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College of Health Science
Department of ANS
Second year students



Human Anatomy

Week Four

Myology

5 -10-2024

Myology

Myology deals with the muscles and their accessory structures.

The muscles (Musculi) are highly specialized organs, which are characterized by their property of contracting in a definite manner when stimulated.

They are the active organs of motion.

The contractile part of the muscle is the muscular tissue which contain contractile protein filaments called actin and myosin.

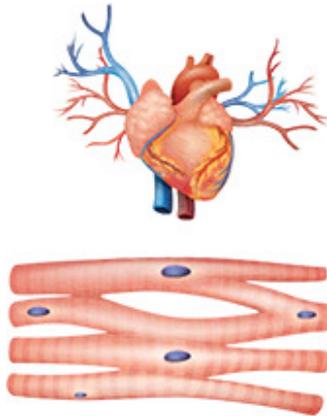
Three (3) Types of Muscle Tissues

- **Skeletal Muscle**

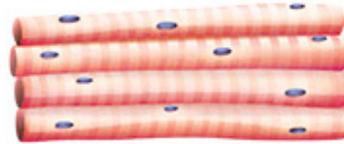
- Usually attached to bones
- Under conscious control
- Somatic
- Striated

- **Cardiac Muscle**

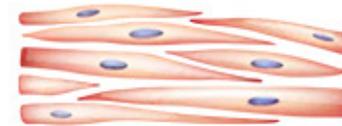
- Wall of heart
- Not under conscious control
- Autonomic
- Striated



Cardiac muscle



Skeletal muscle



Smooth muscle

- **Smooth Muscle**

- Walls of most viscera, blood vessels and skin
- Not under conscious control
- Autonomic
- Not striated

Structure of Skeletal Muscle

• Skeletal Muscle

- Organ of the muscular system
 - Skeletal muscle tissue
 - Nervous tissue
 - Blood
 - Connective tissues
- Fascia
- Tendons
- Aponeuroses

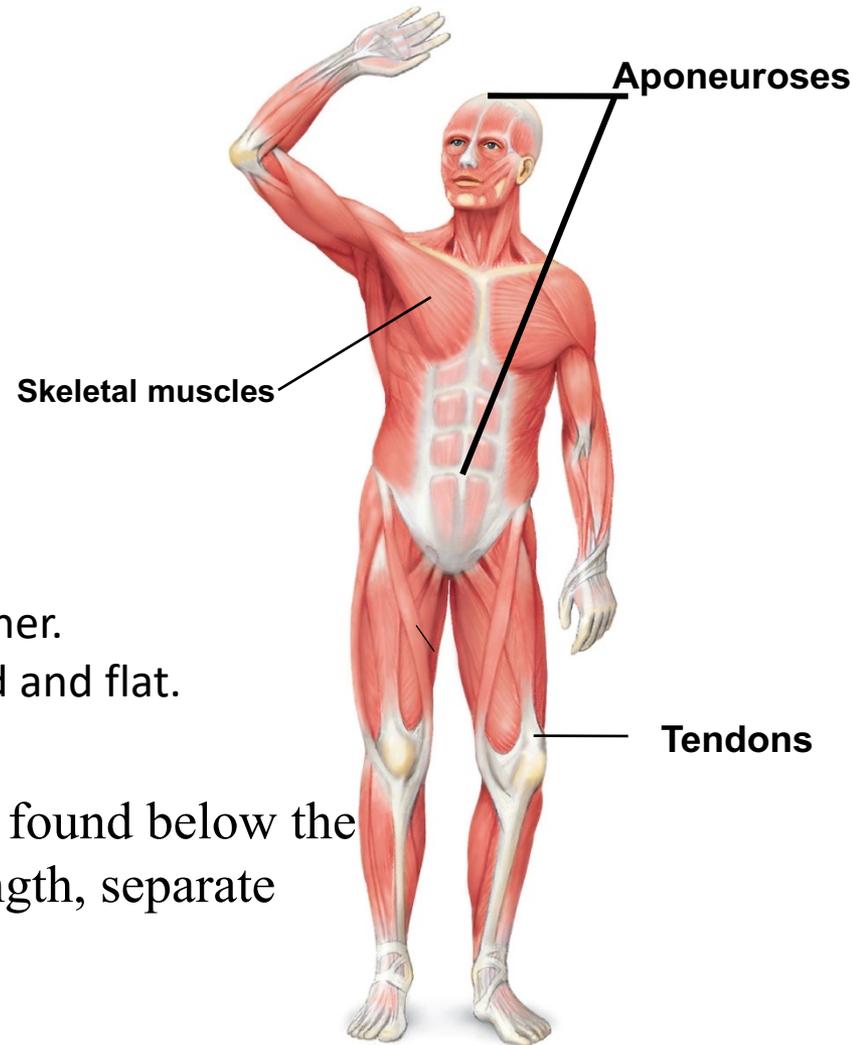
Tendons and aponeuroses are similar to each other.

