

the eyes. It allows you to close your eyes, squint, blink, and wink.

Orbicularis Oris The orbicularis oris is the circular muscle of the lips. Because it closes the mouth and protrudes the lips, it is often called the “kissing” muscle.

Buccinator The fleshy buccinator (bu’sī-na’tor) muscle runs horizontally across the cheek and inserts into the orbicularis oris. It flattens the cheek (as in whistling or blowing a trumpet). It is also listed as a chewing muscle because it compresses the cheek to hold the food between the teeth during chewing.

Zygomaticus The zygomaticus (zi’go-mat’i-kus) extends from the corner of the mouth to the cheekbone. It is often referred to as the “smiling” muscle because it raises the corners of the mouth upward.

Chewing Muscles

The buccinator muscle, which is a member of this group, is described with the facial muscles.

Masseter The masseter (mă-se’ter) covers the angle of the lower jaw as it runs from the zygomatic process of the temporal bone to the mandible. This muscle closes the jaw by elevating the mandible.

Temporalis The temporalis is a fan-shaped muscle overlying the temporal bone. It inserts into the mandible and acts as a synergist of the masseter in closing the jaw.

Neck Muscles

For the most part, the neck muscles, which move the head and shoulder girdle, are small and strap-like. Only two neck muscles are considered here.

Platysma The platysma is a single sheetlike muscle that covers the anterolateral neck (see Figure 6.15). It originates from the connective tissue covering of the chest muscles and inserts into the area around the mouth. Its action is to pull the corners of the mouth inferiorly, producing a downward sag of the mouth.

Sternocleidomastoid The paired sternocleidomastoid (ster’no-kli’do-mas’toid) muscles are two-headed muscles, one found on each side of the neck. Of the two heads of each muscle, one arises from the sternum and the other arises from the clavicle. The heads fuse before inserting into the mastoid process of the temporal bone. When both

sternocleidomastoid muscles contract together, they flex your neck. (It is this action of bowing the head that has led some people to call these muscles the “prayer” muscles.) If just one muscle contracts, the head is rotated toward the opposite side.

Homeostatic Imbalance

In some difficult births, one of these muscles may be injured and develop spasms. A baby injured in this way has *torticollis* (tor’ti-kol’is), or wryneck. ▲

Trunk Muscles

The trunk muscles include (1) those that move the vertebral column (most of which are posterior anti-gravity muscles); (2) anterior thorax muscles, which move the ribs, head, and arms; and (3) muscles of the abdominal wall, which help to move the vertebral column and, most importantly, form the muscular “natural girdle” of the abdominal body wall.

Anterior Muscles (Figure 6.16)

Pectoralis Major The pectoralis (pek’to-ra’lis) major is a large fan-shaped muscle covering the upper part of the chest. Its origin is from the sternum, shoulder girdle, and the first six ribs. It inserts on the proximal end of the humerus. This muscle forms the anterior wall of the axilla and acts to adduct and flex the arm.

Intercostal Muscles The intercostal muscles are deep muscles found between the ribs. (Although they are not shown in Figure 6.16, which only shows superficial muscles, they are illustrated in Figure 6.21.) The external intercostals are important in breathing because they help to raise the rib cage for breathing air in. The internal intercostals, which lie deep to the external intercostals, depress the rib cage, which helps to move air out of the lungs when you exhale forcibly.

Muscles of the Abdominal Girdle The anterior abdominal muscles (rectus abdominis, external and internal obliques, and transversus abdominis) form a natural “girdle” that reinforces the body trunk. Taken together, they resemble the structure of plywood because the fibers of each muscle or muscle pair run in a different direction. Just as plywood is exceptionally strong for its thickness, the abdominal muscles form a muscular wall that is well suited for its job of containing and protecting the abdominal contents.

