

palpation of the anterior neck

The anterior neck is problematic for many massage therapists. You may avoid working this region for two reasons. First, many endangerment sites are located in the anterior neck, including the trachea, thyroid gland, brachial plexus of nerves, and carotid artery. Second, working in this region can be uncomfortable if you are not skilled and familiar with it. The contours of the

transverse processes of the vertebrae are rather sharp and having soft tissue pressed against them can be painful. Even with these concerns, however, working the anterior neck can be very beneficial for the health of your client, especially one who has suffered a whiplash injury. Therefore, learning how to work the musculature of the anterior neck can be a valuable addition

RESOURCES

For more information go to www.medlineplus.gov and search under “anterior neck.”

THE MUSCLES OF THE ANTERIOR NECK

FIGURE 1A is a superficial anterior view. The platysma is shown on the right and removed on the left.

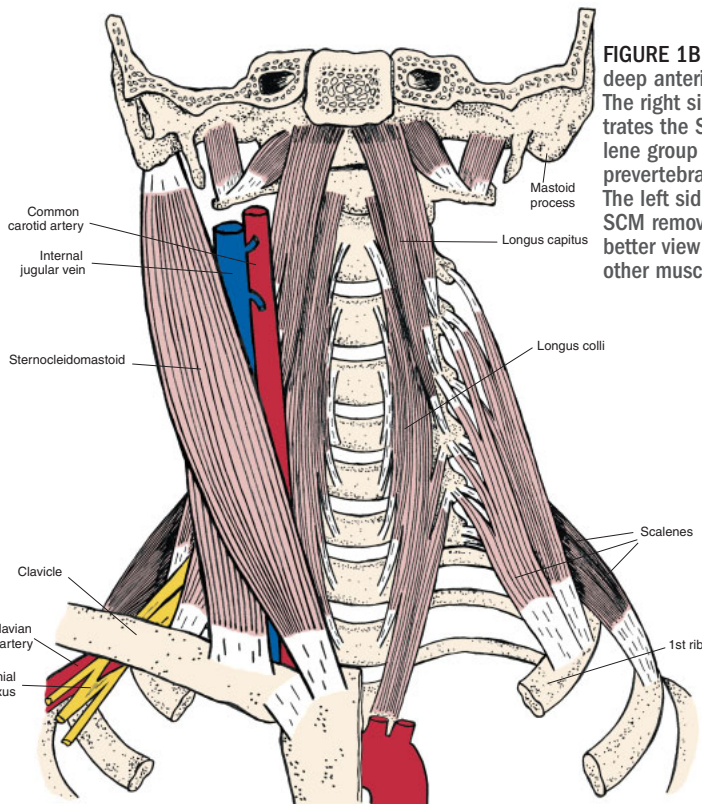
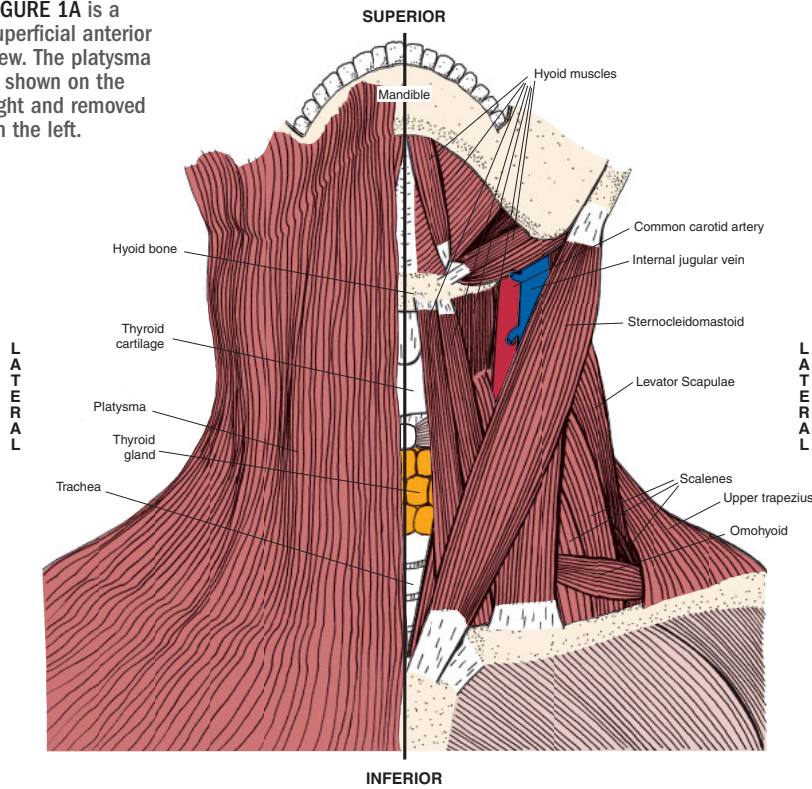


