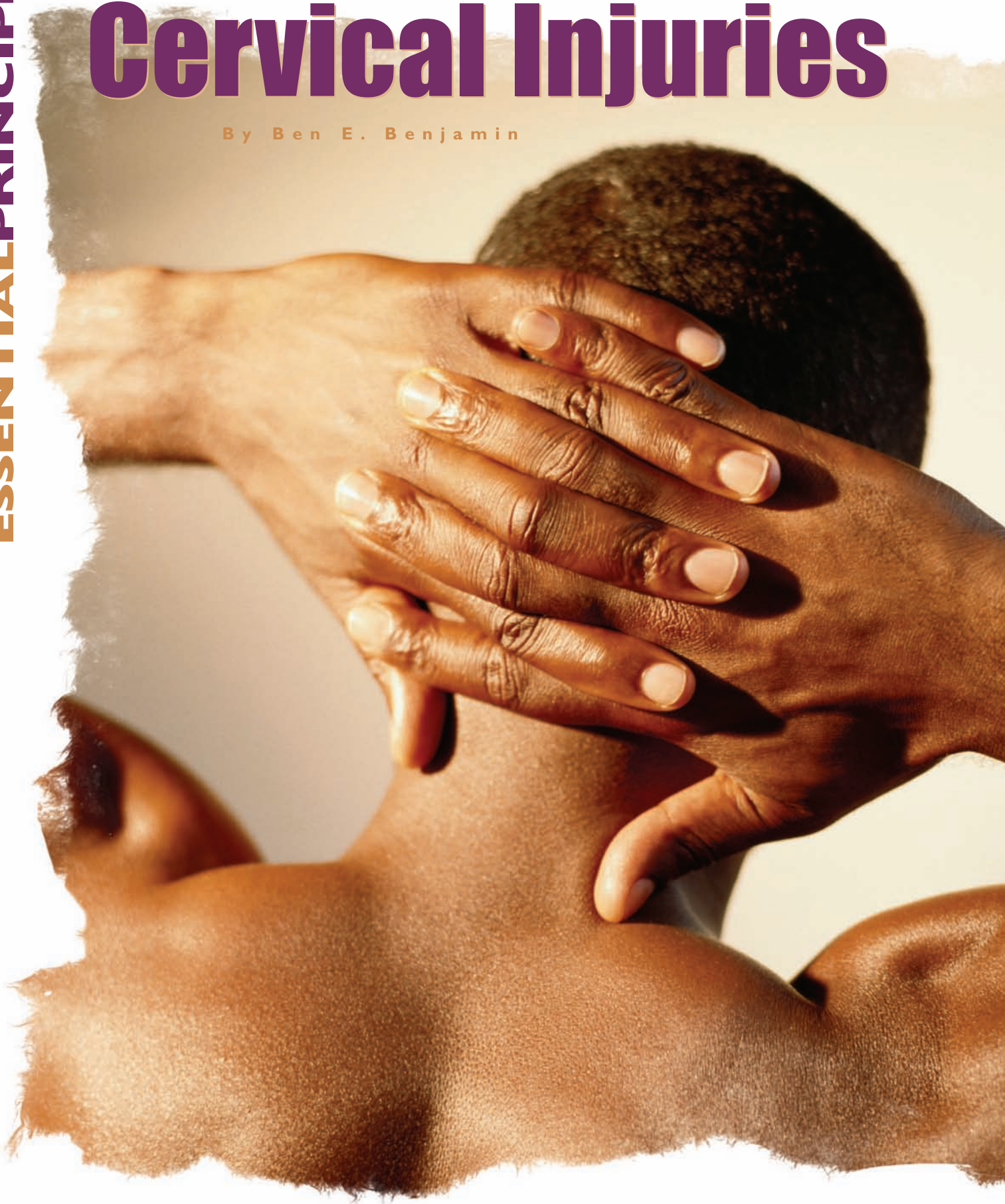
Part II

Cervical Injuries

By Ben E. Benjamin



In the last article, we took a broad look at cervical injuries, discussing the anatomy of this area, the ways injuries may occur, and the types of symptoms they cause. Here we'll discuss detailed guidelines for identifying the most common cervical injuries. You'll learn precise testing procedures that help determine exactly which structures are injured.

