

Tension Headaches Home Study Course

1 CE Hour

Text, Examination, and Course Guide

Presented by the:

Center for Massage Therapy Continuing Education

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Instructions for the Tension Headaches home study course

Thank you for investing in the Tension Headaches home study course, a 1 CE hour course designed to further your knowledge in the principles and practice of treating clients with symptoms of tension headaches. This guide will contain all of the instructions you will need to complete this course. This is a 1 CE hour course, so that means it should take you approximately 1 hour to read the text and complete the multiple choice exam and course evaluation.

The following are steps to follow in completing this course:

- 1. Read and review the exam and text in this file. The exam is provided for review before testing online and is the same as the online exam.**
- 2. When you are ready to test online, access the online examination by logging in to your account at <https://www.massagetherapyceu.com/login.php>.**
- 3. Complete your examination and print your certificate. The exam is open book and there is no time limit for completion.**

You must pass the exam with a 70% or better to pass this home study course. You are allowed to access and take the exam up to 3 times if needed. There is no time limit when taking the exam. Feel free to review the text while taking the test. This course uses the text *Tension Headaches, an excerpt from Condition-Specific Massage*, by Celia Bucci. All of the answers can be found in the text. It is advised to answer the exam questions in the study guide before testing online. That way, when you are testing you do not have go back and forth through the online exam.

If you have any questions please feel free to contact us at 866-784-5940, 712-490-8245, or info@massagetherapyceu.com. Most state boards require that you keep your “proof of completion” certificates for at least four years in case of audit. Thank you for taking our Tension Headaches home study course.

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It is the responsibility of the practitioner to determine the appropriateness of the techniques presented in terms within the scope of practice. This information is in no way meant to diagnose or treat medical conditions. Written medical opinions are always the best way to resolve any questions regarding contra-indications to or advanced treatment of tension headaches.

Tension Headaches Exam

1. The International Headache Society classifies tension headaches as:
 - A. Primary Headaches
 - B. Secondary headaches
 - C. Cranial neuralgias
 - D. Thunderclap headaches
2. All of the following may be contributing factors to tension headaches EXCEPT:
 - A. Tension in the muscles
 - B. Postural deviations that affect the cervical or thoracic spine
 - C. Insufficient sleep or changes in sleep patterns
 - D. Temporal arteritis
3. Which of the following techniques are most appropriate when treating a headache on the day of massage?
 - A. Myofascial release
 - B. Lymphatic drainage
 - C. Gentle, superficial strokes
 - D. All of the above
4. What is the importance for treatment planning of asking your client the question “Where do you feel symptoms?”?
 - A. Newly developed chronic headaches may be a sign of an underlying pathology if symptoms are felt in the sub-occipital area
 - B. The location of symptoms gives clues to the location of trigger points, injury, or other contributing factors
 - C. You may be able to differentiate and diagnose the type of headache with this information
 - D. If your client is feeling symptoms in the temple, local massage is contraindicated
5. What are resisted ROM tests used to assess?
 - A. The range of pain free movement by the client
 - B. Insufficiency in the vertebral artery
 - C. The strength of the muscles that cross the joints involved
 - D. Possible nerve root compression
6. All of the following are muscles with trigger points that refer pain into the head EXCEPT:
 - A. Rhomboids
 - B. Trapezius
 - C. Masseter
 - D. Splenius capitis and cervicis

7. Which of the following is a technique that may be very useful in increasing circulation and reducing tension in the scalp?
 - A. Effleurage to the neck
 - B. Feather strokes on the scalp
 - C. Pulling the hair very gently
 - D. Deep friction on the scalp

8. The client can strengthen the deep anterior neck muscles with:
 - A. Resisted flexion of the neck
 - B. Resisted extension of the neck
 - C. Passive stretching of the neck
 - D. Resisted rotation of the neck

