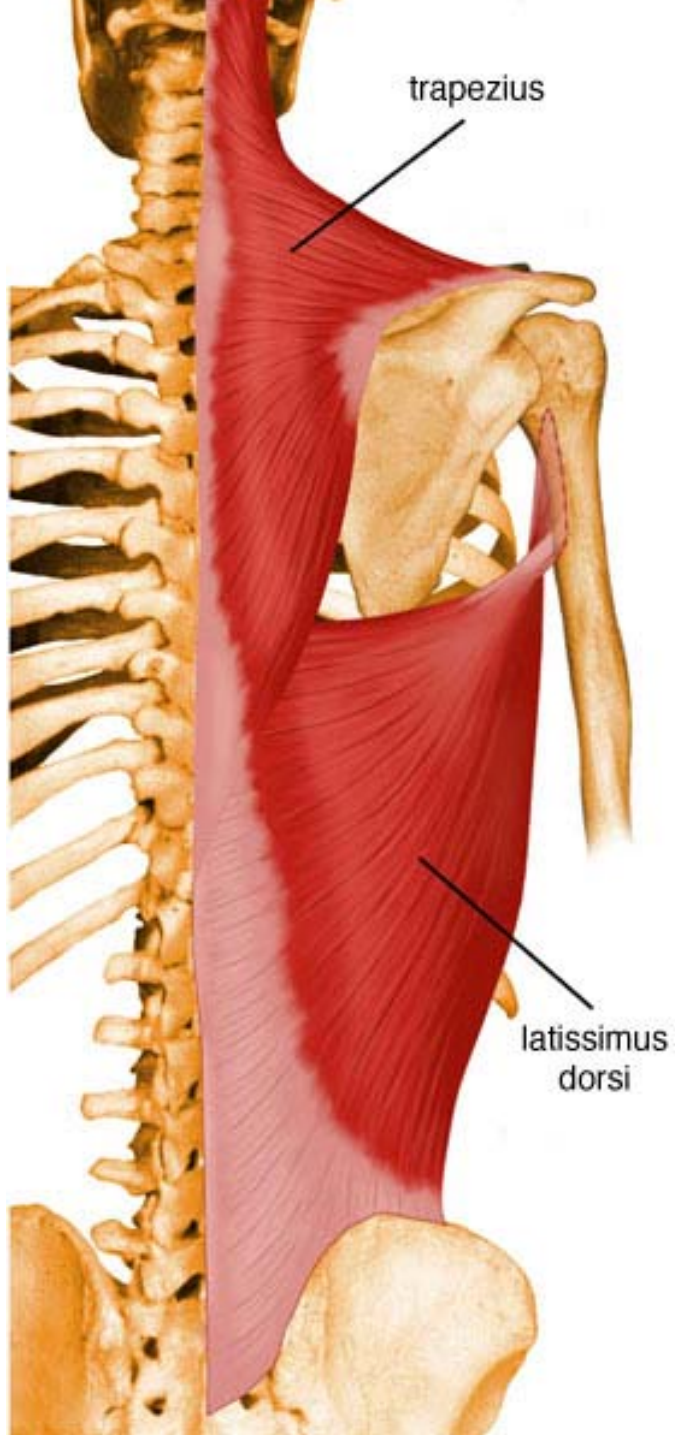


Trapezius

•Elevates, retracts and rotates scapula;
• superior fibers elevate,
• middle fibers retract,
•and inferior fibers depress scapula; superior and inferior fibers act together in superior rotation of scapula






Posterior Shoulder Muscles (2)
Trapezius

Muscles that move the arm

- Muscles that move the arm, like those that move the shoulder, are located on the chest and back.
- The ball-and-socket joint formed by the head of the humerus and glenoid cavity of the scapula allows a wide range of movements.

Muscles that move the arm

- **Pectoralis major**. This muscle flexes the arm. It is commonly exercised by doing “bench presses.”

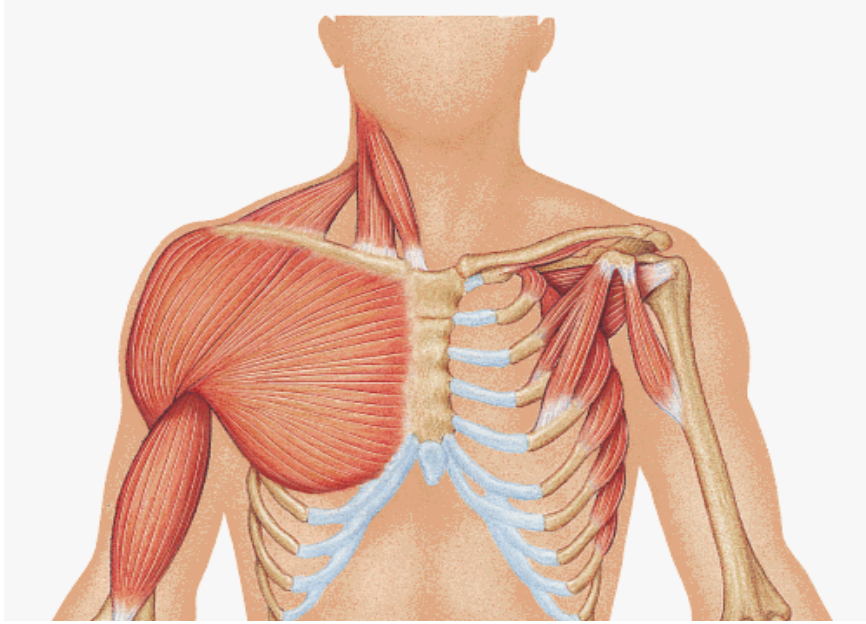
- **Latissimus dorsi**. This muscle extends the arm. It can be exercised by rowing.

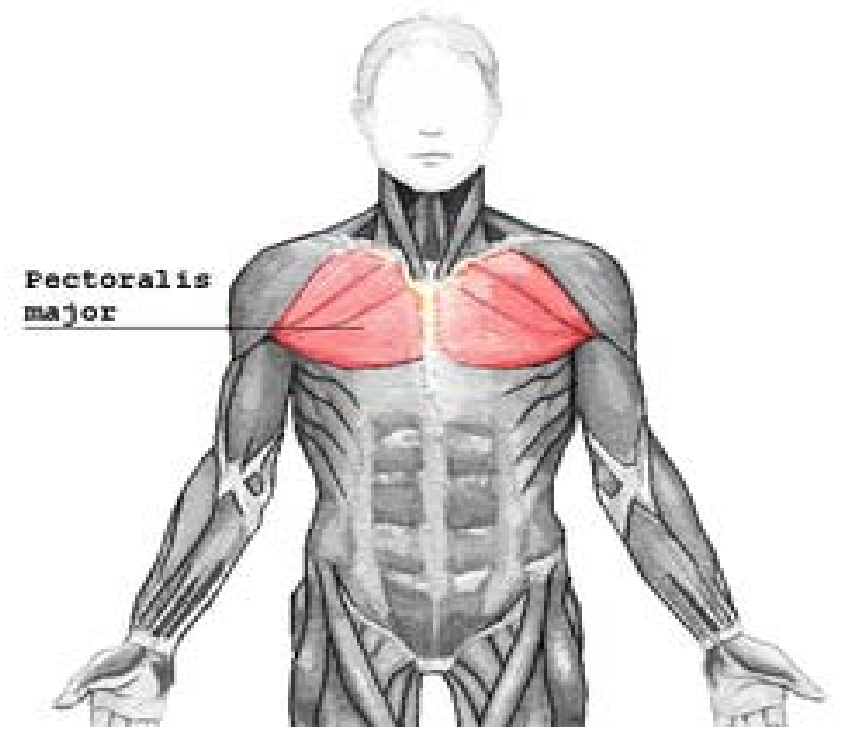
- **Deltoid***. This muscle abducts the arm. The deltoid originates on the clavicle, and the acromion and spine of the scapula. It inserts on the deltoid tuberosity of the humerus.

- For your information, adduction of the arm is generally accomplished by a combination of the pectoralis major and the latissimus dorsi.

Pectoralis major

- This muscle flexes the arm.
- It is commonly exercised by doing “bench presses.”