FIGURE 1B is a deep anterior view. The right side illustrates the SCM, scalene group and the prevertebral group. The left side has the SCM removed for a better view of the other muscles

to a massage therapist's practice. And the first step to learning how to safely and effectively work the anterior neck is learning how to identify, locate and palpate the muscles of this region.

The anterior neck is home to a number of important muscles, including the sternocleidomastoid (SCM), scalene group and the prevertebral group of muscles (Figures 1A and 1B).^{*} Functionally, the muscles of the anterior neck are flexors of the neck at the spinal joints. Consequently, during a typical whiplash accident when a person's head and neck are forcibly thrown back into extension, the muscles of the anterior neck are excessively stretched, triggering the muscle spindle stretch reflex. This results in tightness and spasming of the muscles of the anterior neck. Beyond local pain from the tightness of these muscles, tightness of the SCM is associated with proprioceptive disturbances of the neck, often resulting in dizziness. Tightness of the scalenes can be associated with compression upon nerves that provide innervation to the upper extremity. Finally, tightness of the prevertebral muscles can cause referral pain that is interpreted as a sore throat. Given the prevalence of whiplash injuries, and the variety and extent of signs and symptoms that can result, there can be tremendous value in working the anterior neck musculature of our clients!

The Scalene and Prevertebral Muscles

While most of you are knowledgeable and comfortable working the SCM, the scalenes and prevertebral muscles are less often addressed. We will begin by locating and palpating the SCM. The SCM will then be used as a landmark for the location and palpation of the scalene and prevertebral muscle groups.

The SCM has two heads—a sternal

^{*} The hyoid group of muscles is also located in the anterior neck. This article will not address their palpation.

Figure 1A courtesy The Muscular System Manual by Joseph Muscolino, Mosby, 2005. Figure 1B courtesy of Joseph Muscolino.

and a clavicular head. Inferiorly, the sternal head attaches onto the manubrium of the sternum, and the clavicular head attaches onto the medial clavicle. Both heads conjoin and attach superiorly onto the mastoid process of the temporal bone and superior nuchal line of the occipital bone. The SCM can be easily palpated with the client seated or supine. With the client seated, stand to the side that will be palpated. Ask the client to first rotate the head and neck at the spinal joints to the opposite side (contralateral rotation) and slightly laterally flex the head and neck to the same side (ipsilateral lateral flexion) (Figure 2A). Now resist the client from further lateral flexion (Figure 2B) and the two heads of the SCM will be visible and palpable. It is important to make sure that the client maintains the contralateral rotation; this is especially so for the sternal head because this head is more active in creating the rotation component of the SCM's actions. If the clavicular head is not readily palpable, ask the client to increase the force of resistance of ipsilateral lateral flexion because the clavicular head is more active in creating the lateral flexion component of the SCM's actions.

After palpating the entire length of both heads of the SCM* with the muscle contracted, palpate the SCM again while it is relaxed so that its resting baseline tone can be assessed. When palpating the SCM, be careful not to place excessive pressure upon the carotid artery because this will stimulate a neurologic reflex that can lower blood pressure; you can tell if you are pressing upon the carotid artery by feeling for a pulse under your fingertips.