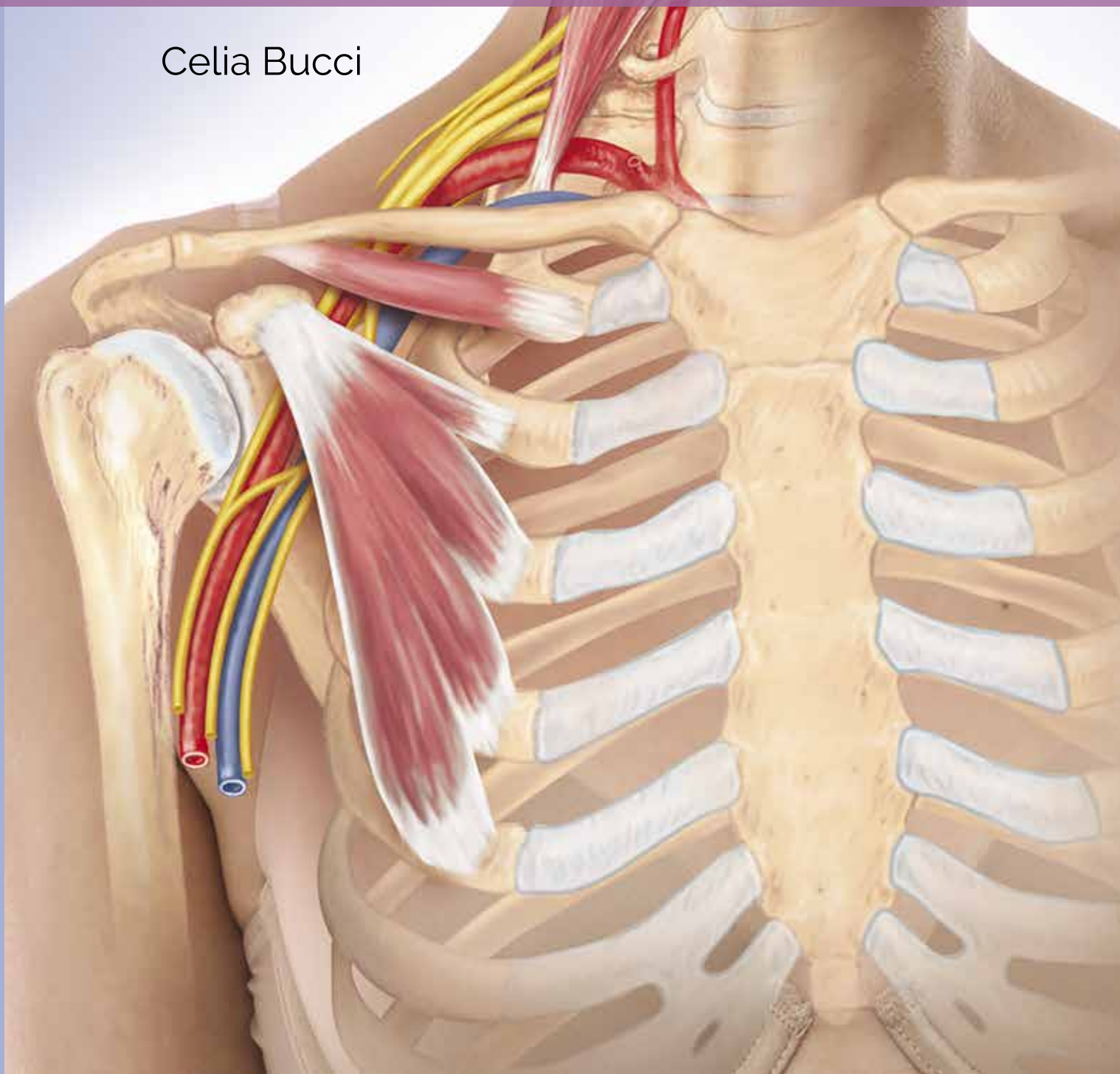
9. Ideally, the client with chronic tension headaches will have treatments:
 - A. Daily until symptoms are absent for at least 7 days
 - B. Once or twice a month until symptoms are absent for at least 7 days
 - C. Once a month until symptoms are absent for at least 7 days
 - D. Once or twice a week until symptoms are absent for at least 7 days

This completes the Tension Headaches exam. Proceed to the next page to view the text.

Condition Specific Massage Therapy

SECOND EDITION

Celia Bucci



Chapter 5:

Tension Headaches

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Tension Headaches

Understanding Tension Headaches

Headaches can indicate a wide variety of changes in a person's health. They may result from an injury, occur as a symptom of a systemic condition, or may be a condition in themselves. The International Headache Society classifies headaches as primary headaches, secondary headaches, and cranial neuralgias or other headaches. Tension headaches, migraines, and cluster headaches are commonly categorized as primary headaches; this means that the headache is the pathology itself (Fig. 1). Headaches that are caused by underlying pathologies (e.g., sinus headaches) are considered secondary headaches. It is essential to understand the client's health history and to refer the client to a health care provider for diagnosis if you suspect an underlying condition or other contraindications before treating chronic headaches as if the cause is muscle tension. While massage therapy may help relieve symptoms and reduce the occurrence of some secondary headaches, it is not a cure for an underlying condition, and caution should be taken when treating these clients. However, if no other conditions are present, reducing hypertonicity, trigger points, and blood pressure with regularly scheduled massage therapy can decrease the severity and frequency of chronic tension headaches.