Injury Verification

Cervical injuries can involve a wide variety of structures, and a thorough assessment may include many different tests. For this article, I have selected the easiest and most useful tests for identifying common injuries in this region. Together with a client's symptoms, these tests usually give a good indication of which tissues are damaged. When ligaments are injured, passive tests are painful. When the origin is muscular, resisted tests are painful. When an injured disc is compressing a nerve, the passive tests are very limited in motion and painful in several directions. A disc lesion may also cause pain in the arm and/or hand, weakness of specific muscle groups, changes in the reflexes, tingling sensations, and numbness.

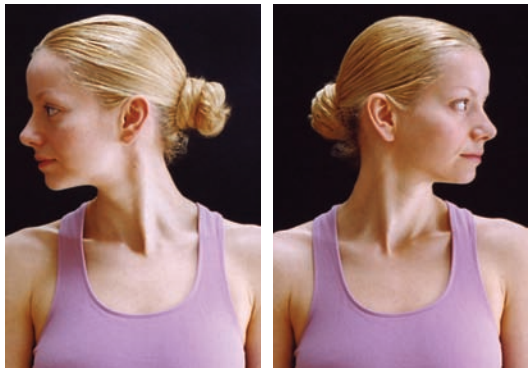
In my experience, the majority of chronic neck pain is caused by adhesive scar tissue in the ligaments. Sometimes there is a muscle injury and occasionally an injury to the intervertebral discs. This article focuses mainly on injuries to the ligaments because they are frequently misunderstood, and massage therapists can treat them very effectively after a short training period.

NOTE: Cervical pain can signal a very serious condition. A whiplash injury can completely rupture an anterior longitudinal ligament or an intervertebral disc. Severe neck pain may indicate cancer of the cervical spine or a brain tumor. And pain at the back of the neck experienced when the client looks up may be caused by direct pressure on the spinal cord. Make sure the client sees a physician before coming to you — particularly if there is severe or very long-standing pain or if there has been an accident. If you notice anything even slightly unusual, insist that the client see a doctor for evaluation. Don't take any chances.

The Assessment Tests

When testing the neck, take note of which movements cause pain and which movements have limited range of motion. Do all of the following tests while the client is standing up unless the client is much taller than you are (in which case you can have the client sit in a chair).

For these first six active tests, the client moves the neck while you watch and ask questions. Ask the client to perform the following movements, stopping each one as soon as there is any pain or discomfort:



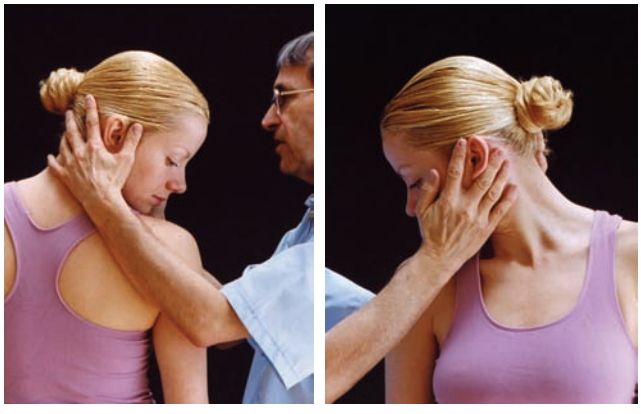
Tests 1 & 2 — Turn the head as far as possible to the right, and then to the left.

Tests 3 & 4 — Tilt the head to the right, then the left, trying to bring the ear toward the shoulder (while not raising the shoulder).

Test 5 — Drop the chin toward the chest, looking down toward the floor. If possible, touch the chin to the chest. (In addition to any pain, note whether the client's chin touched the chest.)

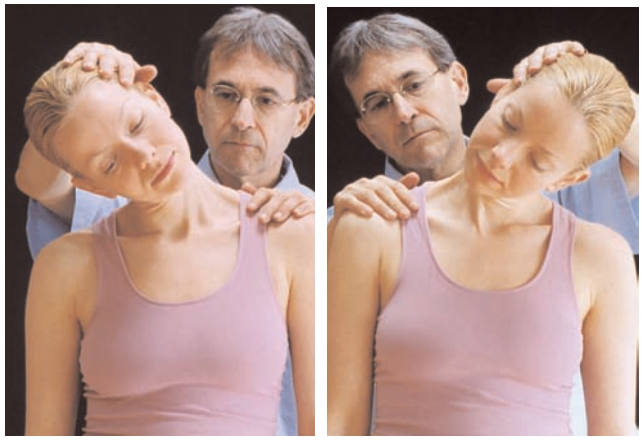
Test 6 — Look up at the ceiling, tilting the head as far back as possible without pain. A full range of motion is a 90-degree tilt, ending with the face parallel to the ceiling. (Note that many people tend to look up at the ceiling by moving only their eyes. If your client does this, ask the person to try to look up further, stopping only if there is pain or discomfort.)

