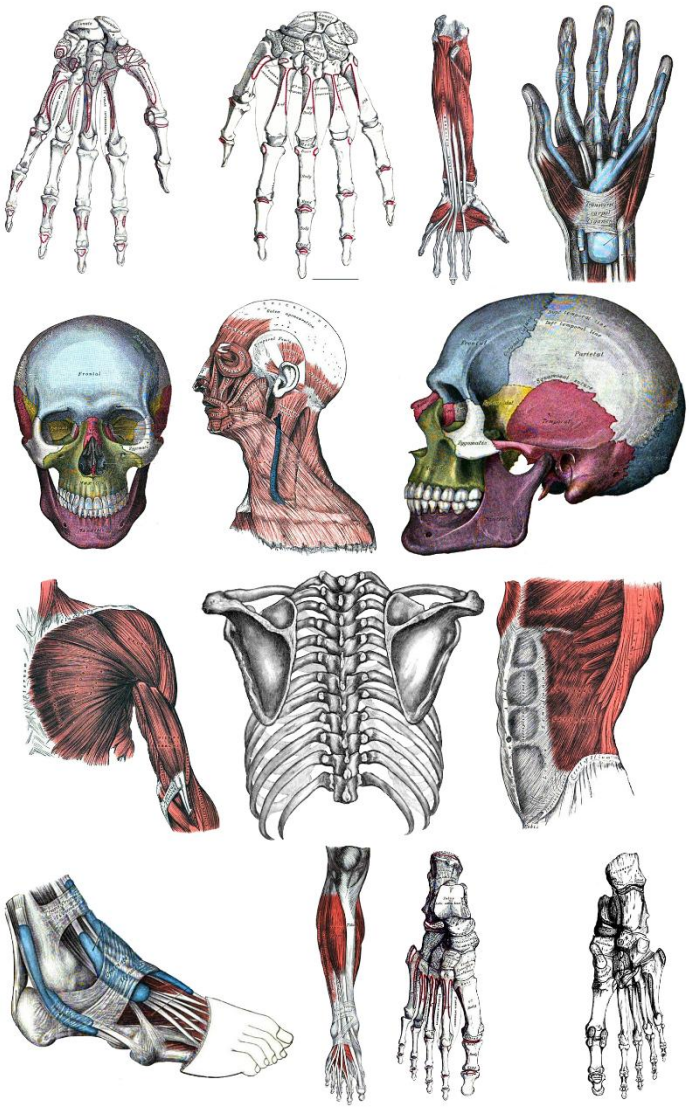
Selected Excerpts from Interactive Cadaveric Dissection Guide

Claudia R Senesac, PT, PhD, PCS
Clinical Professor
Department of Physical Therapy
College of Public Health and Health Professions
University of Florida



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Chapter 1: Superficial Back and Posterior Axilla

Procedure

This section describes dissection of the superficial back muscles and the posterior axilla. The deeper layers of the back muscles and the posterior neck will be presented in a later chapter.

Refer to Video 1.1 for overview.

Positioning

Place the cadaver prone.

Process

Step 1

Prior to beginning dissection, place a block under the upper chest of the cadaver so that the head falls into flexion. This will allow you access to the posterior neck region.

Palpate on the cadaver the following:

a. external occipital protuberance (inion)
b. mastoid process of the temporal bone
c. acromion
d. spine of the scapula
e. medial border of the scapula
f. inferior angle of the scapula
g. spinous processes of thoracic vertebrae
h. crest of the ilium

Step 2

Make a skin incision superficial to the spinous processes of the vertebrae from the external occipital protuberance (inion) to the level of the crest of the ilium (Figure 1.1a).

Continue the incision laterally along the iliac crest to the midaxillary line.

Step 3

A second incision should be made from the external occipital protuberance to the mastoid process of the temporal bone (Figure 1.1b).

Step 4

Beginning at the spinous process of the seventh cervical vertebra, make an incision to the acromion and then along the lateral border of the shoulder and arm to the

level of the deltoid tuberosity. Continue the incision medially until the axilla is encountered (Figure 1.1c).