Tendons are cord-like and aponeuroses are broad and flat.

Fascia

Is made up of sheets of connective tissue that is found below the skin. These tissues attach, stabilize, impart strength, separate muscles, and enclose different organs.

- **Superficial fascia**
- **Deep fascia**

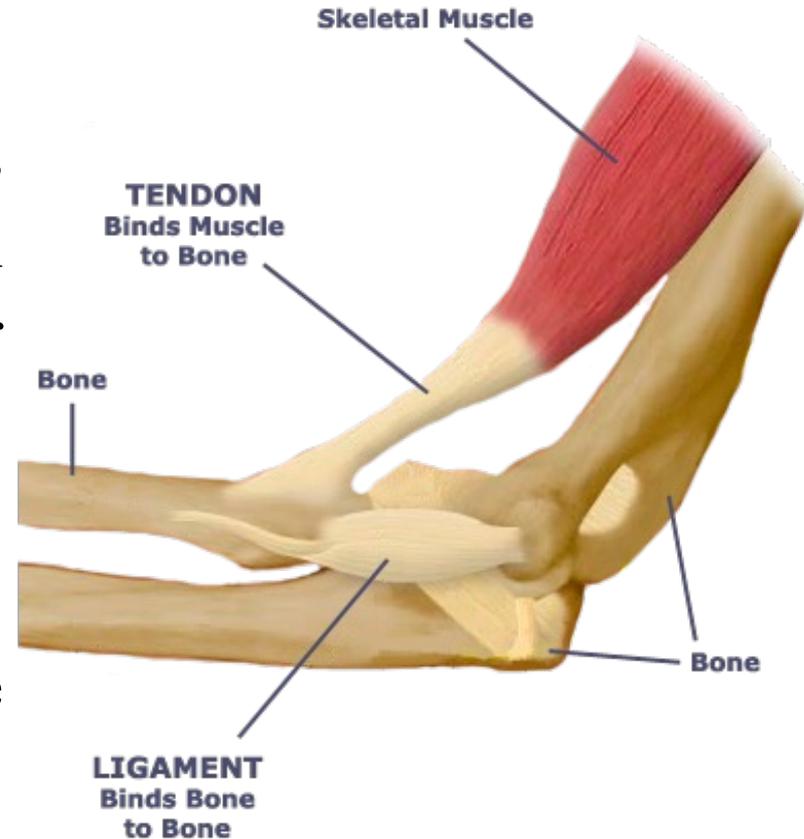


Tendon

A tendon is a fibrous connective tissue that attaches muscle to bone. Tendons may also attach muscles to structures such as the eyeball. A tendon serves to move the bone or structure.

Ligament

A ligament is a fibrous connective tissue that attaches bone to bone, and usually serves to hold structures together and keep them stable.