The active tests will give you a general idea of the movements that cause some discomfort. As you begin the other tests, go very gently, especially with movements that the client performed gingerly.



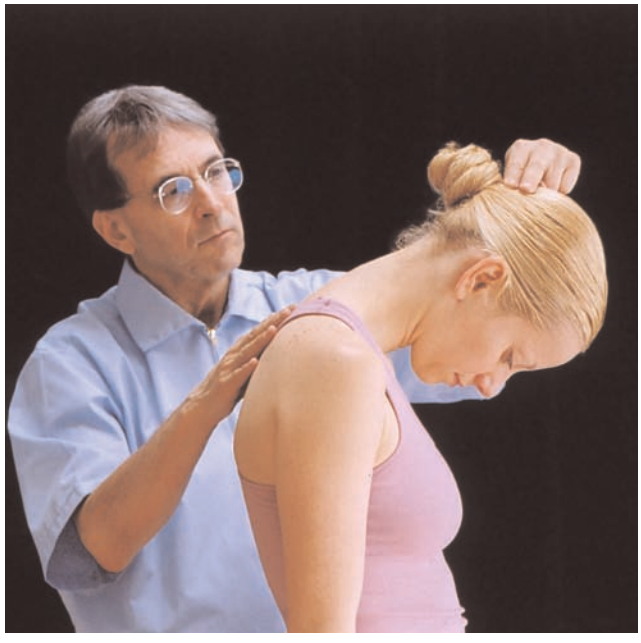
Tests 7 & 8 — Passive Rotation

Stand at the client's right side and ask the person to turn the head to the right. Place your left forearm on the left scapula to stabilize the upper body, and place your left palm on the side of the head, with your fingers around the ear but not covering it. Then place your right hand on the client's left cheek and gently rotate the neck to the end of range, taking up all the slack. Stop if there is any pain or discomfort. If there is absolutely no discomfort, give a very gentle jerk/overpressure (a slight motion, moving through less than a half-inch of space). Note any limitation of movement and the location of any pain. Now repeat the test on the other side.



Tests 9 & 10 — Passive Side Flexion

Stand behind the client and ask the person to tilt the head to the right, trying to bring the ear to the shoulder. Place your left hand on the left shoulder and your right hand on the left side of the head above the ear. Stretch to the end of range. If there is no pain, give a slight, gentle jerk. Note whether there is limitation, and note the location of any pain. Now repeat on the other side. If there is only a slight stretching sensation and it is the same on both sides, the test result is negative.

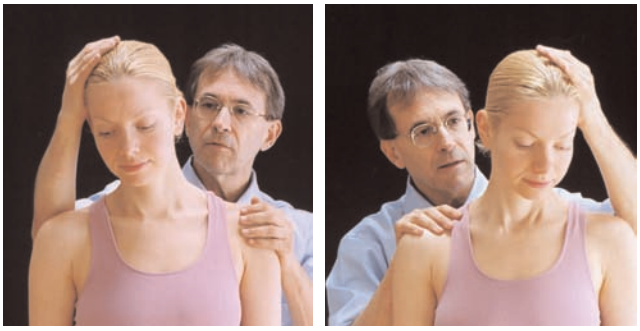


Test 11 — Passive Flexion

Ask the client to lower the chin toward the chest, with the weight of the head hanging down. If there is no pain, place your middle and index fingers on the back of the head and gently stretch it further. If there is still no pain, give a very slight jerk, using only two fingers to ensure that you do it gently. In most individuals under 40, the chin should reach the chest. →

Test 12 — Passive Extension
Ask the client to look up at the ceiling, extending the neck as far as possible without assistance. If there is no pain, place one or two fingers on the forehead and the other hand on the upper back for support. Gently press the head into further extension, and if there is still no pain, give an added gentle over-pressure. Take note of any pain or limitation.

Tests 13 & 14 — Resisted Rotation
Stand behind the client and place one hand on each side of the head at the temples. Hold your hands firmly in place and ask the client to try to turn the head forcefully to the right, while you prevent it from moving. If the person is quite strong, you may have to slide your right hand slightly forward for better leverage. Repeat the test with the client turning to the left. Note whether there is pain.