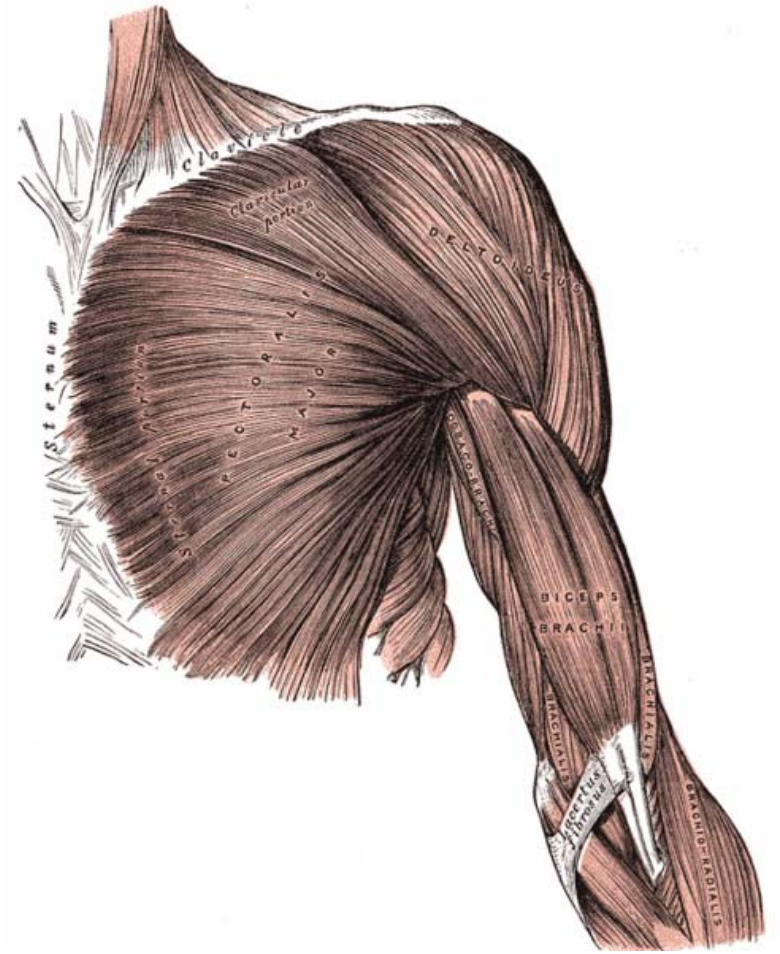


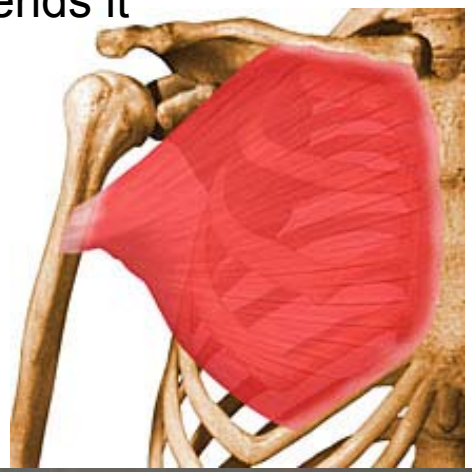


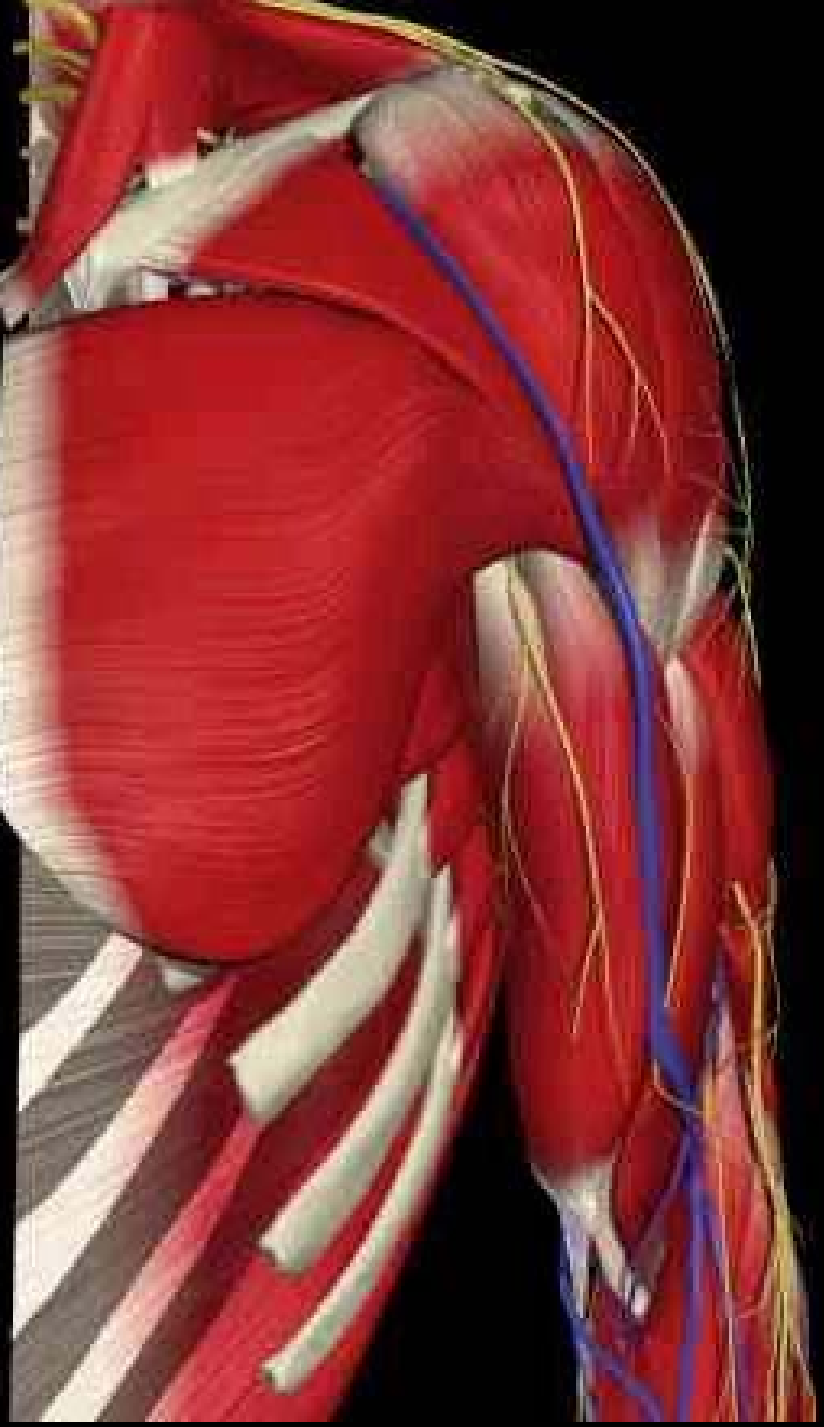
situated at the upper front (anterior) of the chest wall. It makes up the bulk of the chest muscles in the male and lies under the breast in the female. Although impressive looking, this muscle is not particularly strong compared to other less noticeable muscles such as those along the shoulder blade.

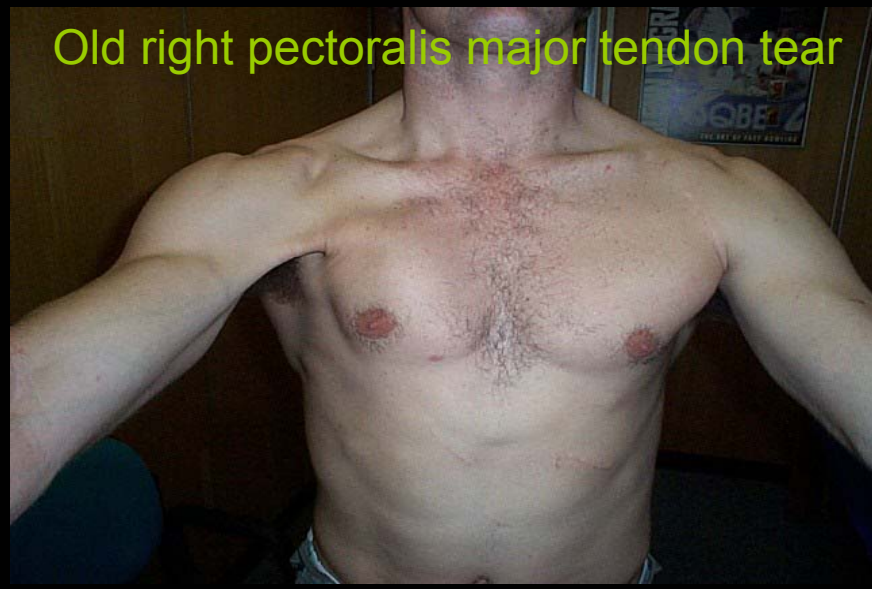
Pectoralis major

Adducts and medially rotates humerus; draws scapula anteriorly and inferiorly
Acting alone: clavicular head flexes humerus and sternocostal head extends it







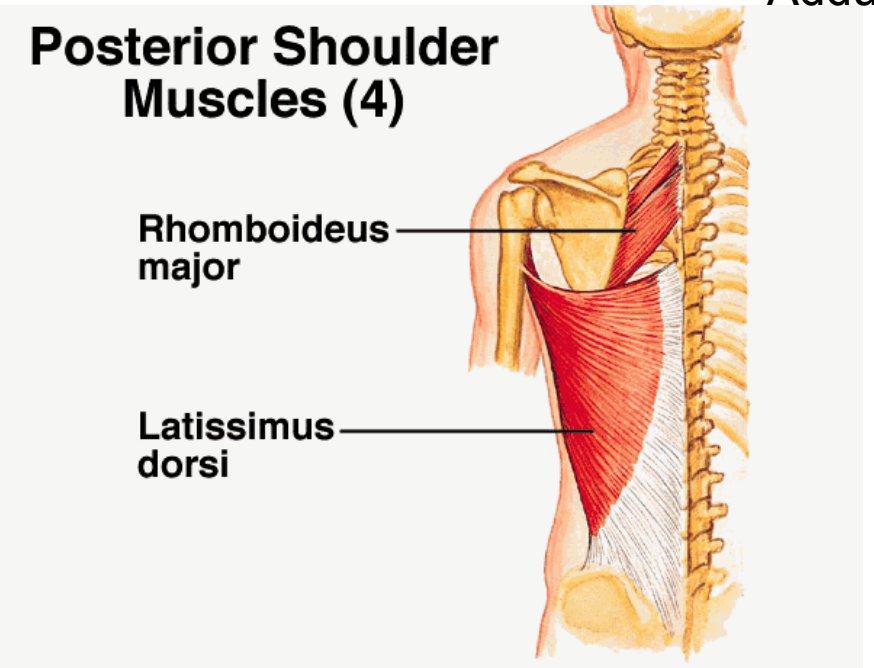

Old right pectoralis major tendon tear

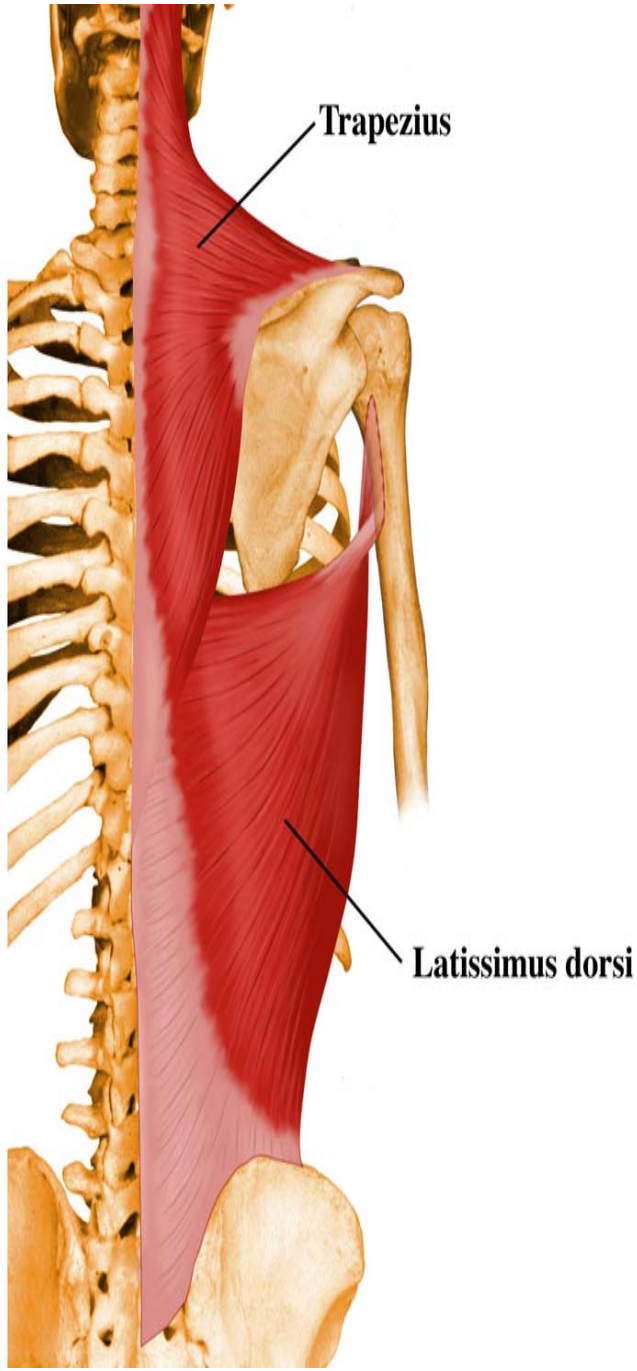
Muscles of the Pectoral Region 1/pectoralis major 2/pectoralis minor 3/subclavius

Latissimus dorsi.

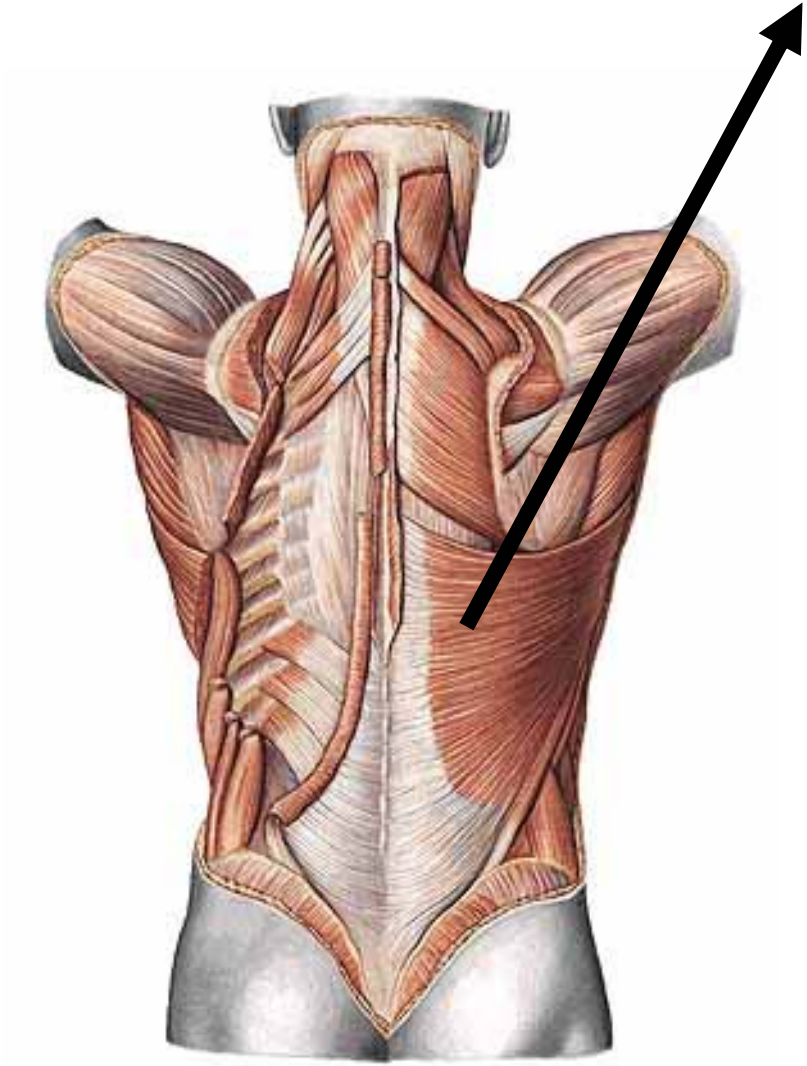
- This muscle extends the arm.
- It can be exercised by rowing.