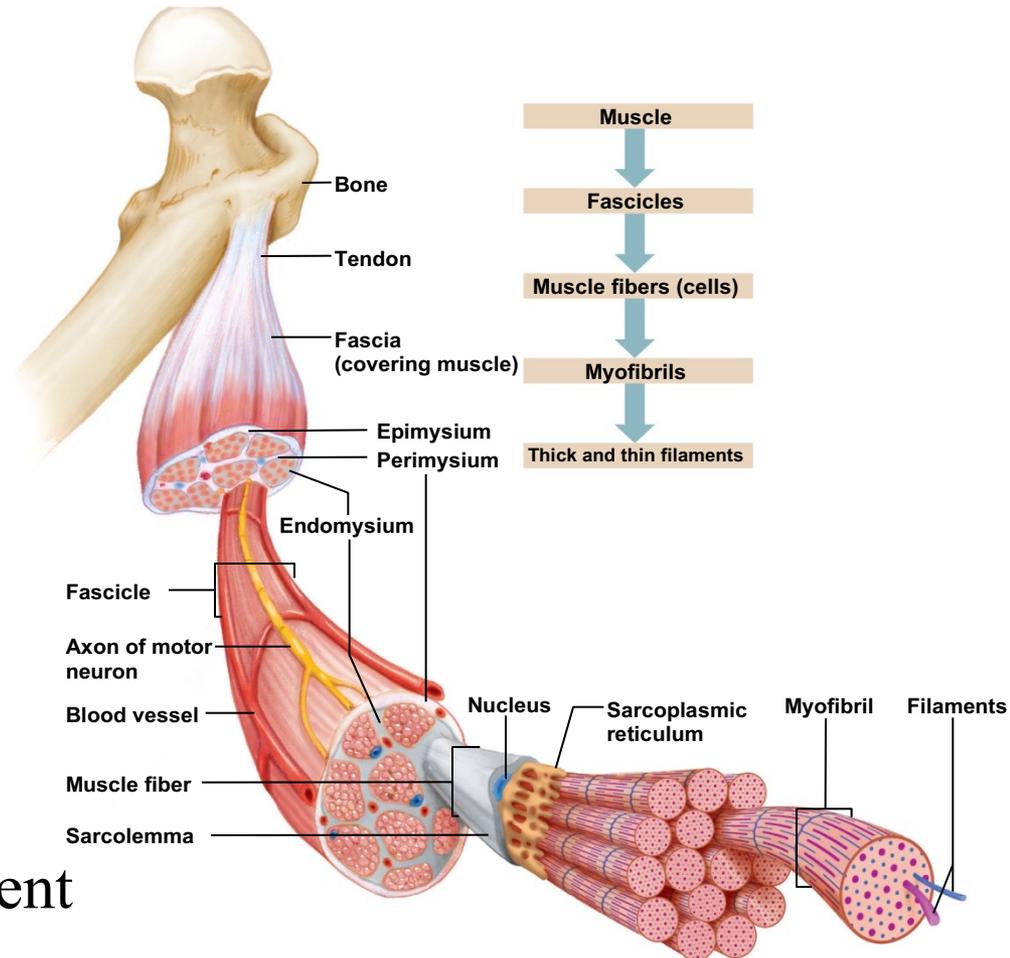


Connective Tissue Coverings

- Muscle coverings:

- Epimysium
- Perimysium
- Endomysium

- Muscle organ
- Fascicles
- Muscle cells or fibers
- Myofibrils
- Thick and thin myofilaments
 - Actin and myosin proteins
 - Titin is an elastic myofilament



Different form of the internal strcutres of the skeletal muscles

- 1- Rhomboid
- 2- Quadrilateral
- 3- Strap
- 4- Straps with tendinous intersections
- 5- Fusiform
- 6- Two bellies
- 7- Two heads
- 8- Triangular
- 9- Unipennate
- 10- Bipennate
- 11- Multipennate