Tension headaches are the most common type of headache. Evidence suggests that they may be caused by muscle tension and trigger points, primarily in the shoulders, neck, and head. They respond well to treatments such as over-the-counter pain relievers and manual therapies such as massage. Tension headaches often disrupt the client's activities of daily living, but they are rarely dangerous. Tension headaches are different from migraines, which are believed to have origins that vary but are commonly associated with vascular constriction or a condition of the central nervous system. However, muscle tension often accompanies migraines, and studies have shown that massage can reduce the intensity and frequency of episodes.

Types of Headaches



Figure 5-1 Types of primary headaches. The client's pattern of pain may help you understand what type of headache they are experiencing.
Image Credit: Africa Studio/Shutterstock

COMMON SIGNS AND SYMPTOMS

Tension headaches are often bilateral but may be unilateral and specific to the referral pattern of one or more trigger points. The pain is dull and aching and is often described as feeling like the pressure of a band or vice around the head or a heavy cape over the head and shoulders. Unlike people with migraines, sufferers of tension headaches do not commonly experience aura, nausea, or vomiting, and physical activity does not usually intensify a tension headache.

In addition to aching in the head, clients sometimes feel pain in the neck or shoulders or between the scapulae. These symptoms may even precede headaches. If the client has hyperkyphosis or hyperlordosis, the common pain patterns that accompany these conditions may also be present. Hypertonicity and trigger points are frequently found in the cervical extensors, particularly the upper trapezius, splenius cervicis, splenius capitis, and the suboccipitals; in cervical flexors including the scalenes and SCM; and in the muscles of mastication. Satellite trigger points may be found in the referral patterns of primary trigger points. The muscles of respiration may also be involved, particularly with hyperkyphosis or chronic respiratory conditions. Clients who suffer from tension headaches may also experience tenderness in the scalp, loss of appetite, fatigue, insomnia, mood changes, and problems with concentration.

Chronic tension headaches are likely to arise in adolescence or young adulthood. This may occur because young adults must become more self-sufficient, which can be stressful, and because activities of daily living often become more sedentary, which affects postural changes that may contribute to muscle tension. Tension headaches often last from 30 minutes to several weeks and can come and go or persist without relief. The headache is considered chronic when it occurs two or three times per week over the course of several months. Without treatment, the client may suffer from chronic tension headaches for years. Tension headaches often manifest in the afternoon, when stress and fatigue accumulate and trigger points become active. The client may have difficulty sleeping—a symptom that, if left untreated, may contribute to the cause of tension headaches.

POSSIBLE CAUSES AND CONTRIBUTING FACTORS

To date, there is no consensus about the precise cause(s) of tension headaches or whether the tension said to contribute is actually due to a contraction of the muscles. Tension in the muscles has been noted in sufferers of both tension and migraine headaches. Fluctuations in levels of chemicals including serotonin have also been found in both. While the cause(s) of these fluctuations remain(s) unclear, researchers now believe that the imbalance activates pain pathways to the brain and impedes natural pain suppression. Nevertheless, headaches are often felt in the referral area of a trigger point, and studies have shown that relaxing tense muscles reduces the frequency of both tension and migraine headaches. However, massage is not likely to improve a migraine that is already in progress, and caution should be used when treating a tension headache in progress to avoid pressure and techniques that could intensify symptoms.

Any postural deviation that affects the cervical or thoracic spine can contribute to muscle tension and resulting headaches. The head-forward posture commonly found in hyperkyphosis is often observed. Temporomandibular joint dysfunction, also often found in clients with hyperkyphosis, is likewise a common contributing factor. Torticollis, disc herniations, whiplash, or other unresolved trauma may be involved. Clients whose activities of daily living include maintaining an inactive posture, such as sitting at a desk or sleeping with the neck in extension, may set the muscles at a high resting tone, contributing to the formation or activation of trigger points. Lack of physical activity—the muscle's enemy—can lead to adhesions, to an accumulation of metabolites, and ultimately to active trigger points. Overuse, fatigue, and stress on the muscles can be culprits of hypertonicity and trigger points. Dehydration, which may cause fatigue and confusion, is one of the most common causes of headaches.

Chemical and hormonal changes, side effects of medications, fluctuations in blood pressure, and hunger or low blood sugar can all contribute to headaches. In these cases, the symptoms are often relieved by addressing the cause. The overuse of pain medication can result in a rebound effect, a phenomenon in which the medication (or suddenly stopping the medication) triggers symptoms it used to relieve. This too can be resolved by decreasing, ceasing, or changing the use of medication under the supervision of a health care provider. Depression and anxiety, which are often related to chemical imbalances and can also cause a client to contract the muscles of the neck and jaw, may play a role in tension headaches.