Supine palpation of the SCM is also straightforward. The client is supine while you are seated at the head of the table. First ask the client to contralater-

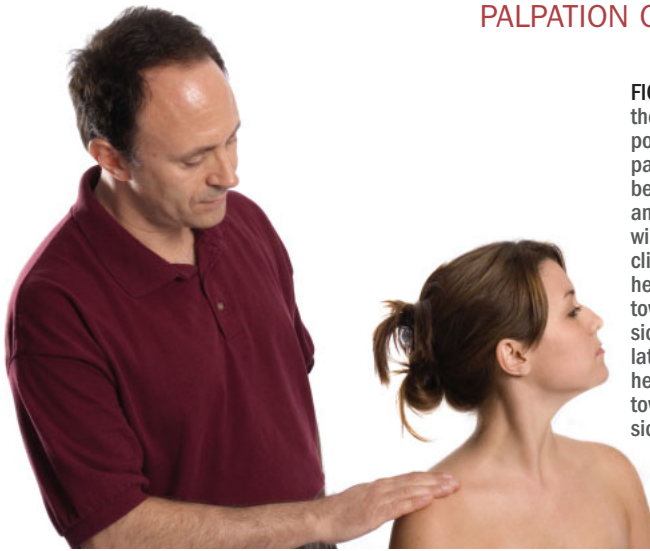


FIGURE 2A shows the beginning position for seated palpation. Stand behind the client and to the side that will be palpated; the client rotates the head and neck toward the opposite side and slightly laterally flexes the head and neck toward the same side.



FIGURE 2B illustrates the therapist offering resistance to further lateral flexion of the head and neck toward the same side; this requires the SCM to contract, making it more palpable.

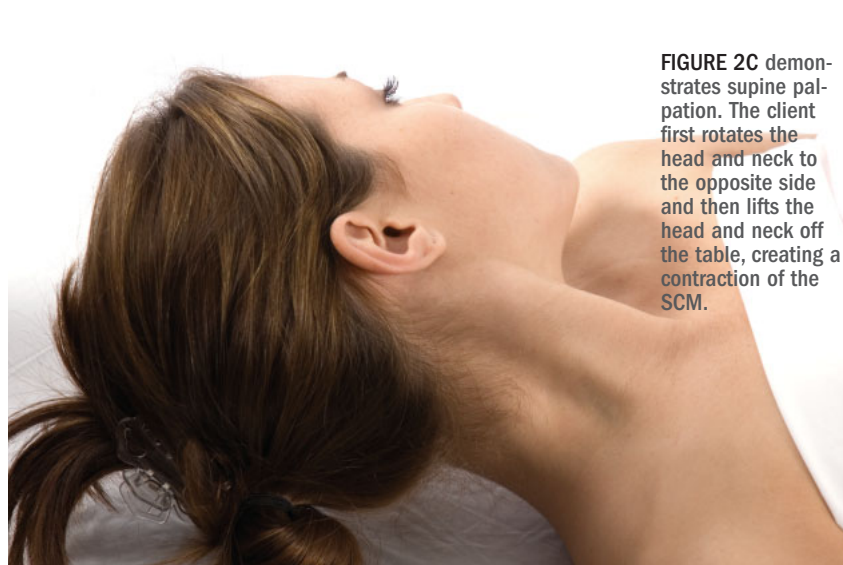


FIGURE 2C demonstrates supine palpation. The client first rotates the head and neck to the opposite side and then lifts the head and neck off the table, creating a contraction of the SCM.

* The clavicular head of the SCM is often not as visible as the sternal head and should be carefully palpated. Further, there is a great deal of variability regarding the relationship between the sternal and clavicular heads; often there is a gap between them, at times there is not.

SEATED PALPATION OF THE SCALENE GROUP OF MUSCLES

ally rotate the head and neck fully to one side; then ask the client to lift the head and neck up off the table. The SCM will be visible and palpable (Figure 2C).

Now that the SCM has been located, its lateral border can be used as a landmark for palpation of the scalene group. The scalene group of muscles is composed of three muscles—the anterior, middle and posterior scalenes. (Their names reflect their positions relative to each other.) As a group, the scalenes attach inferiorly to the first and second ribs; superiorly they attach to the transverse processes of the second through seventh cervical vertebrae.

To palpate the scalenes with the client seated, stand behind the client and locate the lateral border of the SCM (be sure that you have the lateral border of the clavicular head) (Figure 3A). From there, move your palpating fingers slightly laterally off the SCM—you will be over the scalenes. Now ask the client to take in a short quick breath through the nose and feel for the contraction of the scalenes (Figure 3B). Taking in a breath requires elevation of the ribs, which is an action of the scalene group.