Step 5

A fourth incision should be made from the spinous processes in the midthoracic area to the midaxillary line. This will facilitate handling of the skin flaps (Figure 1.1d).

Figure 1.1

Skin incision lines on back.

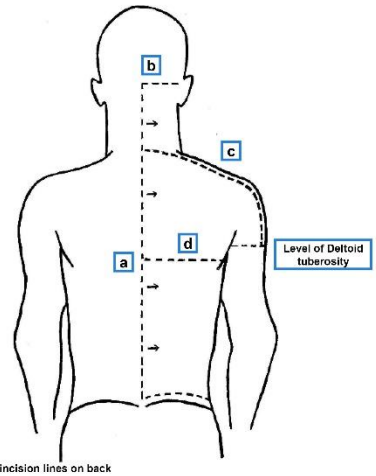

Figure 1.1 Skin incision lines on back

Step 6

Using hemostat forceps, lift a corner at a site where two of these incision lines meet. Pull the skin so that it is taught. With a scalpel held at an angle slowly work through the superficial fascia until muscle fibers are encountered. This step will aid the student in judging the depth of dissection necessary for skin removal.

Step 7

Remove the skin from the back moving laterally to the midaxillary line. The skin on the lateral side of the trunk should be left **connected** to the skin from the ventral surface of the trunk. The entire skin flap can then be used to cover the dissected area when work is completed. This will help retain moisture.

Step 8

Remove remaining superficial fascia until the muscles can be viewed clearly. Clean fat off the muscles in the same direction as the muscle fibers travel. Preserve several cutaneous branches of dorsal rami of spinal nerves as they emerge through the superficial fascia and muscle.

Refer to Video 1.2 for identification.

Be sure to keep the thoracolumbar fascia intact; it will appear white and shiny close to the spine in the lumbar region.

Note to Dissector

Cleaning off fat dulls the blade quickly, it may be necessary to change your blade multiple times while cleaning the superficial back.

Step 9

Identify:

a. trapezius
b. latissimus dorsi
c. deltoid
d. teres major
e. thoracolumbar fascia
f. ligamentum nuchae

Step 10

Study the direction of muscle fibers of the upper, middle and lower trapezius. Review the actions accomplished by each portion of this muscle as well as the muscle acting as a whole.

Step 11

Make an incision through the trapezius from the external occipital protuberance to the level of the twelfth thoracic vertebra where this muscle attaches. The incision line should be approximately one-half inch lateral to the spinous processes of the vertebrae (Figure 1.2).

This cut allows for the trapezius to be turned back on each side of the cadaver.

Step 12

Continue to release the trapezius by cutting along its attachments on the spine of the scapula, the acromion and the clavicle (Figure 1.2).

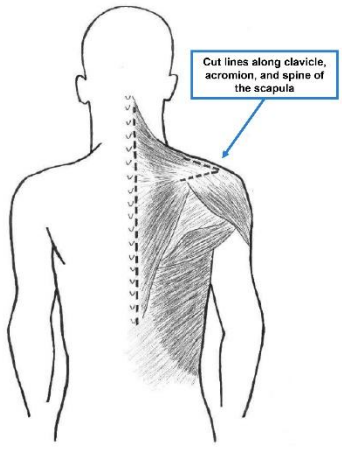

Figure 1.2 Trapezius Incisions superficial back

Step 13

Turn the trapezius toward the head to view the structures deep to this muscle. The spinal accessory nerve and transverse cervical (colli) artery enter the trapezius on its anterior border. First, locate several of the branches of this nerve and artery on the costal surface of the trapezius, and then trace these branches to the major nerve and artery as they enter the muscle using a probe.

Refer to Video 1.2 for identification.

Do not use your scalpel in this area. Once the nerve and artery have been identified, remove the veins in the area for clearer study of these structures.

Step 14

Identify rhomboid major and minor and levator scapulae.

Step 15

Study the insertion of the levator scapulae on the superior angle of the scapula and study the scapular movements accomplished when this muscle contracts.

Step 16

Study the direction of the muscle fibers of the rhomboid major and minor. Review the actions of these muscles upon the scapula by pulling gently on the muscle fibers.