Insufficient sleep or changes in sleep patterns can affect circadian rhythms and the biological functions they regulate. Sleeping in a cold room or sitting for long periods near a source of cold, such as an air conditioning vent, may activate trigger points that may contribute to headaches. Lifestyle choices including the use of or withdrawal from drugs, alcohol, or caffeine; excessive smoking; and overexertion may contribute to the development of chronic headaches. Cold and flu, eyestrain, nasal congestion, and sinus infections may also be contributing factors.

Chronic tension headaches rarely develop after the age of 50. If so, they may be a red flag for a more serious condition, and the client should be referred to their primary health care provider for assessment. In addition, the client should seek medical attention if headaches are severe (thunderclap), get worse, change patterns, or are no longer relieved by pain medication. Similarly, the client should seek emergency medical attention if difficulty speaking, fever, rash, seizures, numbness, or weakness accompanies headache. These signs and symptoms may indicate a stroke, aneurysm, or other serious conditions. Headaches that occur after coughing, straining, or sudden movement may be a symptom of intracranial pressure or pressure on the spinal cord or nerves and should be assessed by a medical professional. If headaches develop following an injury, the client should see a health care provider for medical assessment before receiving a massage. Table 1 lists conditions commonly confused with or contributing to tension headaches.

Table 5-1: Differentiating Conditions Commonly Confused with or Contributing to Tension Headaches

CONDITION	TYPICAL SIGNS & SYMPTOMS	TESTING	MASSAGE THERAPY
Migraine	<ul style="list-style-type: none"> Episodic or chronic Moderate or severe Often unilateral Pulsating or throbbing Aggravated by physical activity Aura, nausea, vomiting, sensitivity to light and sound 	<ul style="list-style-type: none"> Diagnosed by signs and symptoms, familial history, and response to treatment MRI or CT to rule out other causes EEG to exclude seizures 	<ul style="list-style-type: none"> Massage may not be appropriate during a migraine, but may reduce frequency when performed regularly between headaches.
Cluster headaches	<ul style="list-style-type: none"> Usually unilateral Swelling under or around eye, red eye Excessive tears Sudden headache with sharp, steady pain, often during sleep 	<ul style="list-style-type: none"> Diagnosed by signs and symptoms MRI to rule out other pathologies 	<ul style="list-style-type: none"> Massage may not be appropriate during a cluster headache, but may reduce frequency and severity when performed regularly between headaches.

Table 5-1: Differentiating Conditions Commonly Confused with or Contributing to Tension Headaches (continued)

CONDITION	TYPICAL SIGNS & SYMPTOMS	TESTING	MASSAGE THERAPY
Sinus headache	<p>Pain or pressure at cheeks and brow</p> <p>Tender sinuses</p> <p>Worse when bending forward or lying down</p> <p>Postnasal drip, sore throat, nasal discharge</p> <p>Possible fever, cough, or fatigue</p> <p>Allergic or infectious sinusitis</p>	<p>Diagnosed by signs and symptoms</p> <p>Mucus sample to test for infection</p> <p>CT scan or MRI</p>	<p>Massage is contraindicated if infection or serious underlying pathology is present.</p> <p>Massage is otherwise appropriate within the client's comfort. The face cradle may be uncomfortable.</p>
Brain tumor	<p>Headaches, seizures, decreased sensation or weakness in one part of the body</p> <p>Changes in mental function and personality</p> <p>Clumsiness, tremor</p> <p>Changes in vision, memory, alertness, speech, hearing, or smell</p> <p>Vomiting, fever, or general ill feeling</p>	<p>CT scan</p> <p>MRI</p> <p>EEG</p> <p>Tissue biopsy</p> <p>Cerebrospinal fluid test</p>	<p>Massage is contraindicated until the client is cleared by a health care provider.</p>
Brain aneurysm	<p>Double vision</p> <p>Loss of vision</p> <p>Headaches</p> <p>Eye pain</p> <p>Neck pain</p> <p>When ruptured:</p> <p>Sudden, severe headache</p> <p>Nausea, vomiting</p> <p>Numbness, weakness, or decreased sensation in a body part</p> <p>Vision or speech changes, drooping eyelid(s)</p> <p>Confusion, lethargy, or seizures</p>	<p>CT scan</p> <p>MRI</p> <p>Cerebrospinal fluid test</p> <p>Cerebral angiography</p> <p>EEG</p>	<p>Massage is contraindicated until the client is cleared by a health care provider. Take caution with circulatory techniques.</p>
Stroke or transient ischemic attack	<p>Symptoms are often unilateral, occur suddenly, last a short time, and may occur again</p> <p>Numbness, tingling, weakness, heavy extremities, speech difficulty, vision changes, vertigo, loss of balance or coordination, staggering or falling</p> <p>Facial paralysis</p> <p>Eye pain</p> <p>Confusion</p>	<p>Medical history</p> <p>CBC</p> <p>CT scan</p> <p>MRI</p> <p>Cerebral arteriogram</p>	<p>Massage is contraindicated when symptoms are present. For a client surviving a stroke or transient ischemic attack, massage is indicated if the client is cleared by the attending medical professional. Avoid rigorous circulatory techniques. Massage around the neck is postponed until the client has returned to pre-stroke activities of daily living.</p>