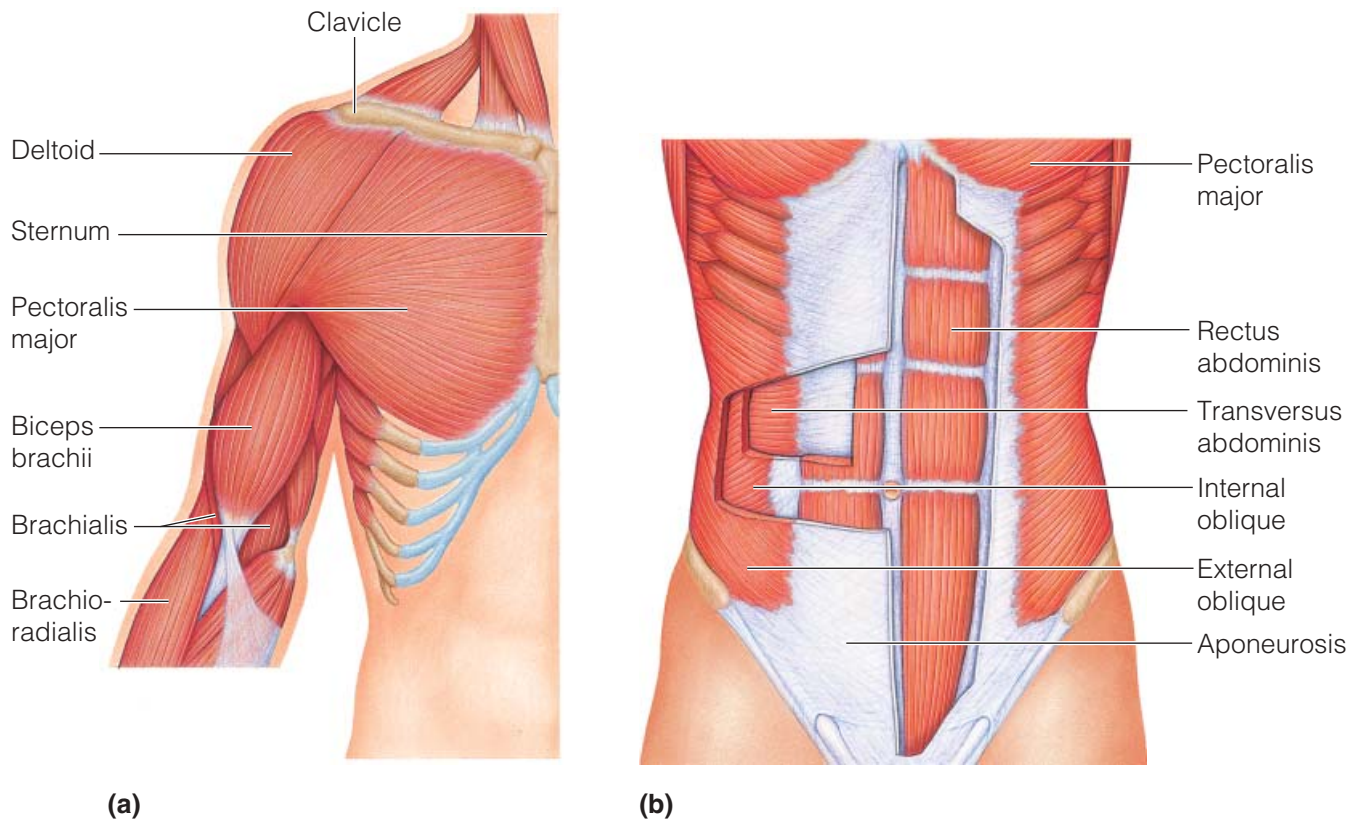


FIGURE 6.16 Muscles of the anterior trunk, shoulder, and arm.

(a) Muscles crossing the shoulder joint, causing movements of the arm. The platysma of the neck is removed. (b) Muscles of the abdominal wall. Portions of the superficial muscles of the right side of the abdomen are cut away to reveal the deeper muscles.

- **Rectus abdominis.** The paired straplike rectus abdominis muscles are the most superficial muscles of the abdomen. They run from the pubis to the rib cage, enclosed in an aponeurosis. Their main function is to flex the vertebral column. They also compress the abdominal contents during defecation and childbirth and are involved in forced breathing.
- **External oblique.** The external oblique muscles are paired superficial muscles that make up the lateral walls of the abdomen. Their fibers run downward and medially from the last eight ribs and insert into the ilium. Like the rectus abdominis, they flex the vertebral column, but they also rotate the trunk and bend it laterally.
- **Internal oblique.** The internal oblique muscles are paired muscles deep to the external obliques. Their fibers run at right angles to those of the external obliques. They arise from

the iliac crest and insert into the last three ribs. Their functions are the same as those of the external obliques.

- **Transversus abdominis.** The transversus abdominis is the deepest muscle of the abdominal wall and has fibers that run horizontally across the abdomen. It arises from the lower ribs and iliac crest and inserts into the pubis. This muscle compresses the abdominal contents.

Posterior Muscles (Figure 6.17)

Trapezius The trapezius (trah-pe'ze-us) muscles are the most superficial muscles of the posterior neck and upper trunk. When seen together, they form a diamond- or kite-shaped muscle mass. Their origin is very broad. Each muscle runs from the occipital bone of the skull down the vertebral column to the end of the thoracic vertebrae. They then flare laterally to insert on the scapular spine