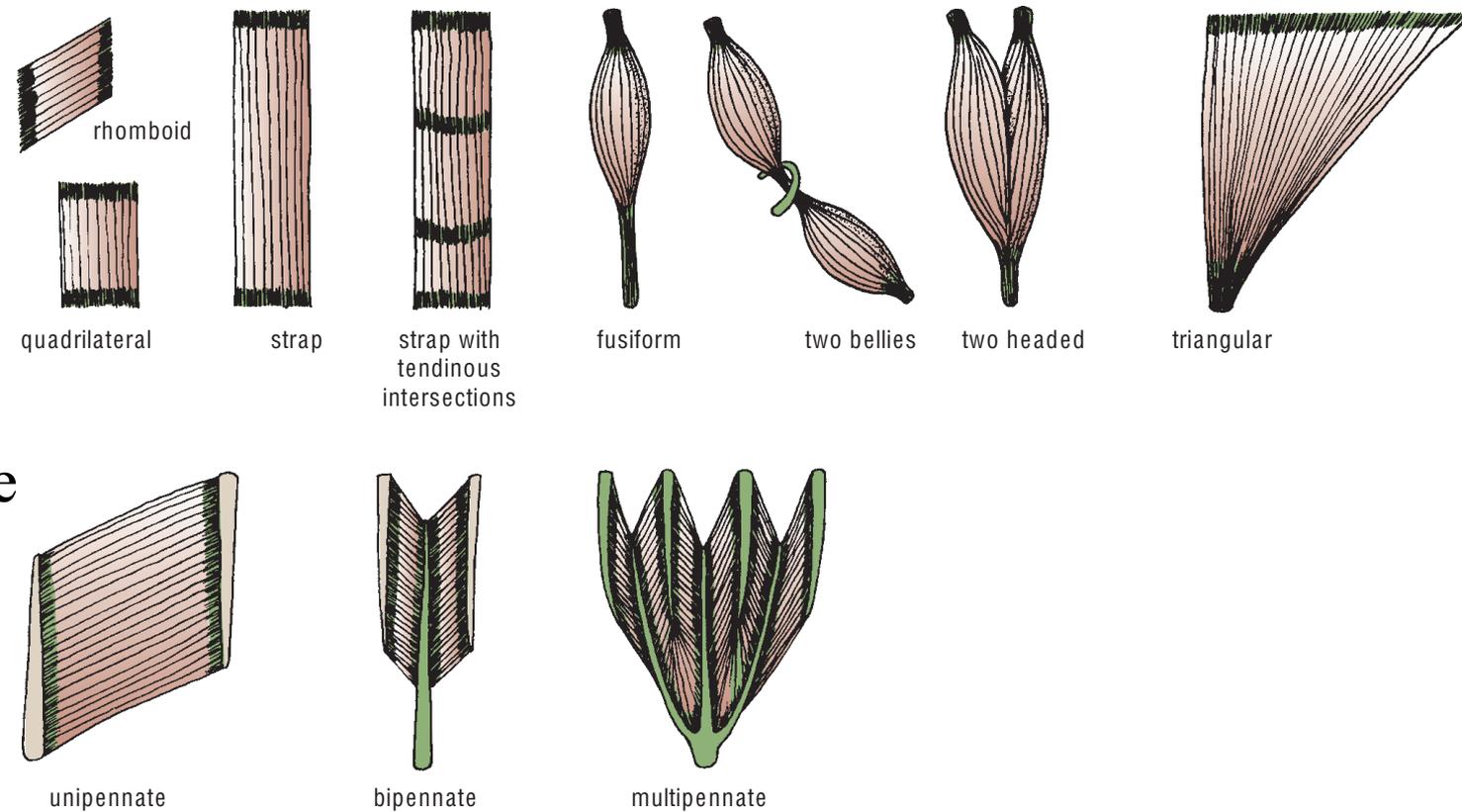


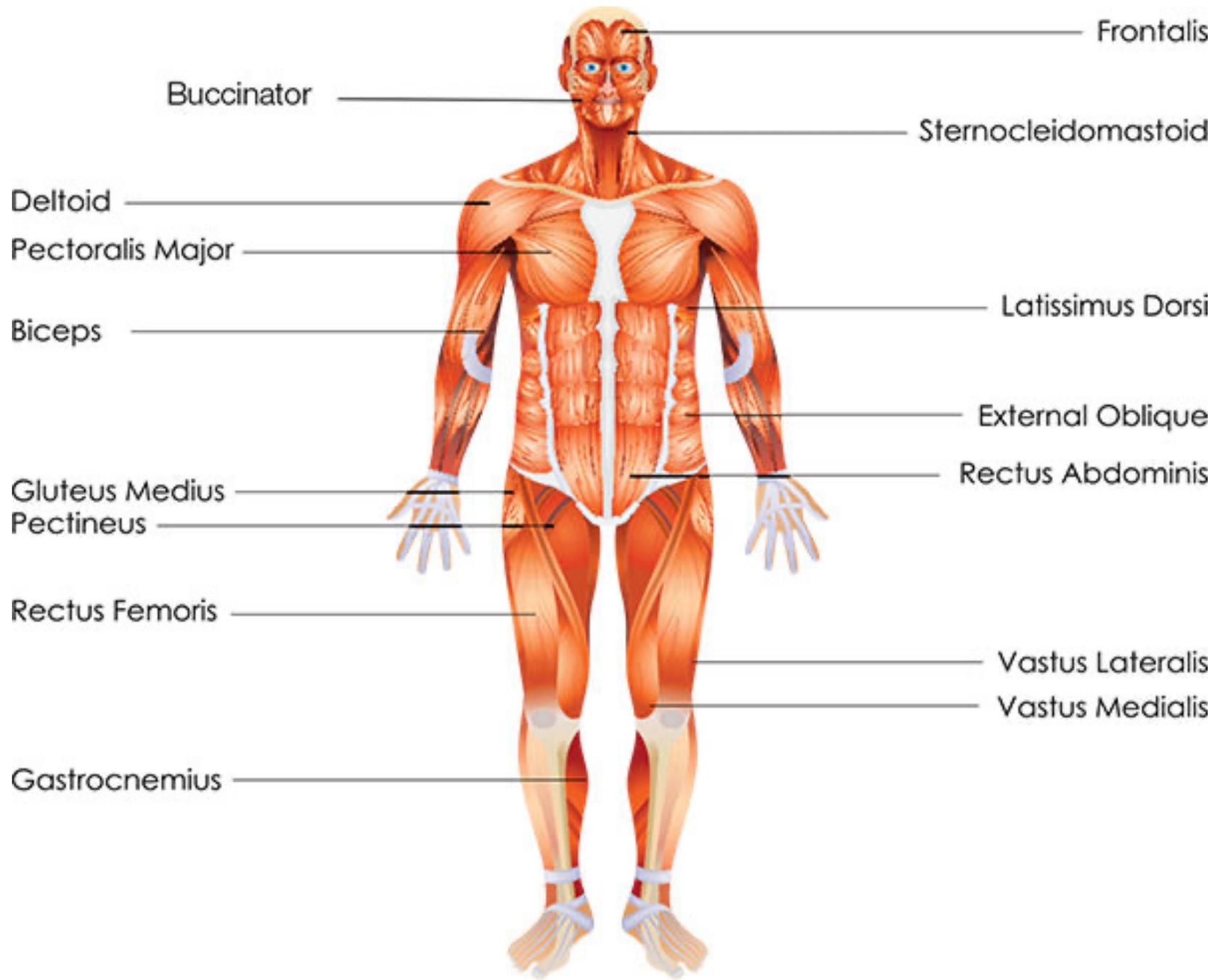
FIGURE 1.10 Different forms of the internal structure of skeletal muscle. A relaxed and a contracted muscle are also shown; note how the muscle fibers, on contraction, shorten by one third to one half of their resting length. Note also how the muscle swells.

Skeletal muscles are named according to their physical attributes (**shape, size, length, etc.**), their location, or their function. For example:

SHAPE	deltoid M. (DELTA = D , Greek letter D) biceps M. (BICEPS = two-head, BI = two CEPS = head)
SIZE	adductor magnus M. (MAGNUS = great, large)
LENGTH	adductor longus M. (LONGUS = long)
LOCATION	biceps brachii M. (BRACHII = of the arm) biceps femoris M. (FEMORIS = of the thigh)
FUNCTION	rotatores Mm. (ROTATORES = rotators) (They turn/rotate the vertebral column.)

The description of the muscles may be arranged under the following heads:

- (1) Name;
- (2) Shape and position;
- (3) Attachments;
- (4) Action;
- (5) Structure;
- (6) Relations;
- (7) Blood and nerve supply.