Step17

Using a probe placed under the Rhomboid major and minor close to the spine release these muscles cutting on top of the probe. This will elease the rhomboid major and minor from their vertebral attachments staying close to the spinous processes Figure 1.3.

Avoid cutting the muscle deep to the rhomboids.

Figure 1.3

Rhomboid major and minor cut

Chapter 2: Pectoral Region

Procedure

This section describes dissection of the brachial plexus.

Positioning

The cadaver remains in the supine position.

Process

Step 1

A considerable amount of fascia is located in the area of the axillary sheath. Proceed cautiously with your probe removing with forceps only those tissues that are easily grasped. Open the axillary sheath and locate the brachial plexus and axillary artery and vein. Note the relationship of the brachial plexus to the axillary artery. Find where the cephalic vein enters the axillary vein.

Step 2

Identify the lateral, medial, and posterior cords of the brachial plexus.

Step 3

The axillary sheath may be removed from around the brachial plexus and axillary artery and vein. The axillary vein and its tributaries should be removed for better visualization of structures, however, preserve the cephalic vein and the area of the axillary vein where it enters.

Step 4

Find where the following arteries branch from the axillary artery:

a. thoracoacromial – (pectorials)
b. subscapular--arises at the lateral scapular border of the subscapularis
c. posterior humeral circumflex—(arises at the level of surgical neck of humerus)
d. anterior humeral circumflex--arises just opposite the posterior humeral circumflex artery on the lateral side of the axillary artery. It passes anteriorly around the surgical neck of the humerus to join branches from the posterior humeral circumflex artery. Posterior humeral circumflex is often larger than the anterior).

Figure 3.1

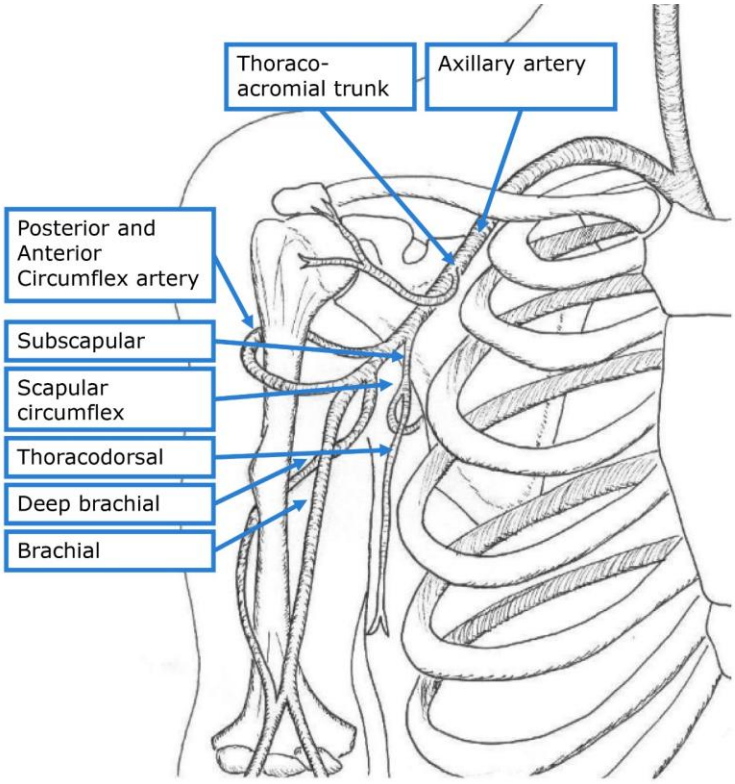

Figure 3.1 Arteries in the Pectoral Region

Step 5

To dissect the axilla, first, pull the skin in the axilla taut and release it from the underlying fascia. Be careful not to remove too much fat in this area. This will leave a large amount of fat in the axilla. Using a probe or fingers, stroke through the fat in a distal direction toward the hand gently, slowly removing small pieces. This avoids tearing of nerve fibers. Continue until the nerves of the brachial plexus and the arterial system can be viewed clearly.

Lymph nodes found in this area should also be removed at this time.

Additional nerve branches piercing the ribs and entering the axillary fat may also be encountered. These branches are ventral rami and may be removed.