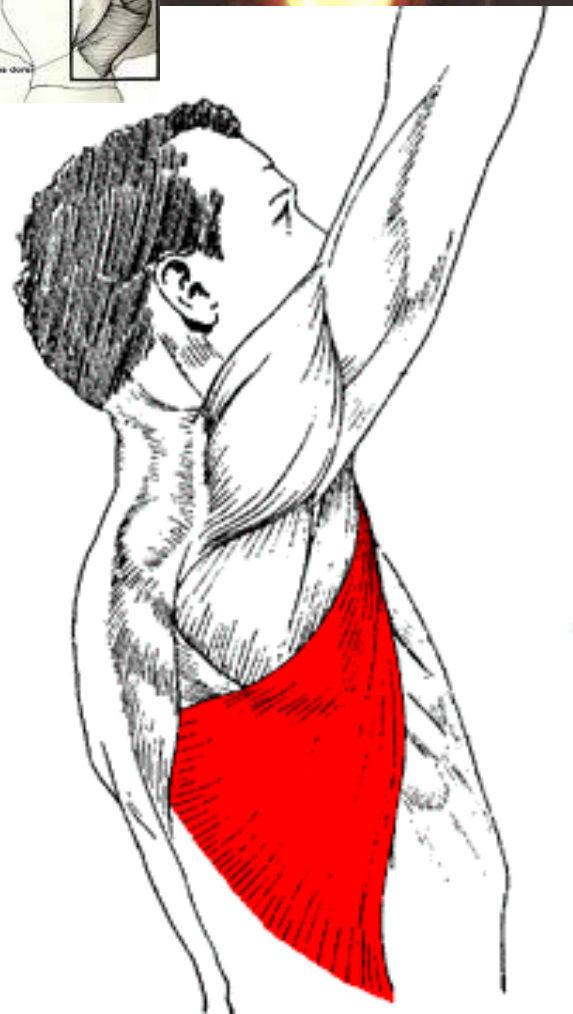
Movement
Shoulder
Adduction
Extension
Internal Rotation
Transverse Extension
Scapula (Assists)
Depression
Downward Rotation
Adduction





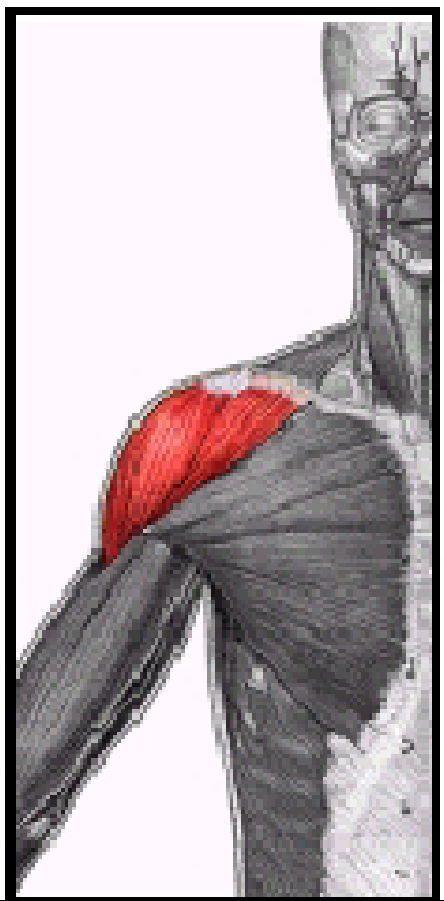
Latissimus dorsi.

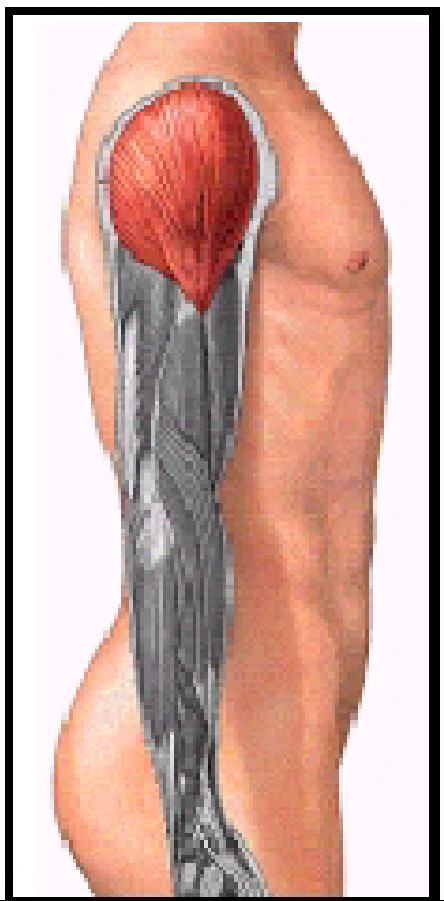


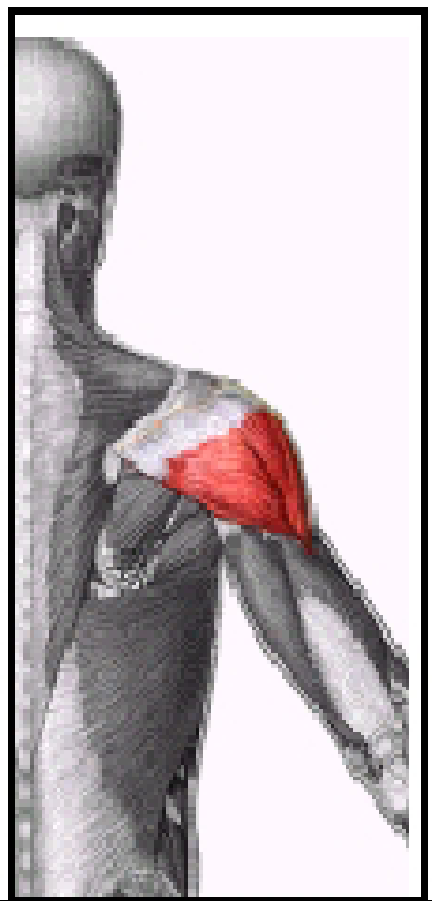


DELTOID

This triangular muscle is the muscle mass of the shoulder. Its origins are the clavicle, acromion process and spine of the scapula. The deltoid inserts on the deltoid tuberosity of the humerus. It is the prime mover of abduction of the arm.







Deltoid*

- This muscle abducts the arm.
- The deltoid originates on the clavicle, and the acromion and spine of the scapula.
- It inserts on the deltoid tuberosity of the humerus.

Attachments

Origin

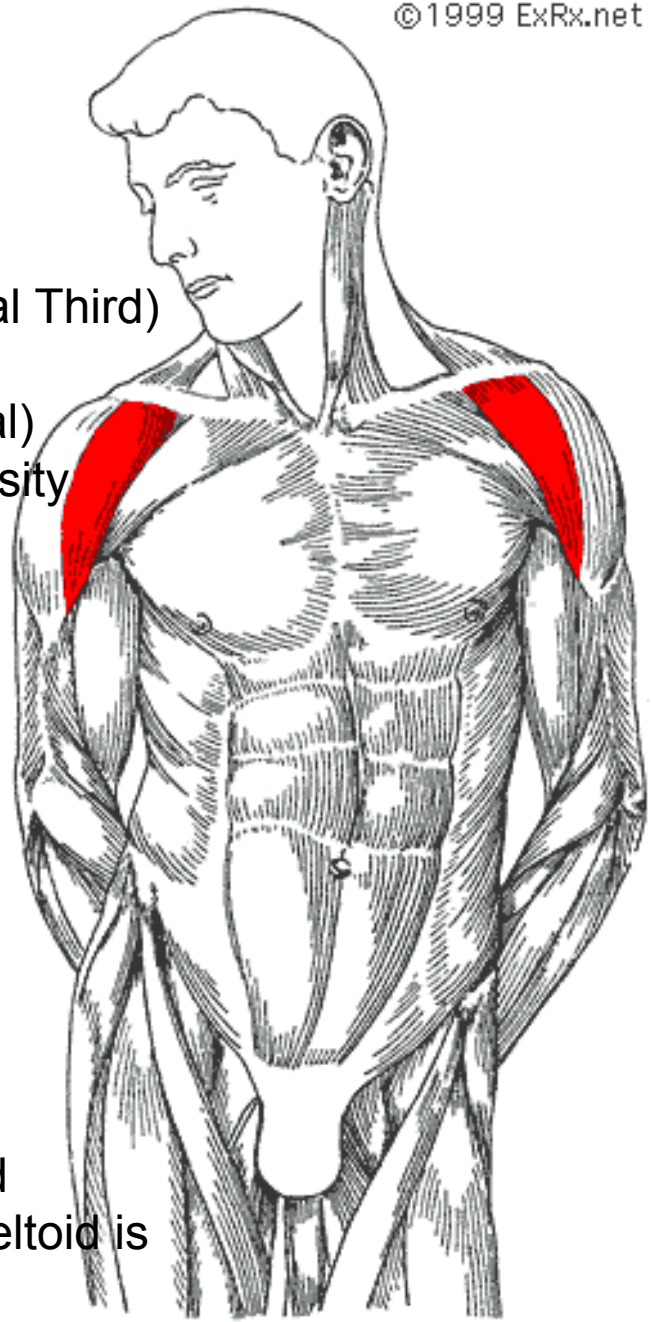
Clavicle (Anterior Lateral Third)

Insertion

Humerous (Lateral)
Deltoid Tuberosity

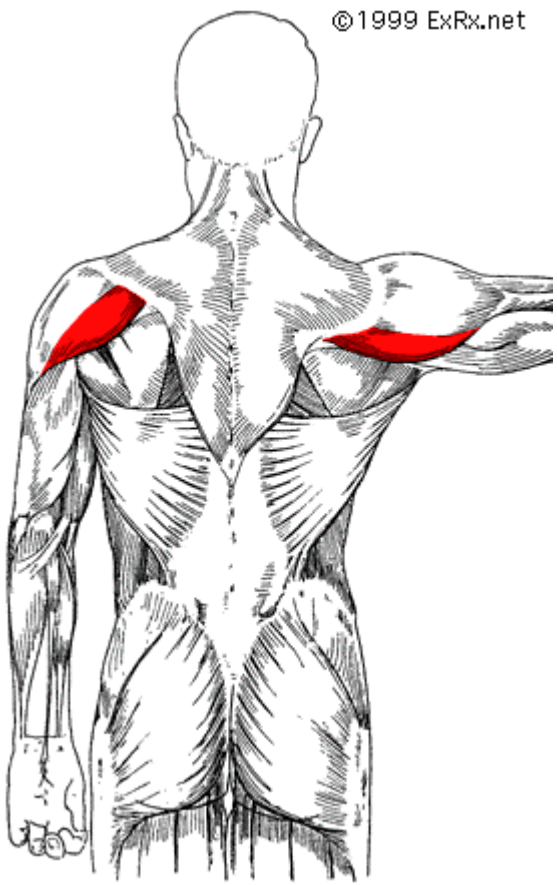
Movement

Shoulder
Abduction
Flexion
Transverse Flexion
Internal Rotation



The **deltoid muscle** is the muscle forming the rounded contouR of the human shoulder. Delta (triangle).The deltoid is a frequent site to administer intra-muscular injections

Deltoid (Posterior)