Once located, palpate the scalenes while they are contracted, and then while they are relaxed so that you can assess their baseline tone. Be sure to explore the entire breadth of the scalenes within the anterior aspect of the posterior triangle of the neck (Figures 4A, 4B). The posterior triangle of the neck is the region of the neck bounded anteriorly by the SCM, posteriorly by the upper trapezius and inferiorly by the clavicle. Superficial within the posterior triangle are the scalenes, levator scapulae, splenius capitis and the inferior belly of the omohyoid. (These muscles are all deep to the platysma, which is very thin and does not impede palpa-

tion of the muscles that are deep to it.)

When palpating the scalenes, be careful not to exert excessive pressure upon the brachial plexus of nerves and/or the subclavian artery. These structures travel between the anterior and middle scalenes.* If you feel a pulse under your fingertips or the client reports tingling down the upper extremity, move your palpating fingers.

The prevertebral group of muscles consists of the longus colli, longus capitis, rectus capitis anterior and rectus capitis lateralis. Of these, the longus colli and longus capitis can be easily palpated; these two muscles lie along the anterolateral vertebral column from the vertebral level of T3 to the skull. To locate the longus muscles, we will again use the SCM as our landmark. This

* When the anterior and middle scalenes are excessively tight, they can impinge upon the brachial plexus of nerves and/or the subclavian artery causing symptoms anywhere within the upper extremity. This condition is called anterior scalene syndrome and is one of the three types of thoracic outlet syndrome.



FIGURE 3A. Stand behind the client and locate the lateral border of the clavicular head of the SCM.



FIGURE 3B. Move your palpating fingers just lateral to that and you will be over the scalene muscles. By asking the client to take in a short quick breath through the nose, the scalenes can be felt to contract.

THE POSTERIOR TRIANGLE OF THE NECK

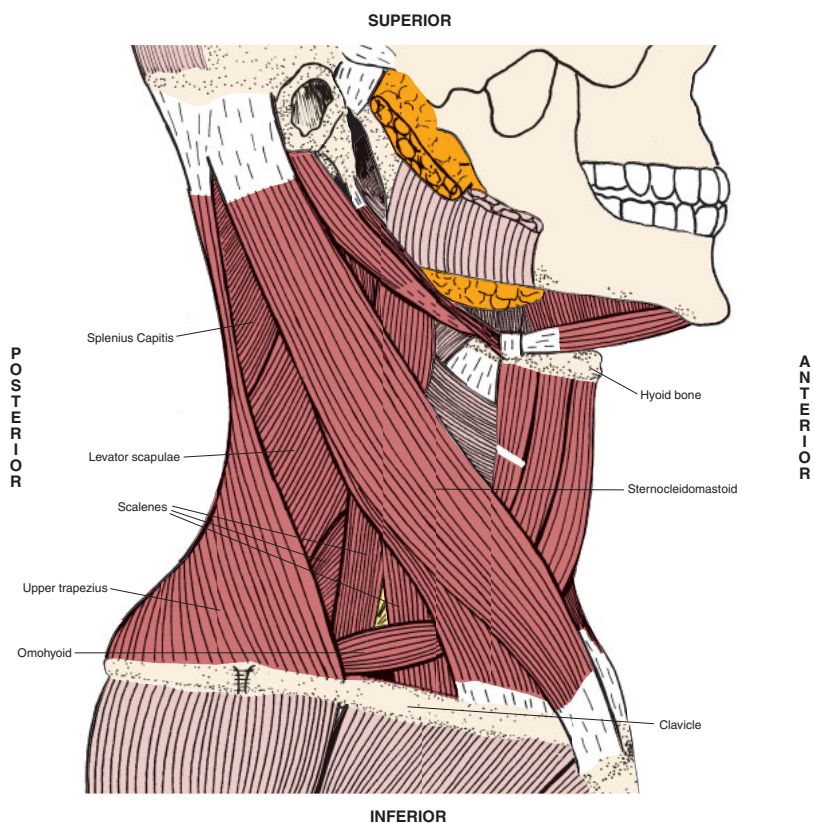


FIGURE 4A shows a lateral view of the muscles located superficially within the posterior triangle.