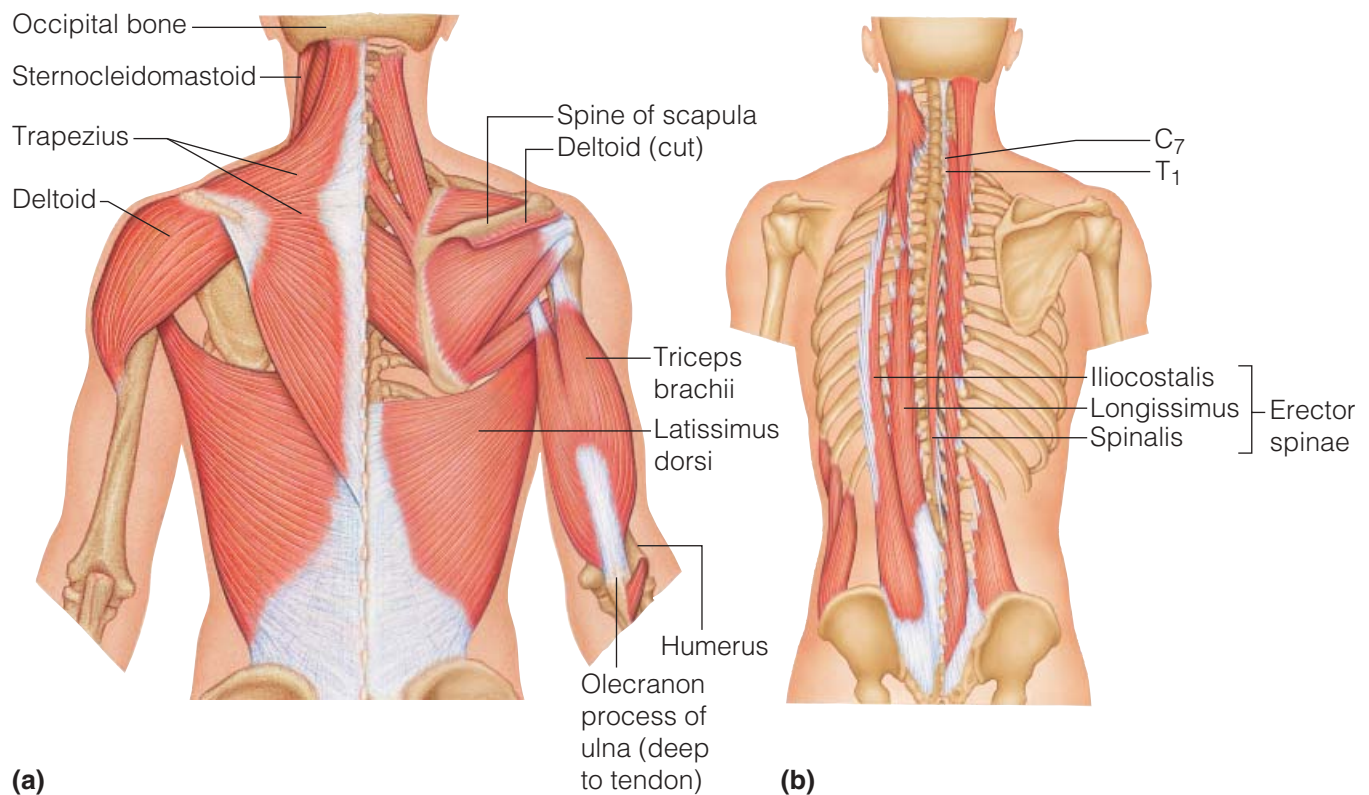


FIGURE 6.17 Muscles of the posterior neck, trunk, and arm.
(a) Superficial muscles. **(b)** The erector spinae muscles (longissimus, iliocostalis, and spinalis), deep muscles of the back.

and clavicle. The trapezius muscles extend the head (thus they are antagonists of the sternocleidomastoids). They also can elevate, depress, adduct, and stabilize the scapula.

Latissimus Dorsi The latissimus (lah-tis'ī-mus) dorsi is the large, flat muscle pair that covers the lower back. It originates on the lower spine and ilium and then sweeps superiorly to insert into the proximal end of the humerus. The latissimus dorsi extends and adducts the humerus. These are very important muscles when the arm must be brought down in a power stroke, as when swimming or striking a blow.

Erector Spinae The erector spinae (e-rek'tor spi'ne) group is a prime mover of back extension. These paired muscles are deep muscles of the back; they are shown in Figure 6.17b. Each erector spinae is a composite muscle consisting of three muscle columns (longissimus, iliocostalis, and spinalis) that collectively span the entire length of the vertebral column. These muscles not only act as powerful back extensors (“erectors”), but also provide resis-

tance that helps control the action of bending over at the waist. Following injury to back structures, these muscles go into spasms, a common source of lower back pain.

Deltoid The deltoids are fleshy, triangle-shaped muscles that form the rounded shape of your shoulders (see Figure 6.17a). Because they are so bulky, they are a favorite injection site (Figure 6.18) when relatively small amounts of medication (less than 5 ml) must be given intramuscularly (into muscle). The origin of each deltoid winds across the shoulder girdle from the spine of the scapula to the clavicle. It inserts into the proximal humerus. The deltoids are the prime movers of arm abduction.

Muscles of the Upper Limb

The upper limb muscles fall into three groups. The first group includes muscles that arise from the shoulder girdle and cross the shoulder joint to insert into the humerus (see Figures 6.16 and 6.17a). These muscles, which move the arm, have