Frontalis

Buccinator

Sternocleidomastoid

Deltoid

Pectoralis Major

Latissimus Dorsi

Biceps

External Oblique

Gluteus Medius

Rectus Abdominis

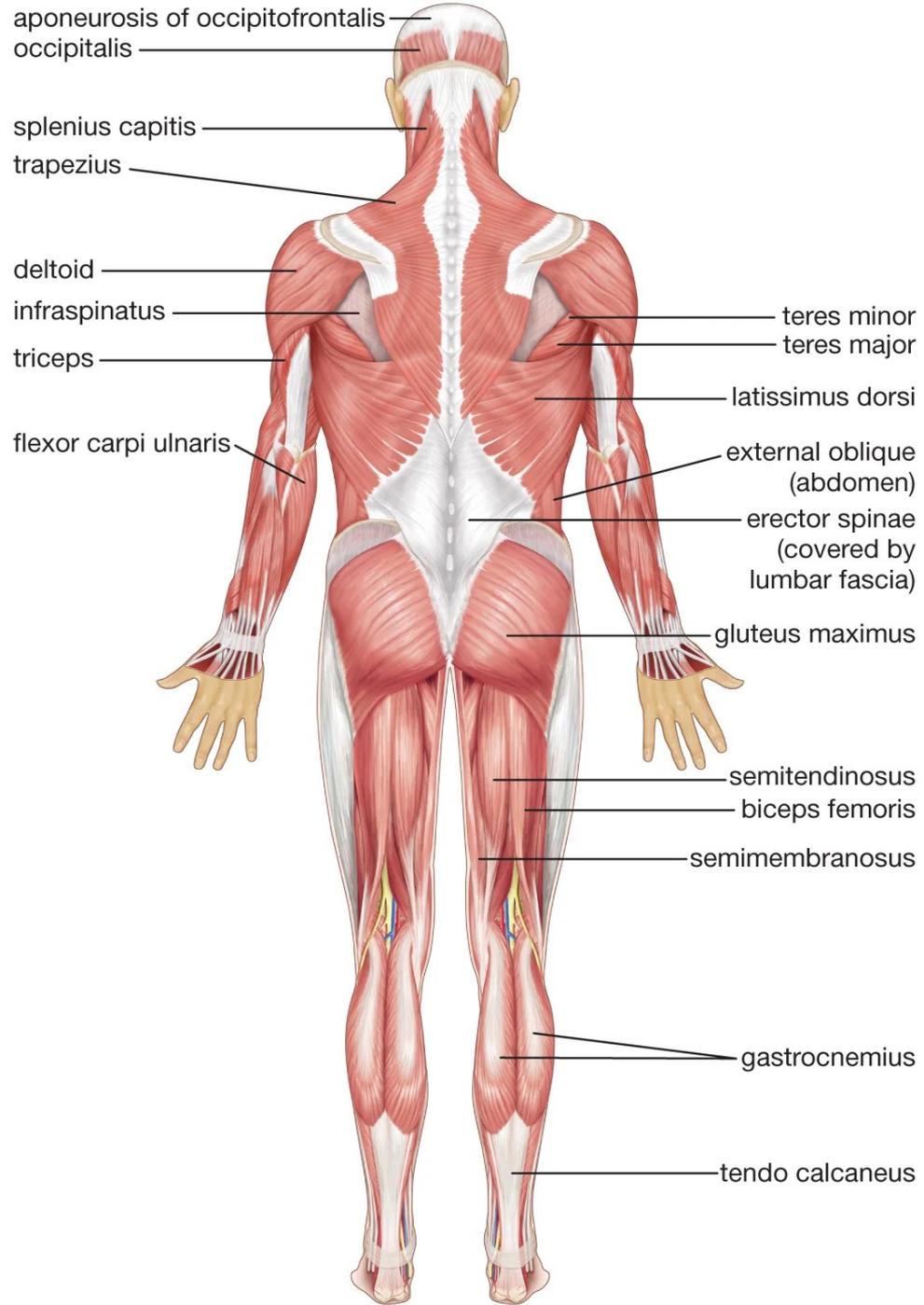
Pectineus

Rectus Femoris

Vastus Lateralis

Vastus Medialis

Gastrocnemius



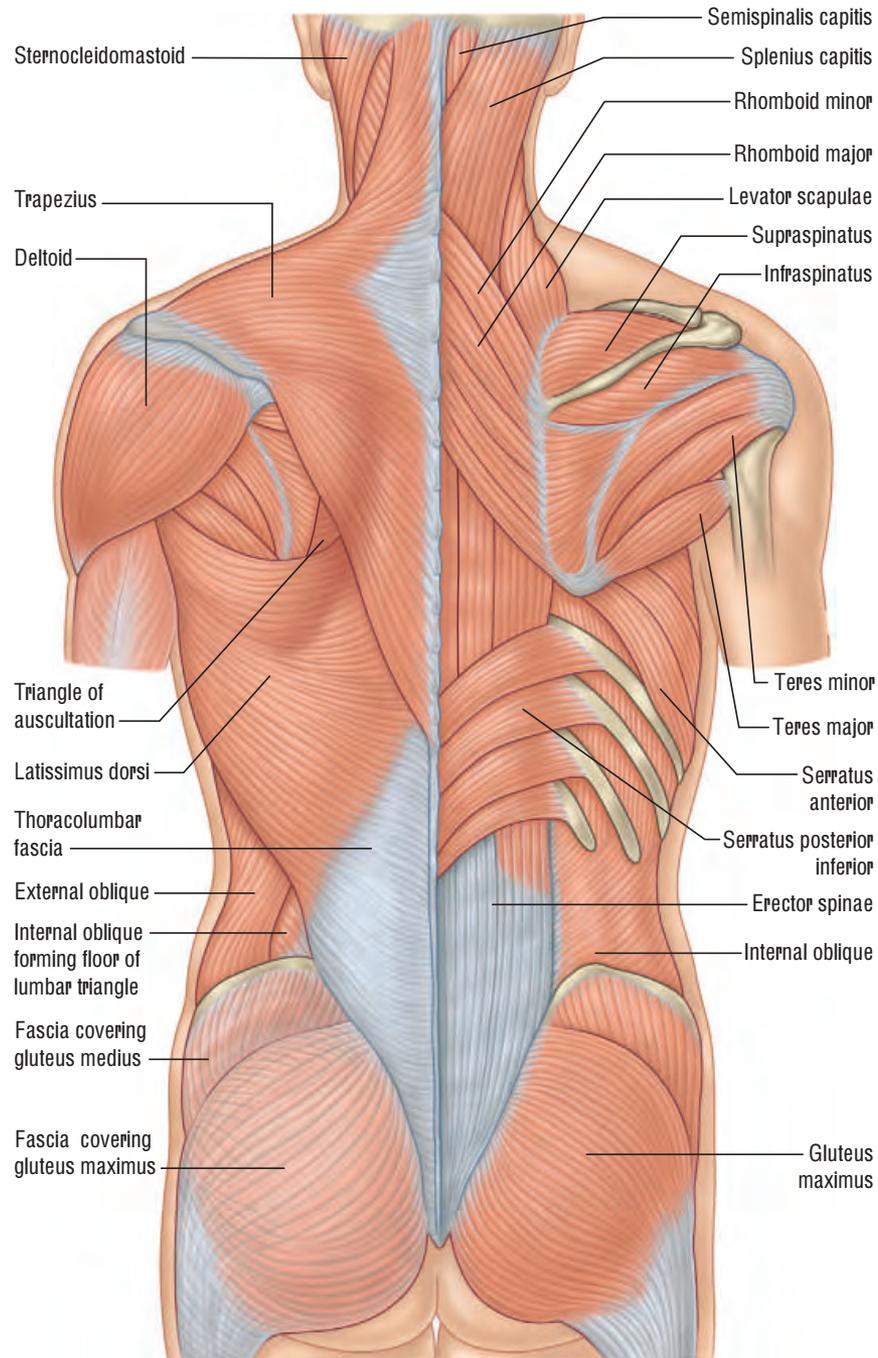


Fig. 43.69 Superficial muscles of the back of the neck and trunk. On the

Anesthesia

During general anesthesia drugs are administered to provide hypnosis, ensure analgesia, and skeletal muscle relaxation.

During the post-anesthetic period, also, there is no marked change in muscular activity

Common local anesthetics include

bupivacaine, chlorprocaine, lidocaine, procaine and tetracaine.