Table 5-1: Differentiating Conditions Commonly Confused with or Contributing to Tension Headaches (continued)

CONDITION	TYPICAL SIGNS & SYMPTOMS	TESTING	MASSAGE THERAPY
Trigeminal neuralgia	<p>Usually unilateral, around the eye, cheek, and lower face</p> <p>Pain triggered by touch or sound</p> <p>Sharp, electric spasms lasting a few seconds or minutes</p> <p>Pain while brushing teeth, chewing, drinking, eating, or shaving</p>	<p>MRI</p> <p>Blood tests</p> <p>Rule out other conditions</p>	<p>Because of sensitivity to touch, massage is contraindicated without permission and guidance from the client regarding what feels good. The face cradle may be too painful. Massage elsewhere is indicated.</p>
Hemicrania continua	<p>Pain on one side of the head, consistent and daily</p> <p>Generally moderate with occasional severe pain</p> <p>Tearing or redness of eye on affected side</p> <p>Nasal congestion</p> <p>Swelling or drooping of eyelid(s)</p>	<p>Idiopathic</p> <p>No definitive test</p> <p>Diagnosed by signs and symptoms and by ruling out other causes of headache</p>	<p>Refer to health care provider for assessment. Clients with symptoms of hemicrania continua are unlikely to tolerate massage until the symptoms are under control.</p>
Meningitis	<p>Fever and chills</p> <p>Nausea and vomiting</p> <p>Severe headache</p> <p>Stiff neck</p> <p>Sensitivity to light</p> <p>Confusion or decreased consciousness</p> <p>Rapid breathing</p> <p>Loss of appetite</p> <p>Agitation</p>	<p>Chest X-ray</p> <p>CT scan</p> <p>Cerebrospinal fluid test</p>	<p>Massage is contraindicated until the condition is resolved. Refer client to a health care provider.</p>
Encephalitis	<p>Fever</p> <p>Headache</p> <p>Stiff neck, muscle weakness, or paralysis</p> <p>Vomiting</p> <p>Light sensitivity</p> <p>Confusion, drowsiness, or clumsiness</p> <p>Irritability</p> <p>Seizure, loss of consciousness, stupor, or coma</p>	<p>Cerebrospinal fluid test</p> <p>EEG</p> <p>MRI</p> <p>CT scan</p>	<p>Massage therapy is contraindicated until the condition is resolved. Refer client to a health care provider.</p>

Table 5-1: Differentiating Conditions Commonly Confused with or Contributing to Tension Headaches (continued)

CONDITION	TYPICAL SIGNS & SYMPTOMS	TESTING	MASSAGE THERAPY
Temporal arteritis	Usually occurs in patients over age 50 Unilateral throbbing Tenderness in scalp Fever, loss of appetite, sweating, weight loss Muscle aches, weakness, and fatigue Reduced, blurred, or double vision Jaw pain	Palpation of scalp for tenderness Weak or no pulse in affected artery Blood tests Liver function tests Biopsy of temporal artery	Refer a client over age 50 with newly developed chronic headaches to a health care provider.
Paget's disease	Persistent bone pain Joint pain and stiffness Headache, neck pain Bowed legs Locally hot to touch Fractures Hearing loss Loss of height	X-ray Bone scan Blood test for serum alkaline phosphatase and serum calcium	Work with health care provider. Massage may help maintain flexibility. Use caution if bones are fragile.
Nerve root compression (radiculopathy)	Muscle spasm, weakness, or atrophy Pain around the scapula on the affected side Neck pain Pain radiates to the extremities Pain worsens with lateral flexion or rotation or when sneezing, coughing, laughing, or straining	Spurling's test Valsalva's test Neurological exam to test reflexes, sensation, and strength	Massage is indicated if cause and location are understood. Take care not to increase compression or reproduce symptoms.

CONTRAINDICATIONS AND SPECIAL CONSIDERATIONS

- **Headache on the day of treatment.** If the client presents with a headache on the day of treatment, do not work aggressively. Although massage is not contraindicated during a tension headache, you should take care not to aggravate the client's symptoms. Myofascial release, lymphatic drainage, and gentle, superficial strokes are most appropriate. The client may not tolerate the face cradle and may be disturbed by light, scents, or sound. You may also consider a shorter treatment or rescheduling the client. If the client's headache frequently occurs in the late afternoon, consider scheduling on a weekend morning when trigger points may not be activated.
- **Underlying pathologies.** Headaches can be a symptom of a wide variety of underlying conditions. If you suspect any condition (consult Table 5-1 and your pathology book for signs and symptoms), refer the client to their health care provider for diagnosis before initiating treatment. If the client is diagnosed with an underlying pathology that is not contraindicated for massage, work with the health

care provider to develop a treatment plan. A client who has newly developed chronic headaches after age 50 should be referred to their health care provider.