Movement

Shoulder
Extension
Transverse Extensio
Transverse Abductio
External Rotation

Attachments

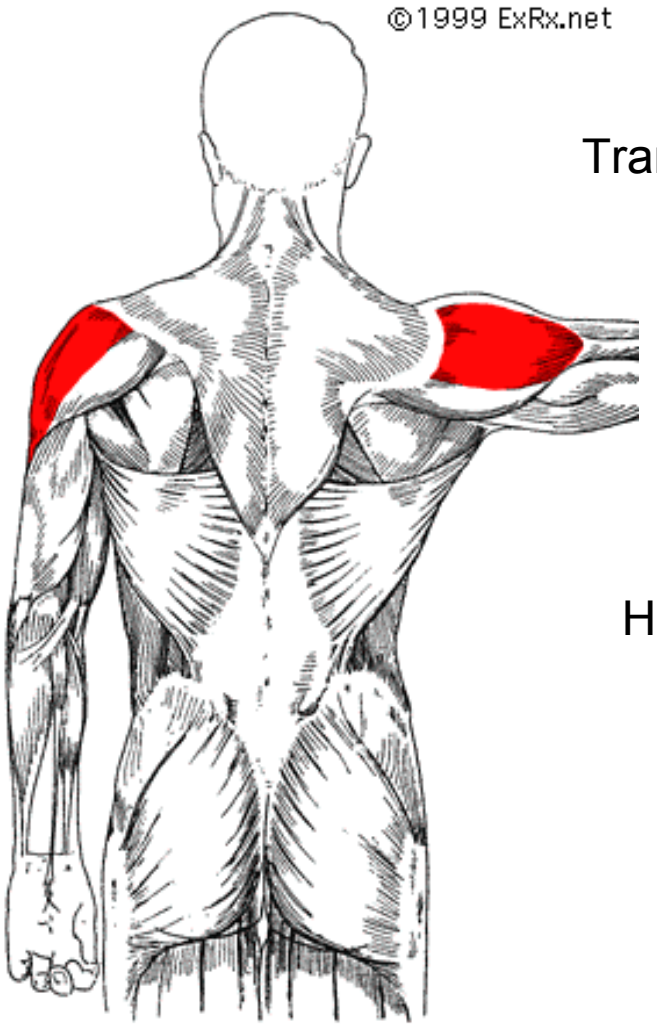
Origin

Scapula
Spine (Inferior edg

Insertion

Humerus (Lateral)
Deltoid Tuberosit

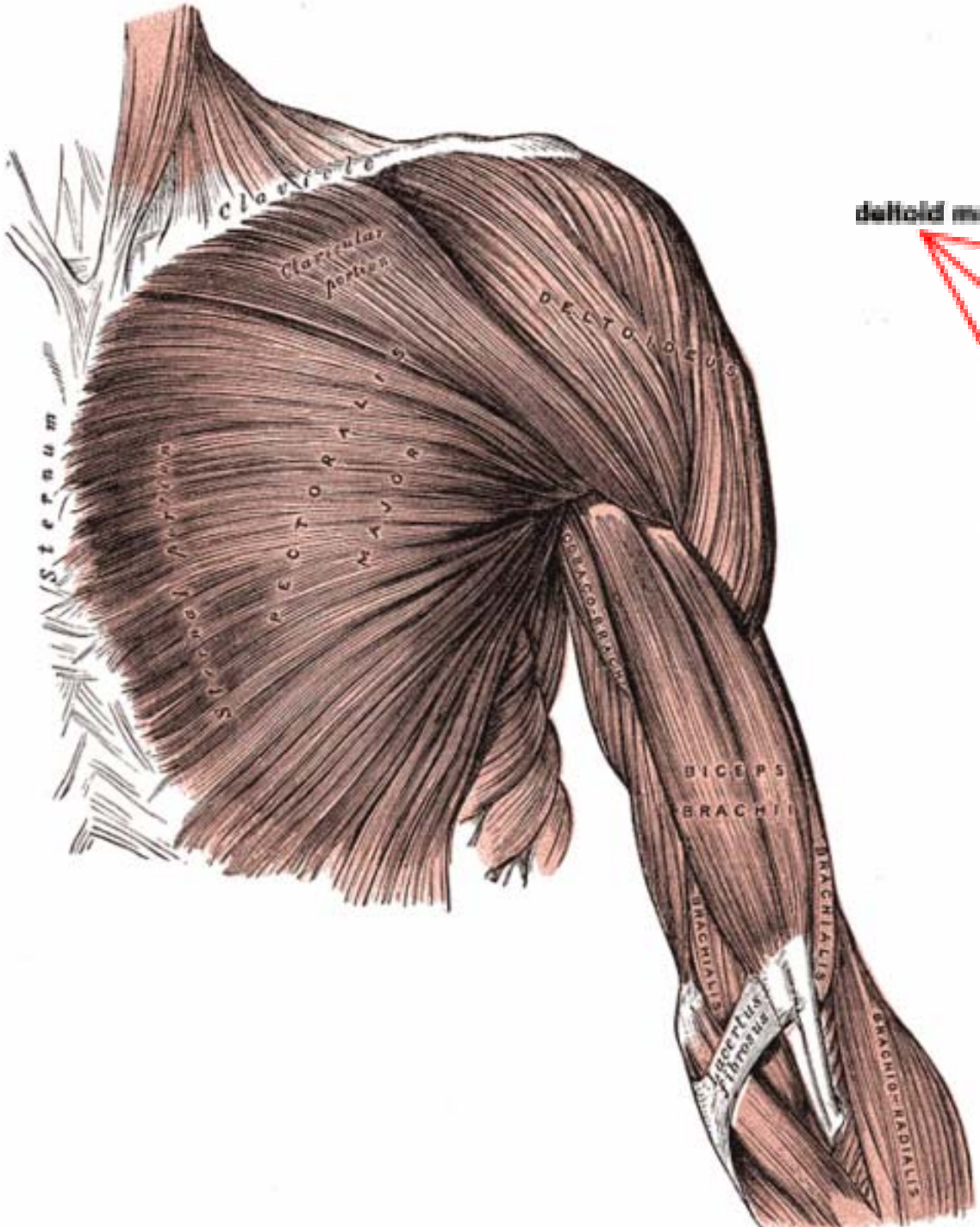
Deltoid (Lateral)

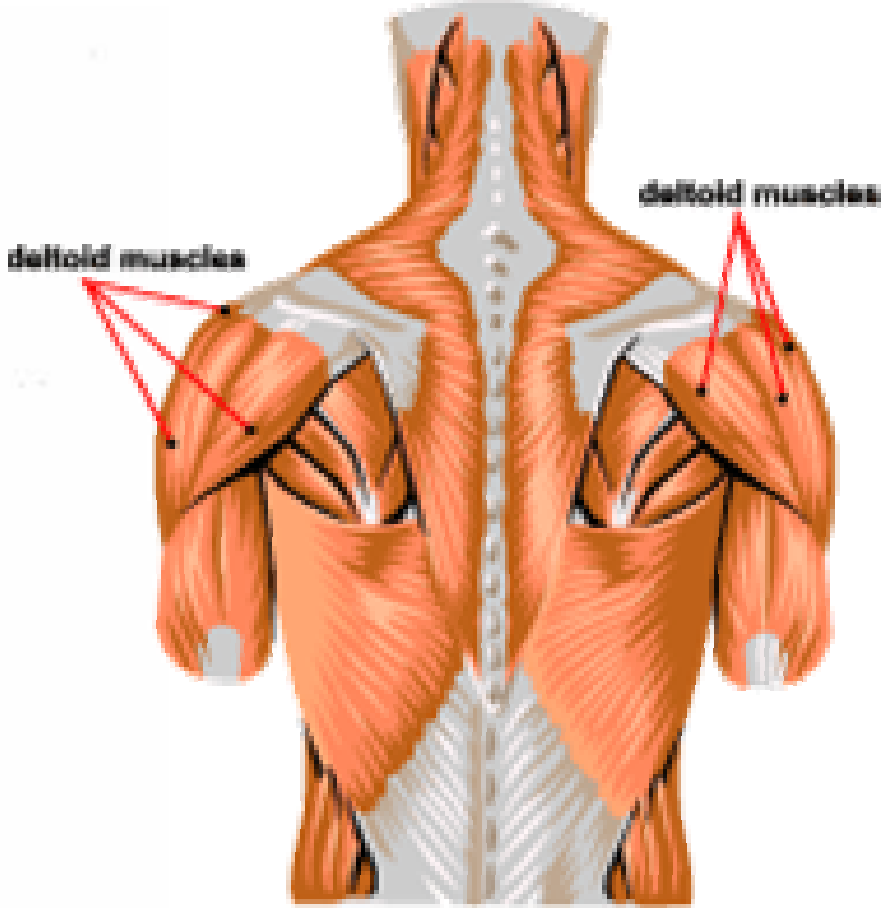


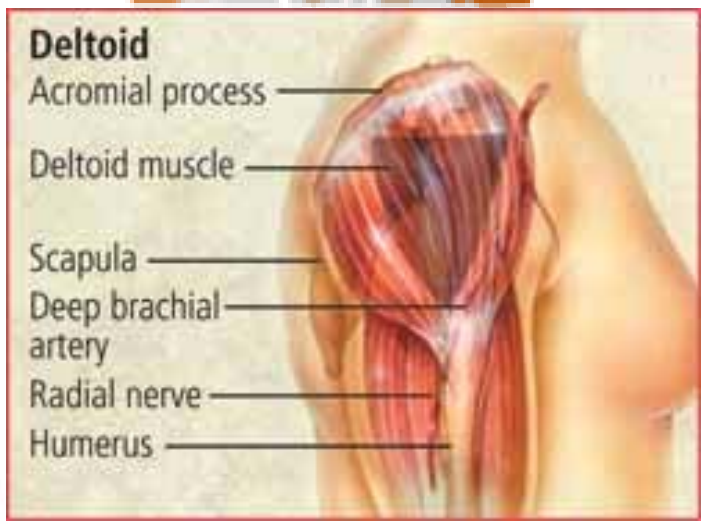
Movement
Shoulder
Abduction
Flexion
Transverse Abduction

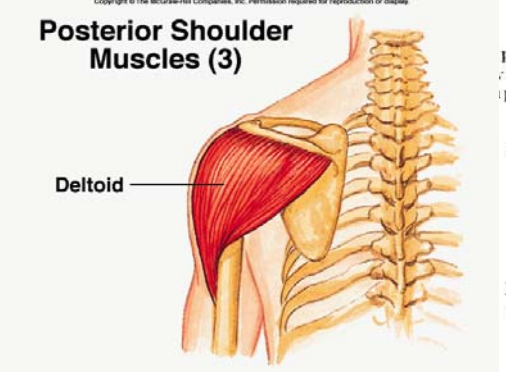
Attachments
Origin
Scapula
Acromion (Lateral)

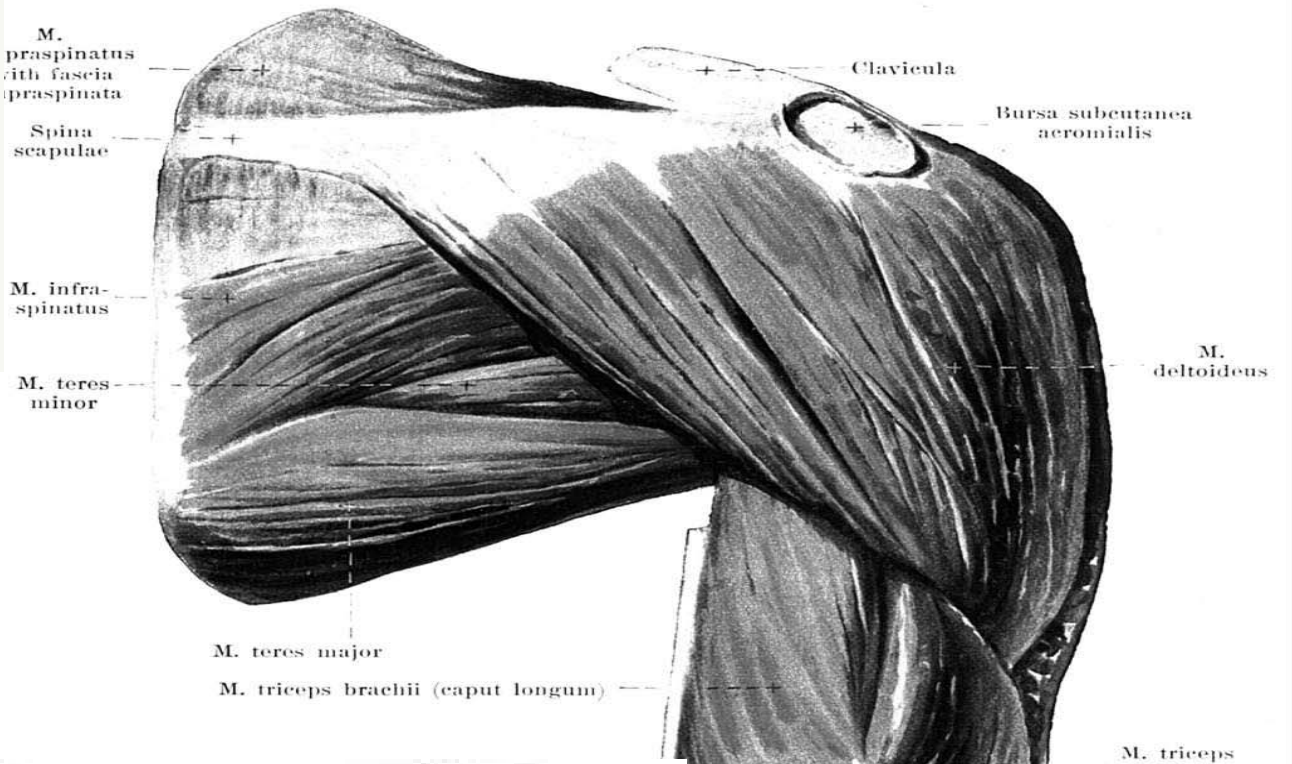
Insertion
Humerus (Lateral)
Deltoid Tuberosity