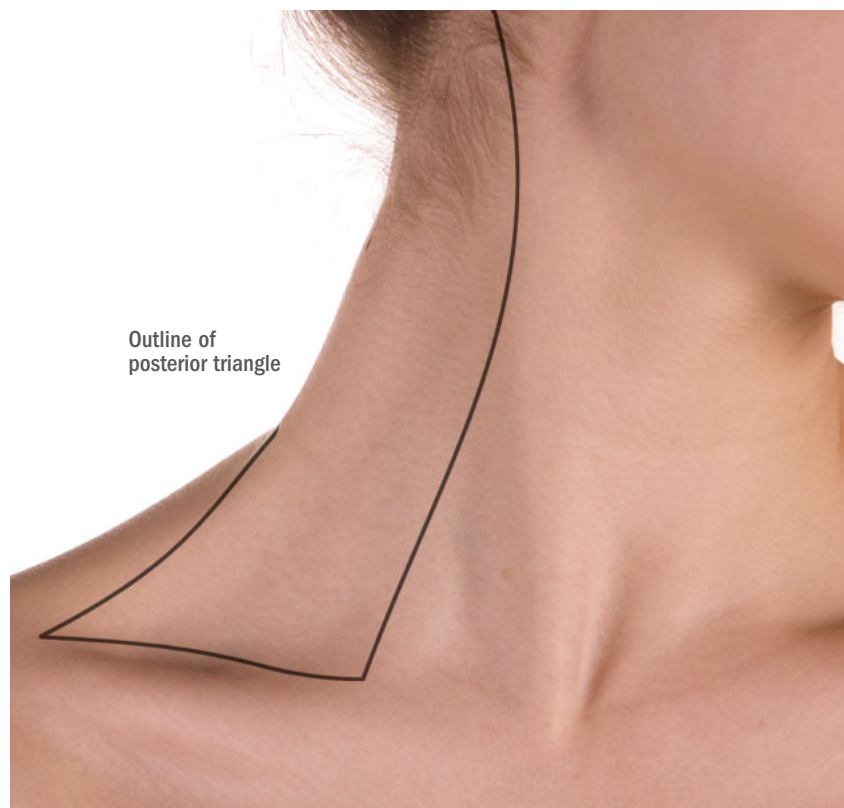


FIGURE 4B shows an anterior view of the posterior triangle with the borders drawn. Even though it is named the posterior triangle, its location in the neck is primarily anterolateral.

Figure 4A courtesy The Muscular System Manual by Joseph Muscolino, Mosby, 2005. Figure 4B courtesy of Joseph Muscolino.

SEATED PALPATION OF THE LONGUS COLLI AND LONGUS CAPITIS MUSCLES OF THE PREVERTEBRAL GROUP



To read tips on how to prevent neck pain, go to www.aapmr.org/condheat/pain/necktips.htm.

time, locate the medial border of the sternal head of the SCM. Next, palpate just medial to that. Because the longus muscles are located deep against the spine, to access them you must gently, but firmly, sink into the tissue in the posterior direction aiming toward the spinal column. It is important that this be done slowly or it will be very uncomfortable for the client. To bring out a contraction of these muscles so that they are more palpable, resist the client from flexing the head and neck against your hand. When palpating the longus muscles, be careful not to exert too much pressure against the trachea. Otherwise, it will be irritated, and the client may involuntarily cough. (See right, Figures 5A-5C for this series.)

While many therapists are hesitant to approach the muscles of the anterior neck, it usually only takes a little practice to locate and palpate them, and only a little more practice to become smooth and comfortable at it. Of course, the more proficient you become, the more comfortable these palpations are for you and the client. Once you are proficient at palpating these muscles, working them in a therapeutic manner easily follows! ■



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FIGURE 5A. Begin by locating the medial border of the sternal head of the SCM



FIGURE 5B. Then move just medial to that. Because these muscles are deep, you must sink into the tissue toward the spine, slowly, in a gentle but firm manner.



FIGURE 5C. Then ask the client to try to flex the head and neck against your resistance. This will cause the muscles to contract, making them more easily palpable.