- **Endangerment sites.** Be cautious near the endangerment sites in the neck. Gently palpate for the pulse of the carotid artery before you begin working. Avoid this area, and if you feel a pulse while working, back off slowly.
- **Treatment duration and pressure.** If the client is elderly, has degenerative bone disease, or has a condition that diminishes their activities of daily living, you may need to adjust your pressure as well as the treatment duration. Frequent half-hour sessions may suit the client better.
- **Positioning.** Use bolsters to position a client for comfort as well as to correct postures that may contribute to headaches. If the head-forward posture or extension of the neck is evident, using a small bolster under the occiput in the supine position and adjusting the face cradle to reduce the extension of the neck in the prone position may help. If hyperkyphosis is present, bolsters under the shoulders in the prone position will reduce protraction of the scapulae. In the supine position, a bolster along the length of the spine including the occiput reduces protraction of the scapulae and extension of the neck.
- **Hydrotherapy.** Do not use moist heat on the neck or chest if the client has a cardiovascular condition that may be affected by the dilation of blood vessels. Severe hypertension and atherosclerosis are two examples of conditions that are contraindicated for massage. Consult your pathology book for recommendations.
- **Friction.** Do not use deep frictions if the client has a systemic inflammatory condition such as rheumatoid arthritis or osteoarthritis, if the health of the underlying tissues is compromised, or if the client is taking anti-inflammatory medication. Friction creates the inflammatory process, which may interfere with the intended action of anti-inflammatory medication. Recommend that your client refrain from taking such medication for several hours before treatment if their health care provider agrees.
- **Tissue length.** It is important when treating myofascial tissues to not stretch already overstretched tissues. Assess for myofascial restrictions first and only treat those that are clearly present. Likewise, overstretched muscles should not be stretched from origin to insertion. If you treat trigger points, use heat or a localized pin and stretch technique to lengthen that area.
- **Hypermobile joints and unstable ligaments.** Be cautious with mobilizations if the client has hypermobile joints or if ligaments are unstable due to injury, pregnancy or a systemic condition.

MASSAGE THERAPY RESEARCH

In 2002, Quinn et al. published a study titled “Massage Therapy and Frequency of Chronic Tension Headaches.” The study involved four nonsmoking adults between the ages of 18 and 55 who had experienced headaches two to three times per week in the prior 6 months; these were diagnosed as chronic or episodic tension headaches according to the International Headache Society guidelines. Baseline headache measures were recorded for 4 weeks, followed by 30-minute massages twice per week for 4 weeks. The treatment plan was very specific and was followed precisely for each participant. Participants were asked to keep a headache diary noting frequency, intensity, and duration of each headache. Compared with baseline headache measures, the frequency of headaches was reduced as early as the first week of treatment, and the frequency reduction was maintained for the duration of the study. Pain was also reduced, although it is not sufficiently clear if the massage techniques, stretching, or relaxation techniques included in the treatment had a more or less direct effect on pain reduction. The duration of headaches became shorter for all four participants, and intensity diminished in three participants. On four occasions, participants arrived for

treatment with a headache that was relieved during the 30-minute treatment. In addition, the authors noted that in most sessions, the participants felt headache symptoms when identified trigger points were palpated deeply even when they had not felt the pain prior to palpation; this suggests that the activation of common trigger points may have a strong connection to tension headaches. Although the results are encouraging, a more substantial study with a control group is needed.

In 1990, Puustjärvi et al. published a study titled “The Effects of Massage in Patients with Chronic Tension Headache.” The study involved 21 female patients from 21 to 44 years of age who had experienced chronic neck and head pain. Cervical ROM, surface electromyography (EMG) of the upper trapezius and frontalis muscles, pain quality and intensity, and incidence of pain were recorded for 2 weeks before and 2 weeks after treatment, and again at 3 and 6 months during the follow-up period. Each participant received 10 1-hour massage treatments to the upper body over a period of 2.5 weeks and had no other form of therapy during the study. Compared to the initial recordings, the ROM increased in flexion, lateral flexion, and rotation. EMG improvements were noted in the frontalis muscle alone. Pain decreased significantly, and the number of pain-free days doubled. The participants’ psychological state was improved immediately following the 2.5 week treatment period, and the improvement continued at the 3- and 6-month follow-ups. Although the evidence is encouraging, this study is not fully reliable because it did not include a control group, and the treatments were not standardized.