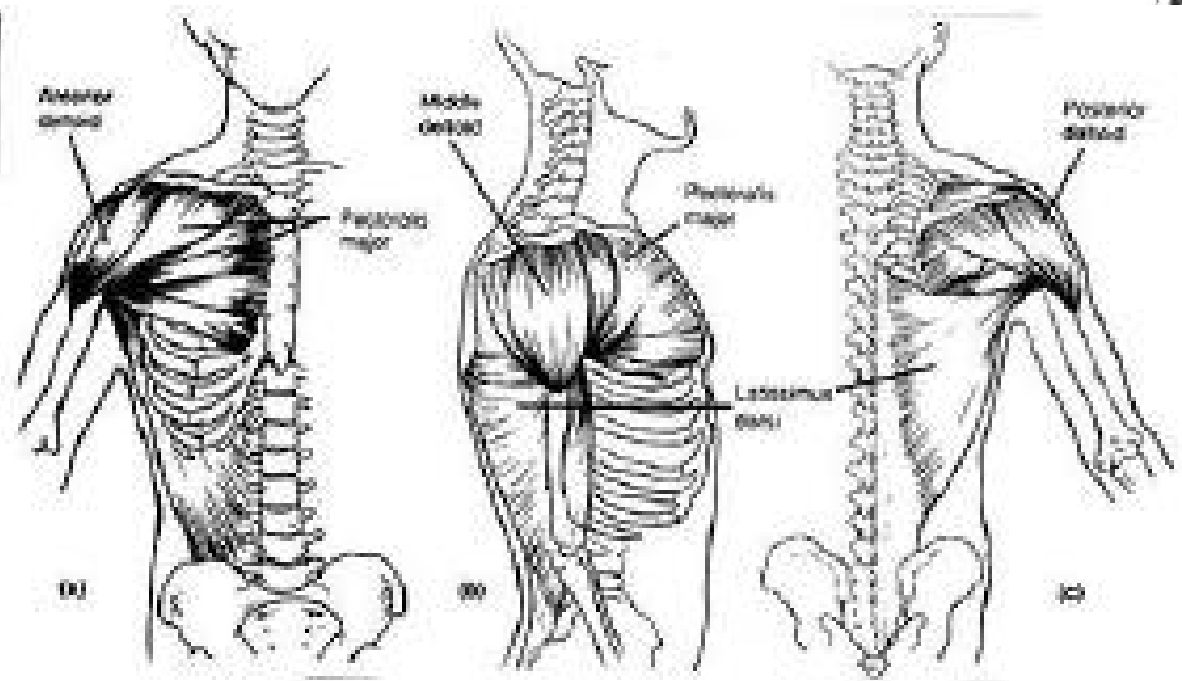

Clavicle
Clavicular portion
DELTOIDEUS
Sternum
BICEPS BRACHII
BRACHIALIS
BRACHIO-RADIALIS

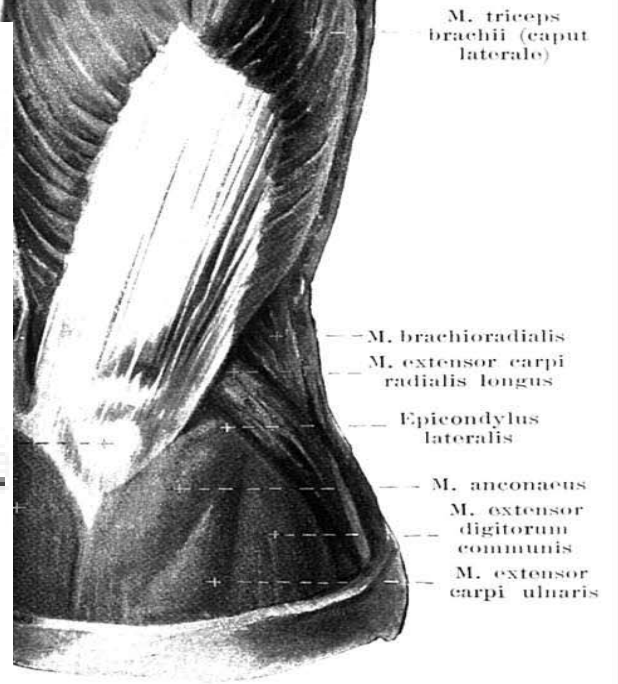

deltoid muscles
deltoid muscles


Deltoid
Acromial process
Deltoid muscle
Scapula
Deep brachial artery
Radial nerve
Humerus









Muscles that move the forearm

- Muscles that flex and extend the forearm are generally located on the arm.
- Muscles that rotate the forearm are located toward the proximal end of the forearm.

Muscles that move the forearm

- **Biceps brachii***. The primary action of this muscle is to flex the forearm. This muscle originates on the coracoid process and the edge of the glenoid cavity, and it inserts onto the radial tuberosity. Notice that this muscle causes movement of the joint between the ulna and the humerus, but it attaches to neither of these bones.

- **Brachialis**. The primary action of this muscle is to flex the forearm.

- **Brachioradialis**. This muscle also flexes the forearm.

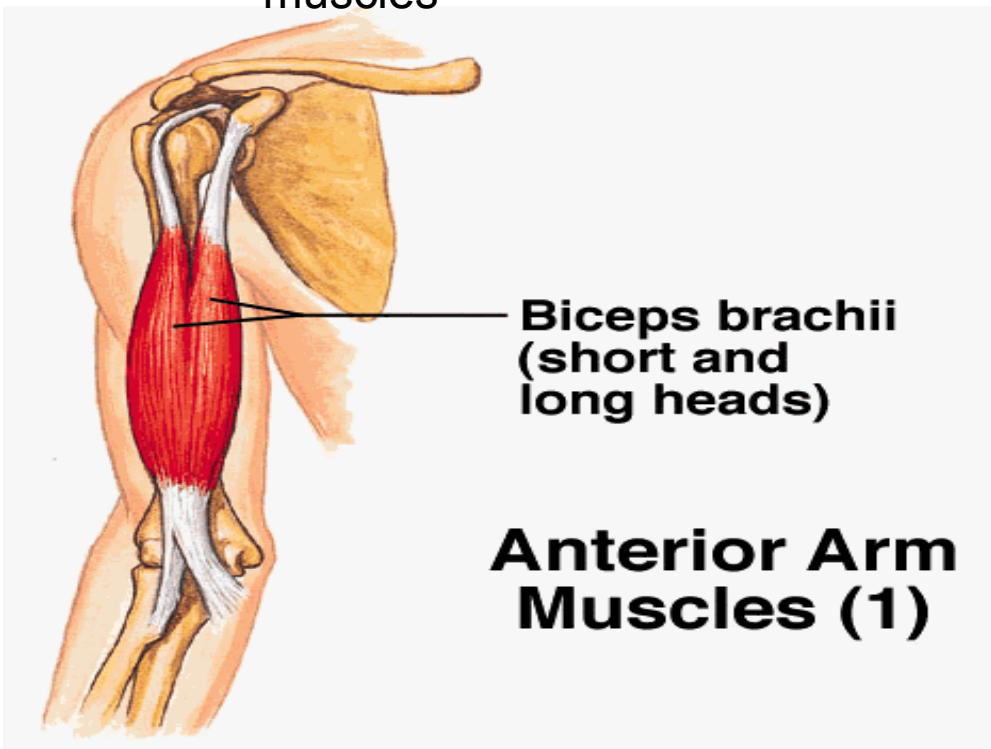
- **Triceps brachii***. The primary action of this muscle is to extend the forearm. This muscle has origins on the scapula and posterior shaft of the humerus. It inserts on the olecranon process.

- **Supinator**. The primary action of this muscle is to supinate the forearm.

- **Pronator teres**. The primary action of this muscle is to pronate the forearm.

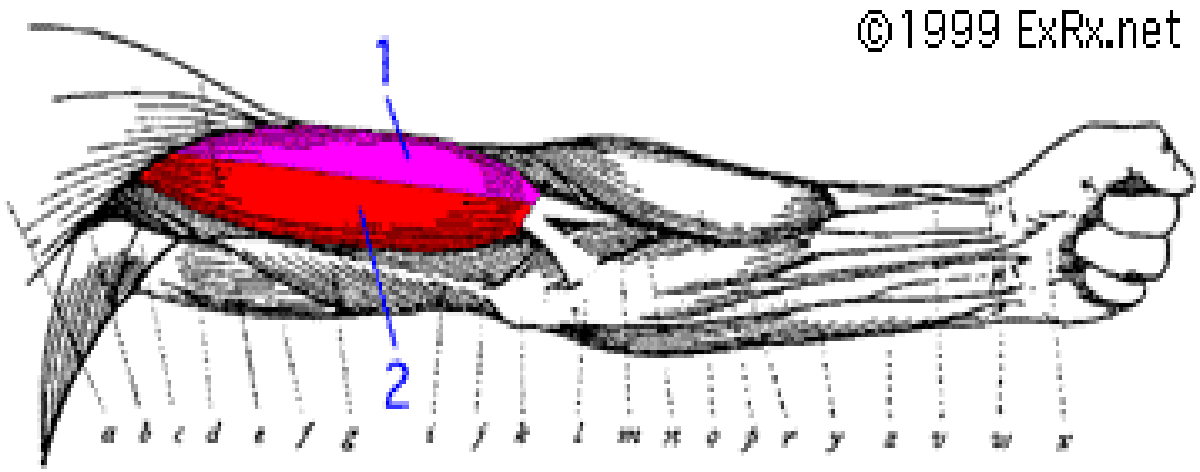
Biceps brachii*.

triarticulate biceps brachii muscles

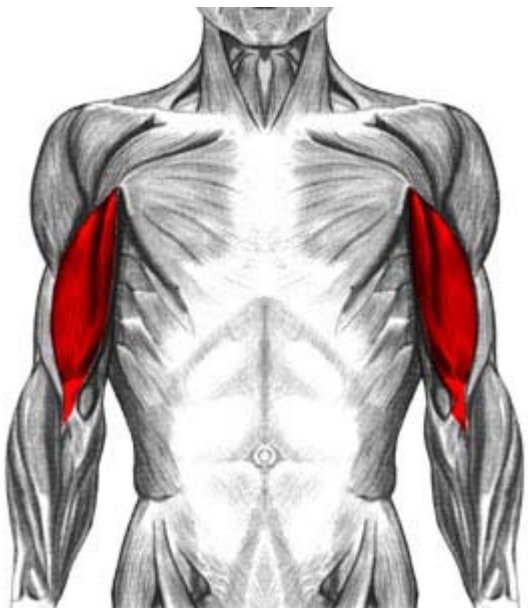


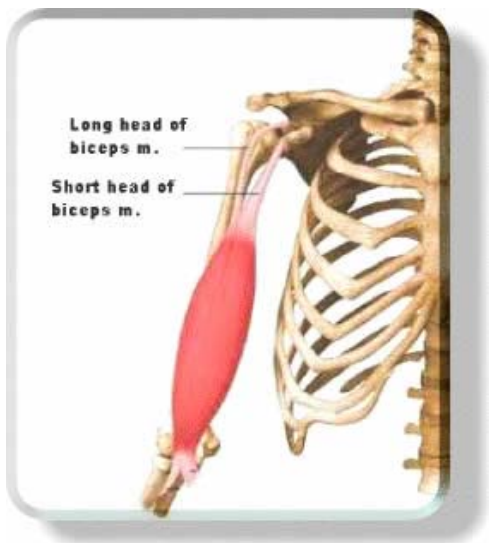
- The primary action of this muscle is to flex the forearm.
- This muscle originates on the coracoid process and the edge of the glenoid cavity, and it inserts onto the radial tuberosity.
- Notice that this muscle causes movement of the joint between the ulna and the humerus, but it attaches to neither of these bones.

Biceps brachii



1/Long Head (Outer)
2/Short Head (Inner)





Movement

Elbow: Flexion [1, 2]
Forearm:Supination [1, 2]
Shoulder: Flexion (Weak) [2]
Transverse Flexion (Weak) [2]

Attachments

Origin

Scapula
Supraglenoid Tuberosity [1]
Coracoid Process [2]

Insertion

Radius
Tubercle [1, 2]
Fascia of forearm
Bicipital Aponeurosis [1, 2]

Brachialis..