Tests 15 & 16 — Resisted Side Flexion
Place your left hand on the client's left shoulder to stabilize the upper body, and place your right hand on the right side of the head, just above the ear. Then ask the client to bring the head toward the right shoulder as you resist the movement isometrically. Repeat on the other side and note whether there is pain.

Test 17 — Resisted Flexion
Place one hand on the client's upper back for stabilization, and place your other hand on the forehead. Now ask the client to forcefully try to lower the head toward the chest. As the client presses the head down, offer resistance with your hand to make sure it doesn't move.

Test 18 — Resisted Extension
Standing at the client's side, place one hand on the upper chest and the other hand on the back of the head. Now ask the client to push the head backward into your hand as you offer resistance, preventing any movement.

In each of these tests, ask whether there is pain and where the pain is.

Interpreting the Tests

As mentioned earlier, many different structures in a person's neck can become injured. What follows are descriptions of the most common, easy-to-treat cervical injuries. The majority of these involve the supraspinous or intertransverse ligaments. I have omitted the more complicated injuries that cannot be adequately explained without face-to-face instruction and supervision. →

Essential Principle: Passive tests are used to assess passive structures, and resisted tests are used to assess structures that produce movement.

Pain felt primarily on the passive neck movements (Tests 7–12) usually indicates strained, inflamed ligaments with adhesive scar tissue. Typically, at least one rotation, in addition to either neck flexion or extension, is painful. One side flexion is often painful as well. If the injury is severe, there may be pain on all six passive tests. Except in very severe cases, ligament injuries generally do not affect the lower arm and hand. (Forearm and hand pain are common when there is a disc injury, however.)

When there is pain on the resisted tests (Tests 13–18) but not the passive tests, the injury lies in the muscles or tendons of the neck. Pain on resisted extension points to the splenius capitis, splenius cervicis, and occipitalis muscles; pain on resisted side flexion to the right or left implicates the scalene muscles on the right or left side, respectively; and pain on resisted flexion or resisted rotation usually indicates trouble in the sternocleidomastoid muscles. Long-term muscle and tendon injuries in the cervical area are very uncommon, since the muscles are highly vascularized and heal very quickly. (When I first learned this, it came as a big shock to me; for more than a decade, I had believed that muscles played a large role in neck pain.) Note that extensive weakness on resisted neck movements is an indication of serious trouble and warrants sending the client to a physician immediately.

Palpation: Pinpointing the injured tissue(s)

Once you have completed the assessment procedures and have a good sense of which structures are injured, use palpation to locate the specific sites of injury and inflammation.

Essential Principle: Palpate after testing. Note that tenderness alone without a positive finding on assessment testing is not definitive. Clients may be tender, sore, or tense in many areas of their body; this does not always mean they have an injury in those locations.

If the muscles or superficial ligaments are injured, locating the lesions is relatively easy. Injuries to ligaments that are deep within the neck, far from the reach of your fingertips, can be much more difficult to pinpoint. Fortunately, in most cases the inflammation lies in the ligaments nearest the skin surface and is therefore easy to palpate and treat.

Typically your palpation will focus mainly on ligaments. However, it's often also valuable to check the occipitals, the most commonly injured muscles in the cervical region. Micro-tears of these muscles frequently accompany cervical ligament injuries and often contribute to headaches at the posterior aspect of the head. When you're palpating the cervical ligaments, perform small friction strokes at the occipital muscle attachments. If they're painful, treat them with friction therapy and massage. (We'll discuss effective treatments in greater detail in the next article.)

Where you start palpating will depend on the location of the client's pain. If the pain is felt mainly at the back of the neck, first check the supraspinous ligaments (Figure 1). Draw your fingertip across the ligaments, from one side of the spinous process to the other. If pain is felt on one or both sides of the neck, check the intertransverse ligaments, which attach to the transverse processes (Figure 2). If pain is felt at the medial border of the scapula, palpate the intertransverse ligaments at C7 and C6.

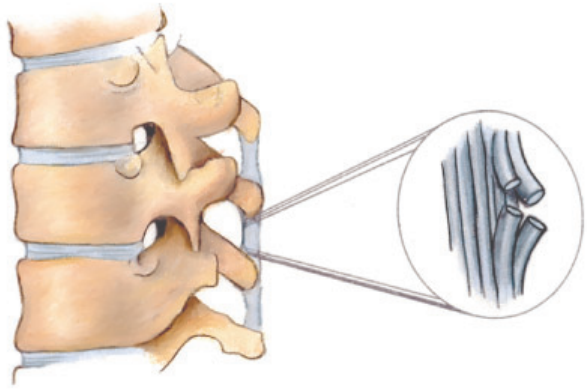


Figure 1 — Supraspinous ligament injury. The ligament at the back of the neck is sprained.