In addition, the 1998 study by Hernández-Reif et al. titled “Migraine Headaches Are Reduced by Massage Therapy” and the 2007 case study by Eisensmith titled “Massage Therapy Decreases Frequency and Intensity of Symptoms Related to Temporomandibular Joint Syndrome in One Case Study” suggest that massage therapy may be effective for both migraine headaches and temporomandibular joint syndrome.

Working With the Client

CLIENT ASSESSMENT

Assessment begins at your first contact with a client. In some cases, this may be on the telephone when an appointment is requested. Ask in advance if the client is seeking treatment for a specific area of pain so that you can prepare yourself. Headaches are a common symptom of a wide variety of conditions. It is essential for your assessment to be thorough. If you suspect an underlying condition that requires medical attention, refer the client to their health care provider for assessment. If the client is diagnosed with an underlying condition, research the contraindications or special considerations for the condition. During your assessment, ask questions that will help you differentiate the possible causes of headaches.

Postural Assessment

Allow the client to enter the room ahead of you while you observe their posture and movements. Look for imbalances or patterns of compensation due to pain or weakness. In the absence of a clear cause of tension headaches, such as whiplash or other injury, hyperkyphosis is often a contributing factor. Look for a head-forward posture, neck extension or rotation, elevated shoulders, and slouching. Notice if the client is able to turn the head without involving the shoulders or thoracic spine. This may indicate reduced ROM in the cervical spine. You may also notice hyperlordosis, scoliosis, rotation, or elevation in the hips or pes planus. Figure 2 compares the anatomic position to posture affected by hyperkyphosis with the head forward, a common contributing factor to tension headaches.