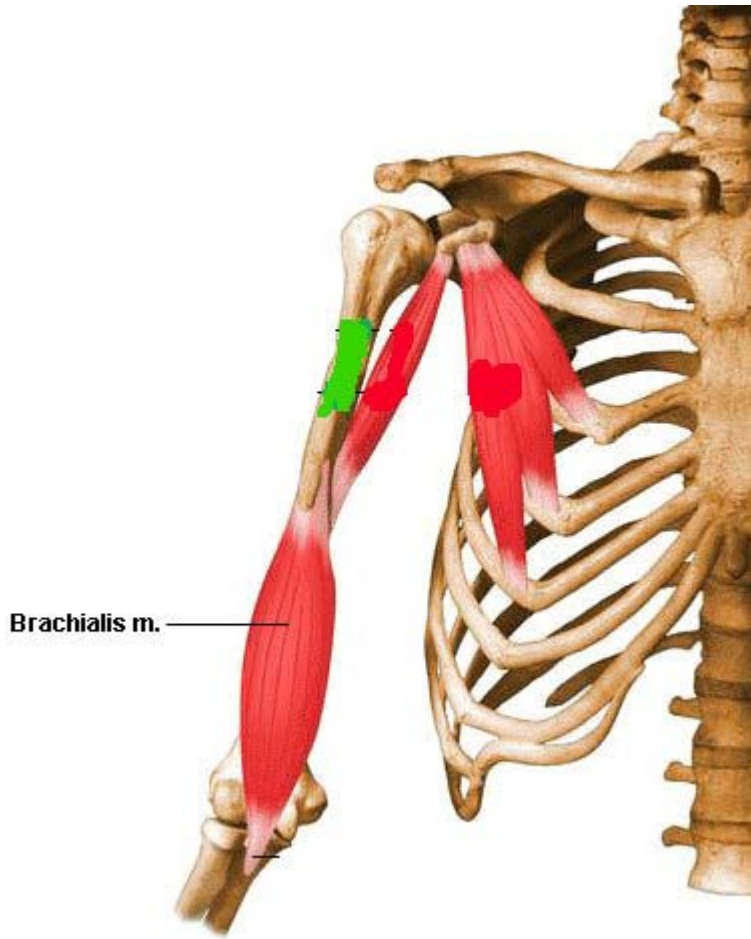
- The primary action of this muscle is to flex the forearm

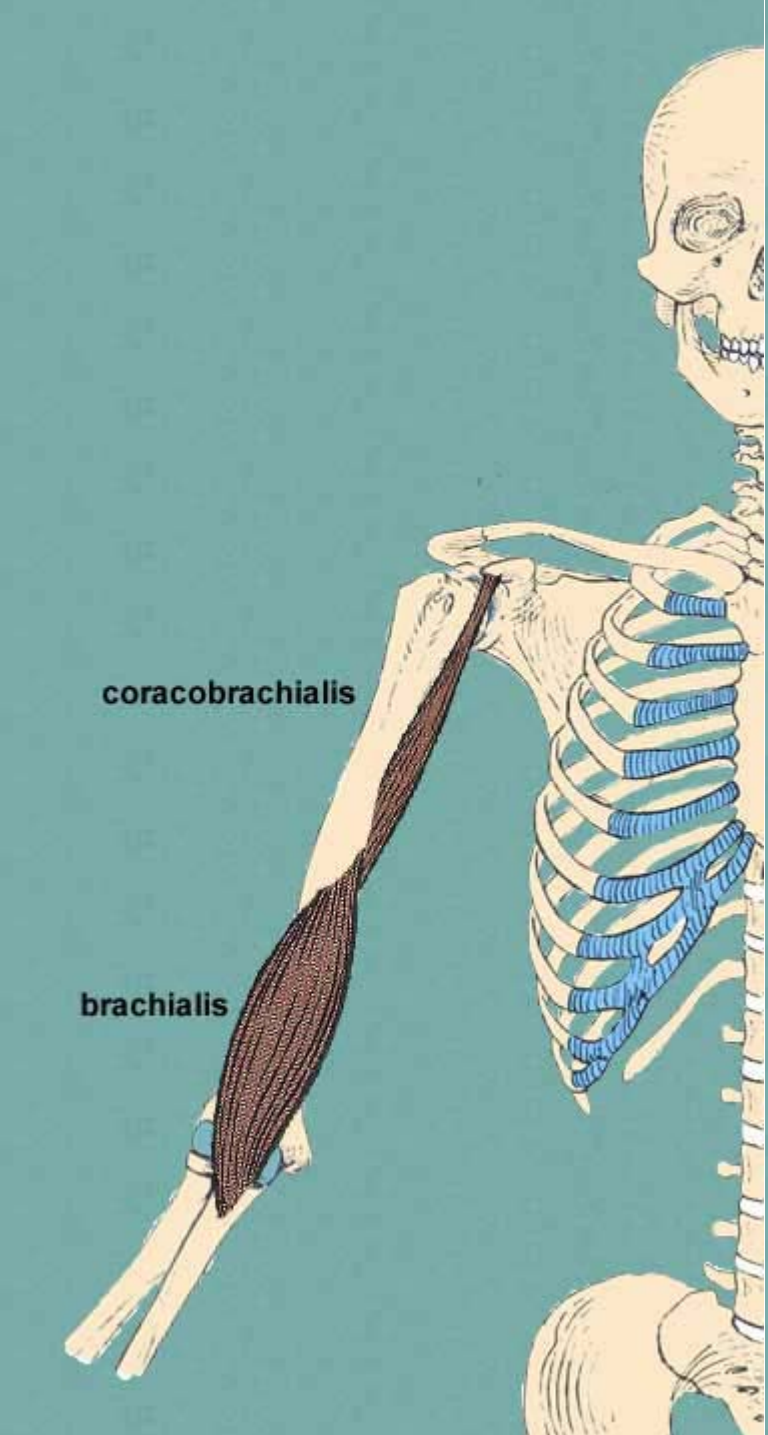
Movement
Elbow
Flexion

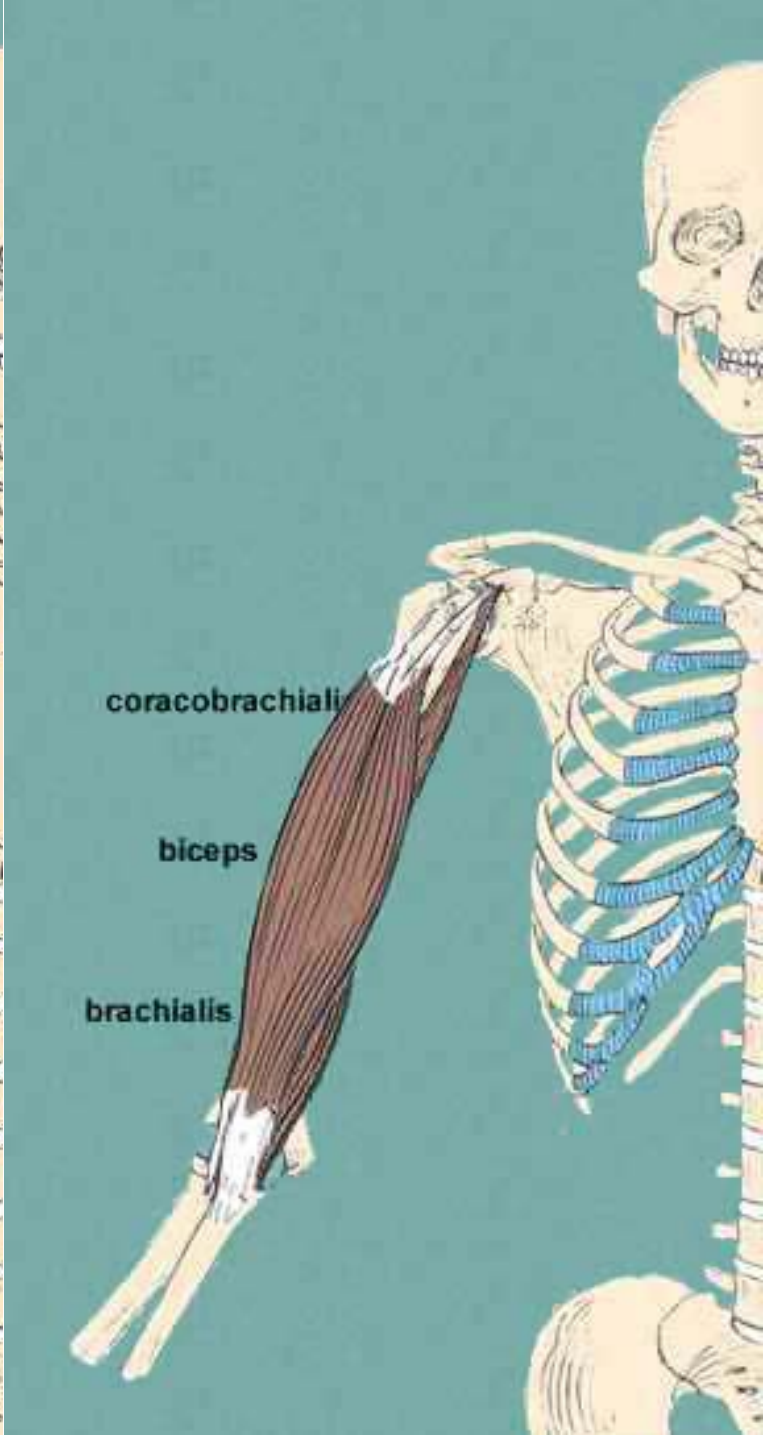
Attachments
Origin
Humerous
(Anterior)

Insertion
Ulna
Coronoid
Process

Major flexor of forearm -- flexes forearm in all positions

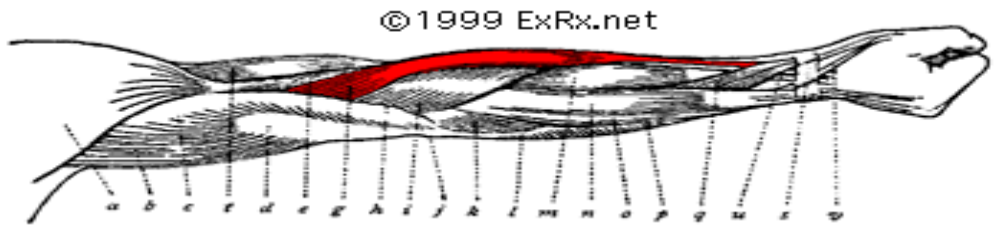


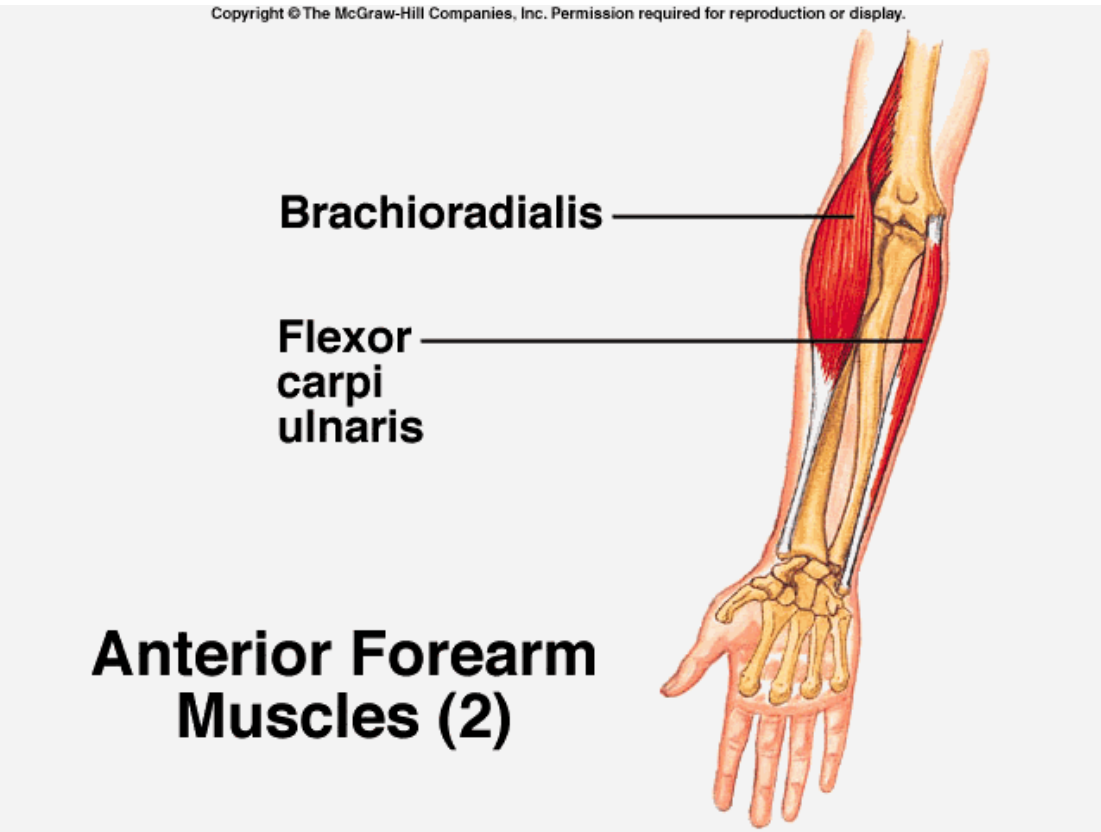

coracobrachialis
brachialis


coracobrachialis
biceps
brachialis

Brachioradialis.