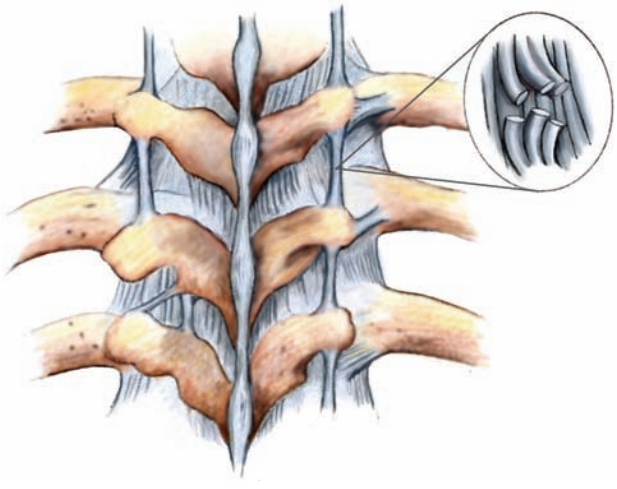


Figure 2 — Intertransverse ligament injury. The ligament at the side of the neck is sprained.

Common Cervical Injuries

The most common strain, C7 (and occasionally C6) intertransverse ligament strain, often goes undetected. When a person has a stiff neck upon waking in the morning, one of these ligaments is often the culprit. With this type of injury, at least one neck rotation is very painful, and neck extension is often painful or in some cases impossible. Pain is felt on one side of the lower neck, frequently radiating down to the medial border of the scapula. In some cases, performing friction therapy on the TP 7 ligament reproduces the pain at the lower scapula several inches away.

The pain from an injured C7 or C6 intertransverse ligament may last for several hours, a week, or several months. The client may experience a line of pain down the medial border of the scapula, a pain the size of a quarter toward the inferior medial border of the scapula, or a burning pain in the scapula region. Most lay people, and many therapists, believe these symptoms are caused by a strained rhomboid muscle. This is incorrect. If they were caused by a muscle, a resisted test of the rhomboid or erector spinae would reproduce the pain, and a passive neck test would not.

When a person has suffered a whiplash injury in an automobile accident, many of the cervical ligaments can tear. The most extensive tearing and adhesive scar tissue formation usually occurs at the C5 (and sometimes the C6) supraspinous ligaments. These ligaments are located at the section of the cervical spine with the greatest lordotic (forward) curve. This area usually takes the most stress biomechanically, and the whipping action often tears the ligaments at this level. If the tears are in the superficial aspect of the ligaments, friction therapy and massage can effectively help them to heal. If the damage is deep within the interspinous ligaments, other types of intervention may be necessary to prevent instability and pain from persisting for a long time.

Of course, whiplash also injures many muscles, but, as I've already mentioned, they usually heal within a few weeks because they are highly vascularized. Massage and friction therapy will greatly accelerate the healing process in the injured musculature. In some cases muscle injuries do linger, especially in the area where the occipital muscles attach to the occipital ridge, so pay special attention to this area. The greater danger where the muscles are concerned is that the trauma of the accident can get stored in the muscles of the neck. A number of areas of the person's body — and particularly the neck muscles — may become chronically contracted in reaction to the traumatic experience and to the subsequent pain. Without the normal flow of blood and energy to the injured area, the healing process may be greatly diminished. The body's defense systems are impaired, resulting in a vicious cycle of pain, stress, and tension. Relieving some of the resulting muscle tension through massage therapy can go a long way toward helping the client heal more efficiently and become well again.

In Conclusion

Any client who cannot perform all the neck tests without pain or discomfort is suffering from some form of cervical injury. The person need not have been in an accident — the structures in the neck frequently get injured through the ordinary wear and tear of life. My first cadaver anatomy teacher used to say the body is only built to last for 26 years — it all goes downhill from there. We can live a long time in good health, but we must devote time and effort to caring for ourselves and get appropriate treatment when we need it. In the next article, we will discuss a variety of treatment options for cervical ligament injuries. M&B

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