- This muscle also flexes the forearm





Movement
Elbow
Flexion

Attachments
Origin
Humerous
Lateral Condyle

Insertion
Radius (Lateral Distal)
Styloid Process

BRACHIORADIALIS

Description:
elongated, fusiform muscle along the outer side of the radius

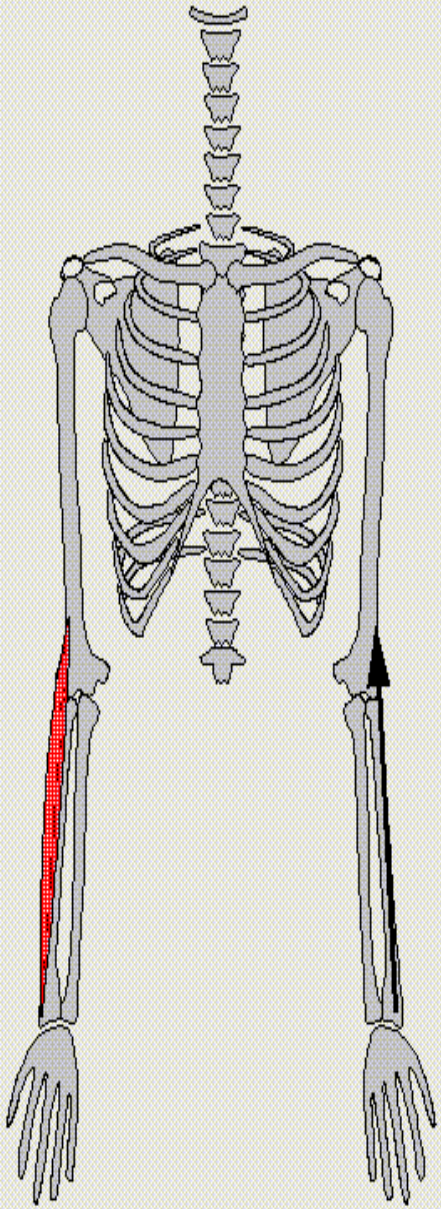
Origin:
lateral supracondylar ridge of humerus

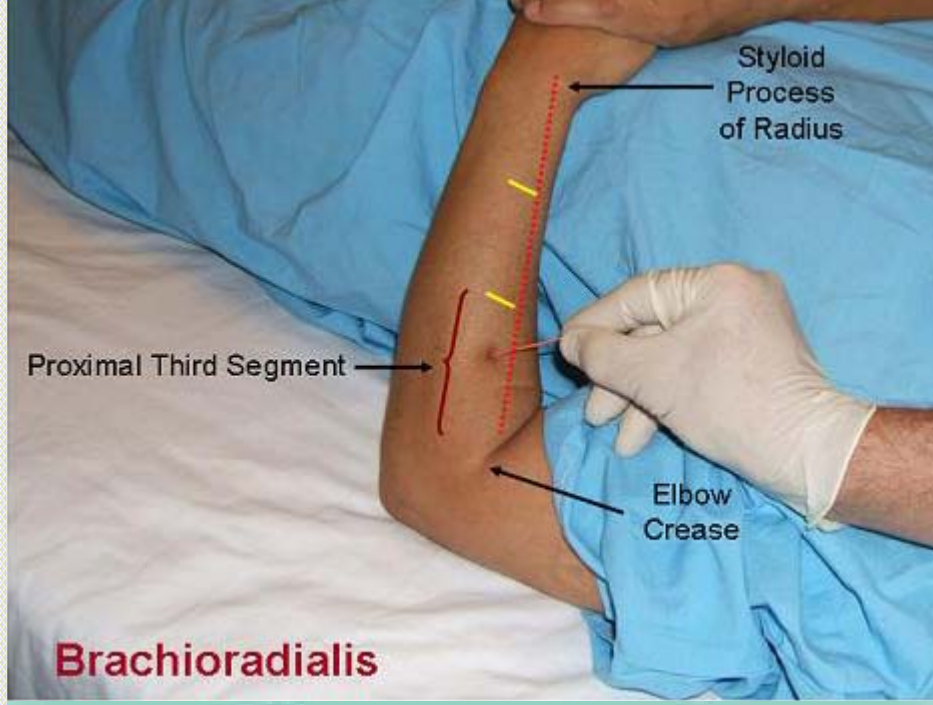
Insertion:
lateral port of the radius above the styloid process

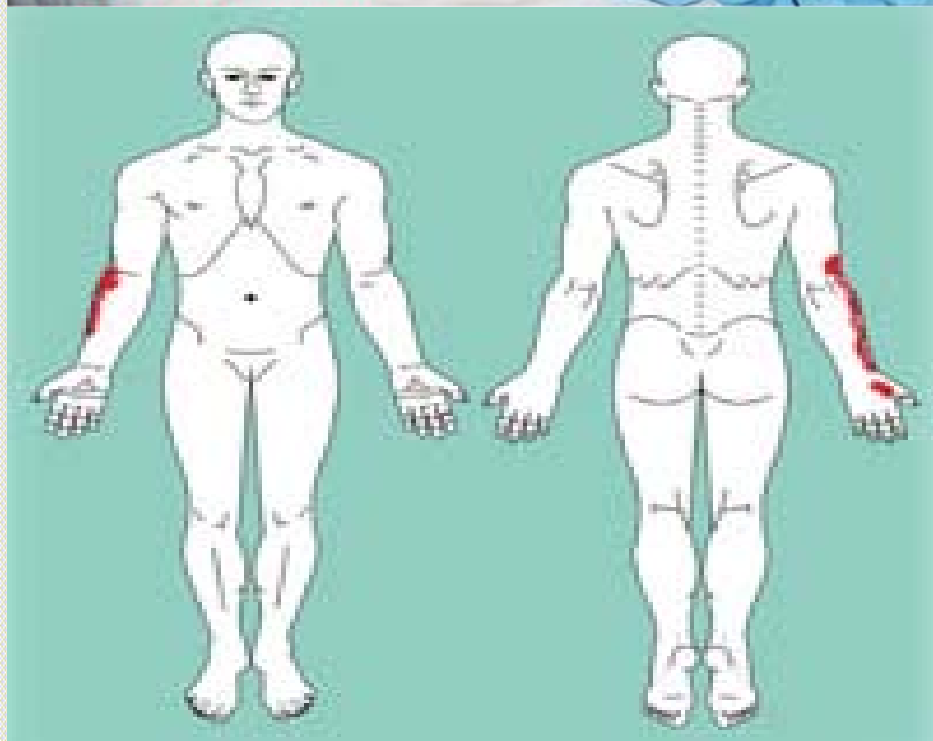
Function:
- flexion of the forearm
- supination of the forearm in when in extension

Modelization:
one vector between the humerus and the ulna

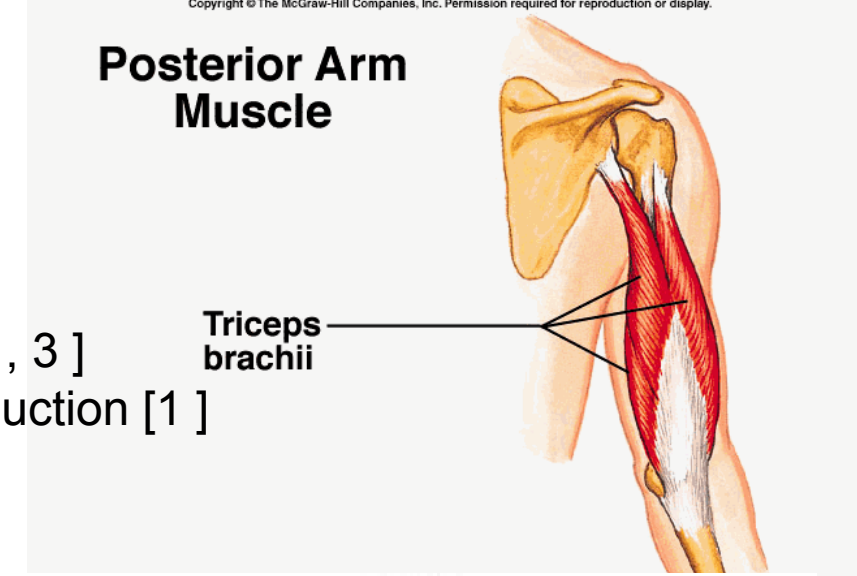
Notes:







Triceps brachii



- The primary action of this muscle is to extend the forearm.
- This muscle has origins on the scapula and posterior shaft of the humerus.
- It inserts on the olecranon process.

Movement

Elbow:Extension [1, 2 , 3]
Shoulder:Extension [1] Adduction [1]

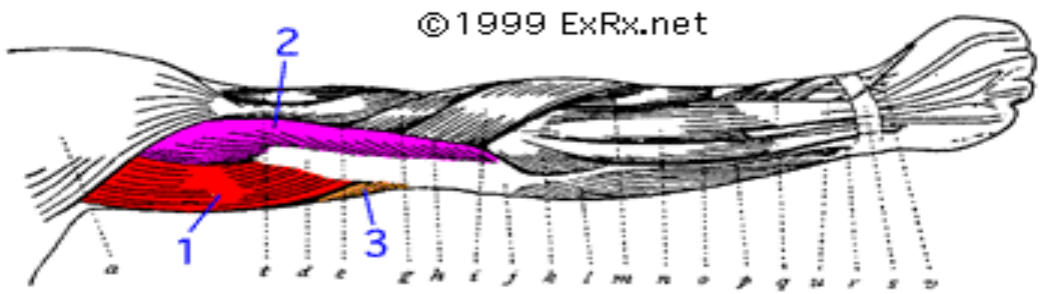
Attachments

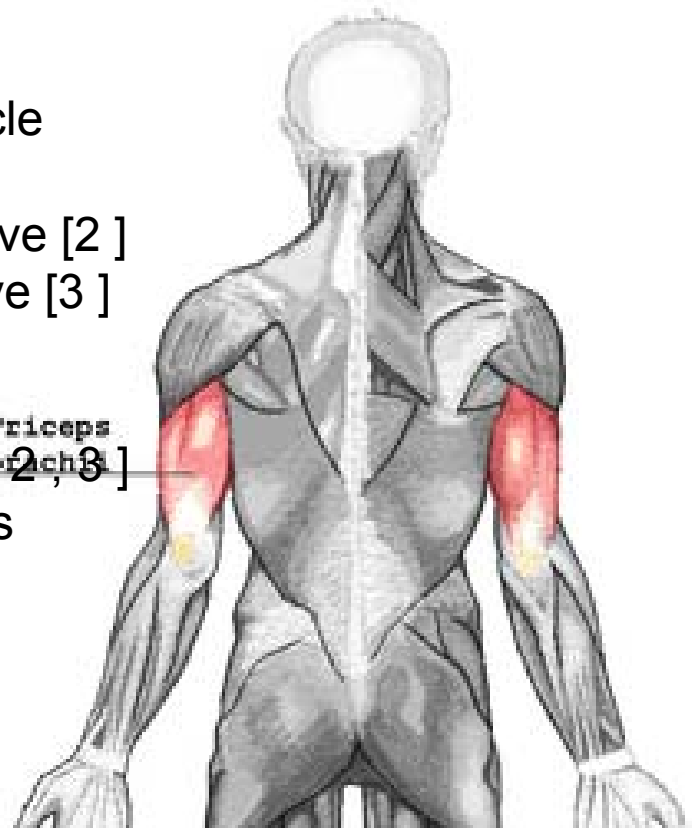
Origin

Scapula [1]
Infraglenoid Turbercle
Humerous (Posterior)
Superior to Radial Groove [2]
Inferior to Radial Groove [3]

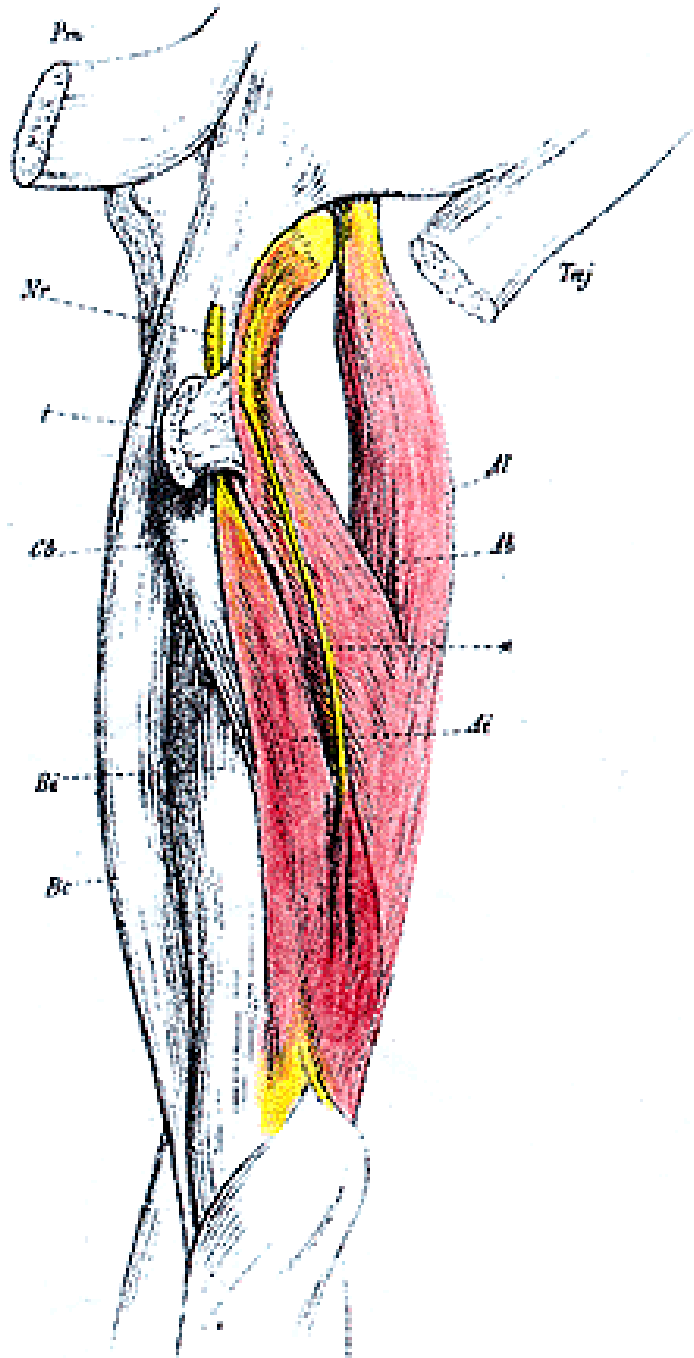
Insertion

Ulna (Proximal Posterior) [1, 2, 3]
Olecranon Process





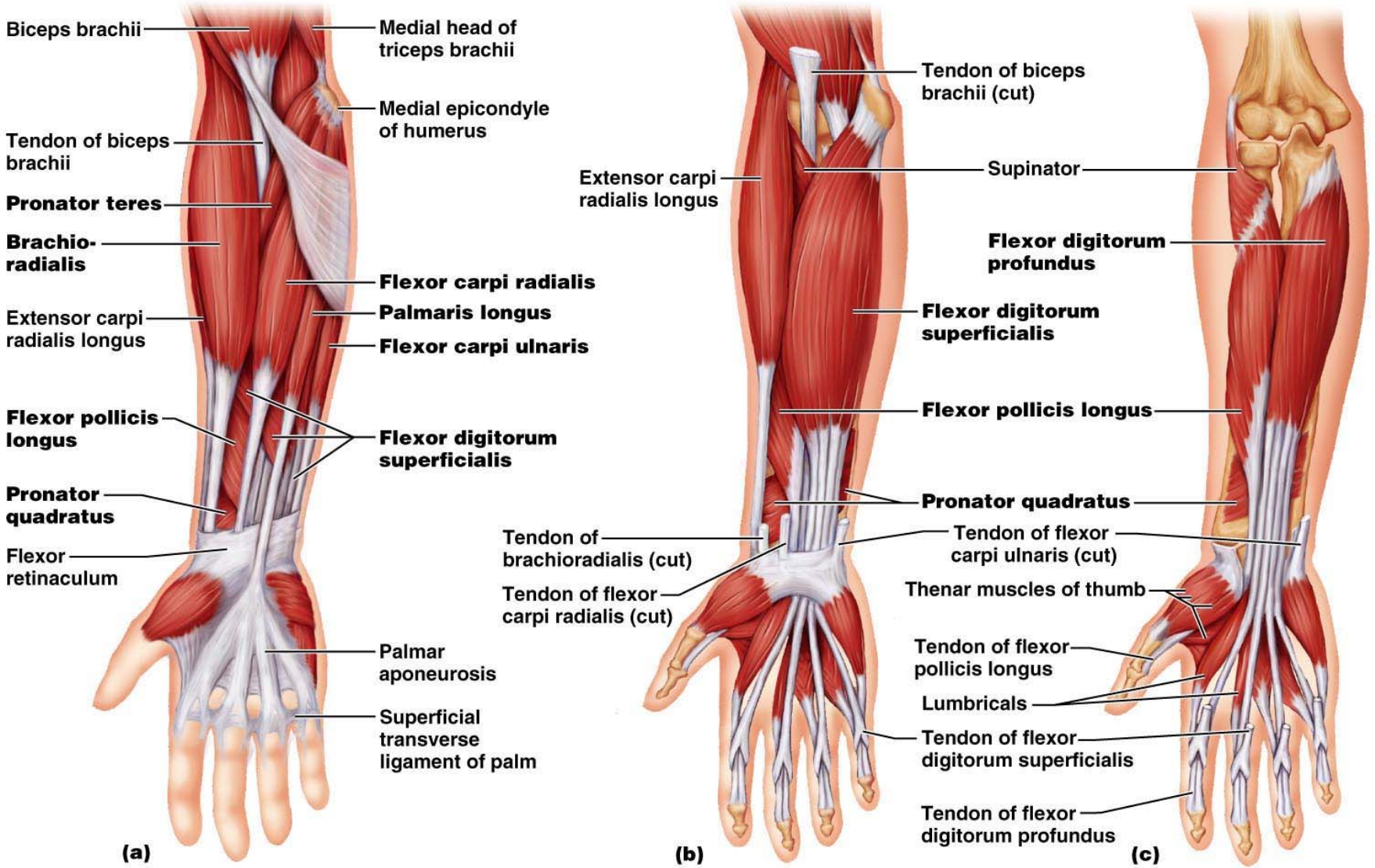
Triceps brachii

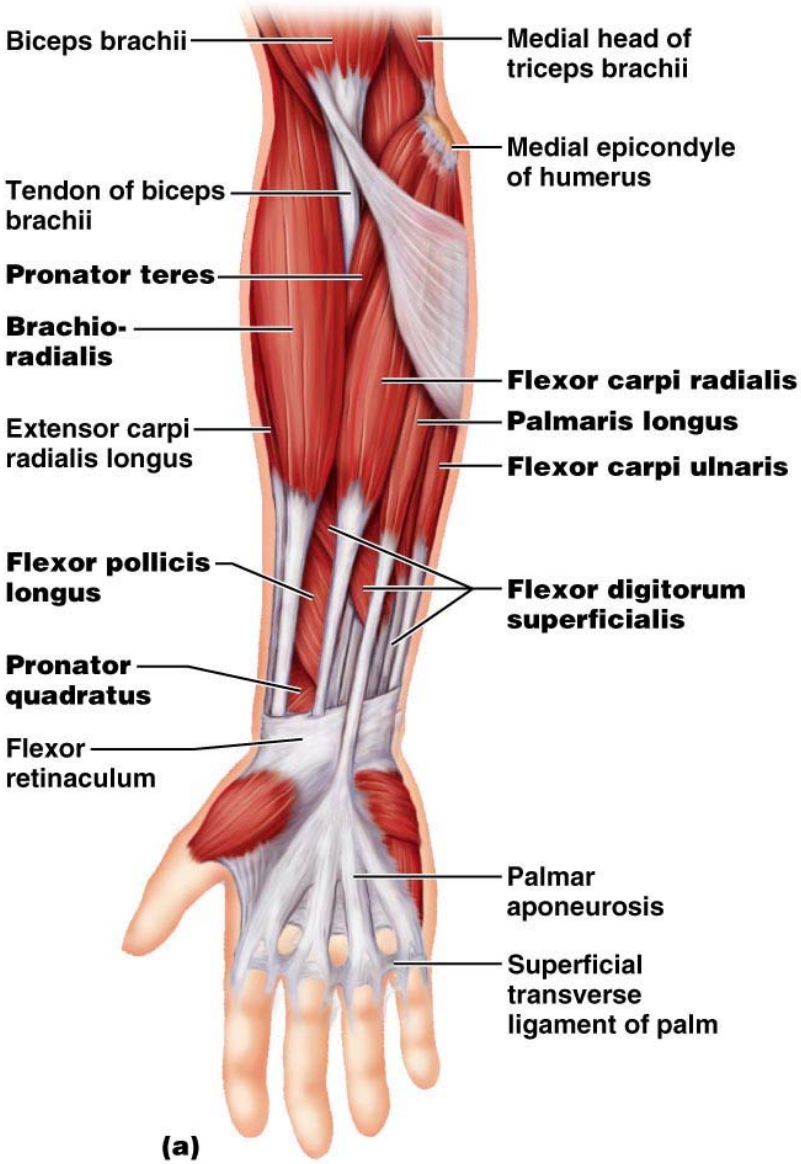


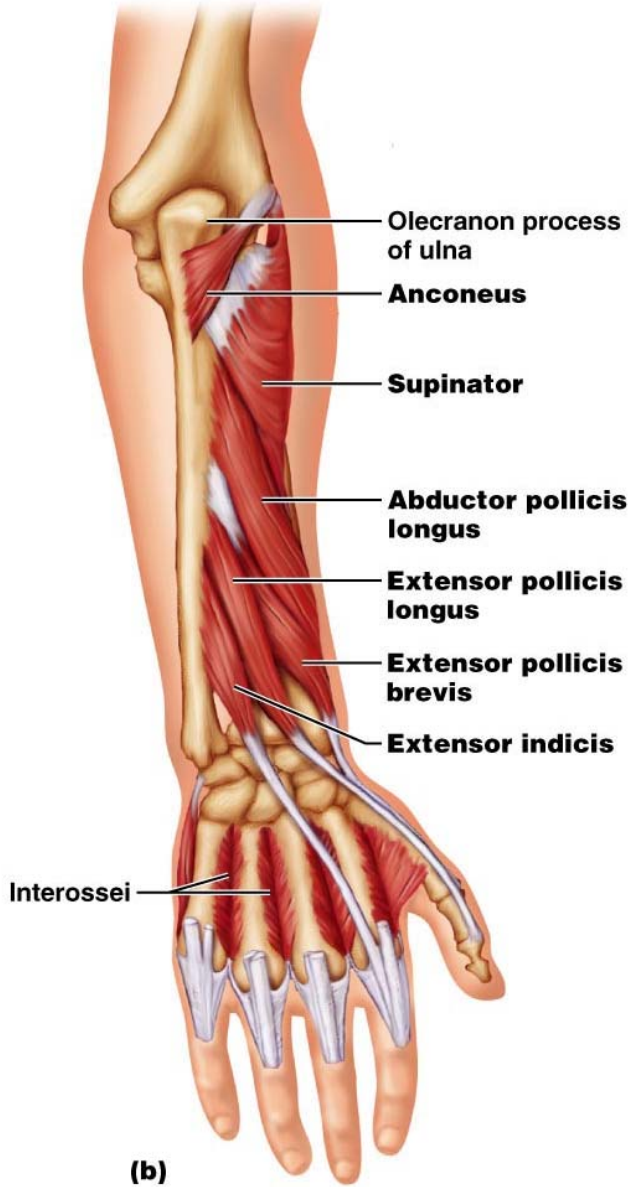
Supinator/ Pronator teres

- **Supinator**. The primary action of this muscle is to supinate the forearm.

- **Pronator teres**. The primary action of this muscle is to pronate the forearm.






Olecranon process of ulna
Anconeus
Supinator
Abductor pollicis longus
Extensor pollicis longus
Extensor pollicis brevis
Extensor indicis
Interossei
(b)

- http://www.exrx.net/Articulations/Scapula.html#anchor71475