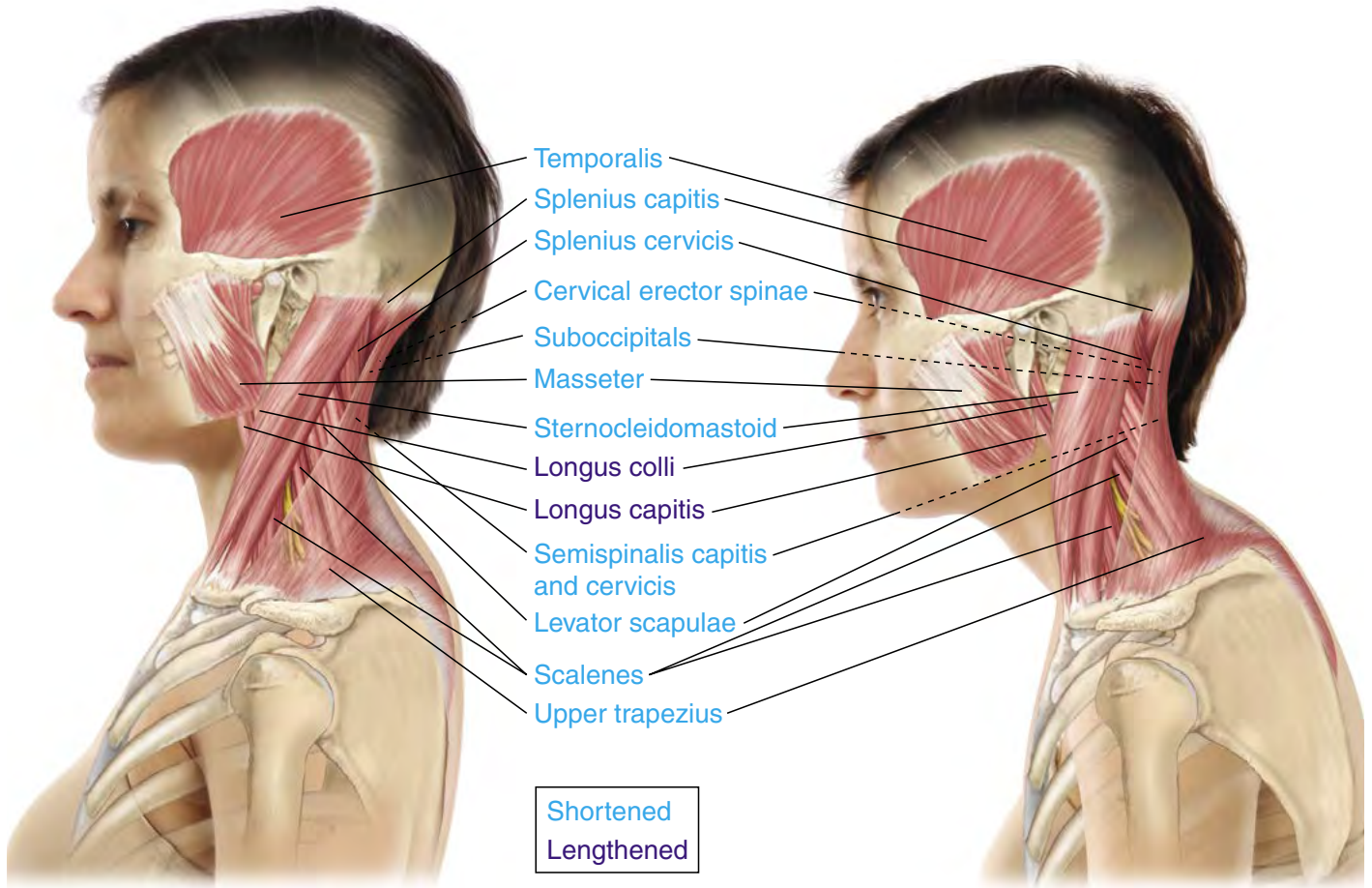


Figure 5-2 Notice how the muscles of the upper cross react to the increased kyphotic curve and head-forward posture, which may contribute to chronic tension headaches.

Table 5-2: Health History

QUESTIONS FOR THE CLIENT	IMPORTANCE FOR THE TREATMENT PLAN
Do you have a headache now?	Treatment may need to be adjusted to avoid aggravating symptoms. The client may wish to reschedule.
When did you begin experiencing headaches? Have you experienced any other new symptoms coincident with the onset of headaches?	Newly developed chronic headaches, especially when accompanied by other symptoms, may be a sign of an underlying pathology.
How frequently do you get headaches? Do they occur at or near the same time of day or following similar activities?	Differentiate between episodic or chronic tension headaches. Trigger points are often activated in the late afternoon.
Have you seen a health care provider about your headaches? What was the diagnosis? What tests were performed?	A wide variety of conditions cause headache as a symptom. Infection, acute injury, or an underlying pathology may contraindicate massage. Refer the client to their primary health care provider if you suspect an underlying condition.
Was there any change in your activities of daily living before you developed headaches?	This helps determine potential contributing factors.

Table 5-2: Health History (continued)

QUESTIONS FOR THE CLIENT	IMPORTANCE FOR THE TREATMENT PLAN
Where do you feel symptoms?	The location of symptoms gives clues to the location of trigger points, injury, or other contributing factors. Tension headaches often follow the referral area of one or more trigger points.
Describe the character of your symptoms.	This helps to differentiate the possible origins of symptoms. Tension headaches often feel like a band or vise around the head or neck. The character of pain is less likely to be throbbing, pulsating, or sharp.
Do any movements make it worse or better?	Locate tension, weakness, or compression in structures involved in such movements. Tension headaches are not commonly made worse with general activity, although the specific movement of a joint crossed by a muscle containing a trigger point may produce or increase symptoms.
What type of work, hobbies, or other regular activities do you do?	Repetitive motions and static postures that increase neck extension, head-forward posture, or pressure on the mandible may contribute to headaches.
Are you taking any prescribed medication or herbal or other supplements?	Side effects of medications of all types may contribute to symptoms, have contraindications, or require special considerations in treatment.
Have you had a cortisone shot in the past 2 weeks? Where?	Local massage is contraindicated.
Have you taken a pain reliever or muscle relaxant within the past 4 hours?	The client may not be able to judge your pressure.
Have you taken anti-inflammatory medication within the past 4 hours?	Deep friction may cause inflammation and should not be performed if the client has recently taken anti-inflammatory medication.

ROM Assessment

Test the ROM of the neck, shoulders, and thoracic spine, assessing the length and strength of both agonists and antagonists that cross the joints tested. Since it allows the client to control the amount of movement and stay within a pain-free range, only active ROM should be used in the acute stage of injury to prevent undue pain or re-injury. Box 1 presents the average active ROM results for the joints involved in tension headache.

Active ROM

Compare your assessment of the client's active ROM to the values in Box 1. Pain and other symptoms may not be reproduced with active ROM assessment because the client may limit their movement to the symptom-free range.

- **Active extension of the thoracic spine** may be reduced when muscle tension, adhesions, and trigger points are the cause of tension headaches. The client may be resistant to full active extension of the thoracic spine if this produces symptoms during activities of daily living.
- **Active flexion of the cervical spine** in the full range may be restricted due to weakened cervical flexors attempting movement against shortened upper cervical extensors.
- **Active rotation and lateral flexion** of the cervical spine may be reduced or cause pain due to hypertonicity or spasm in the muscles responsible for rotation or lateral flexion, or weak antagonists.
- **Active mobility of the mandible** may be reduced in any direction when the muscles of mastication are hypertonic or contain trigger points.

Box 5-1: Average Active ROM for Joints Involved in Tension Headaches

Cervical Spine

Flexion 60°

SCM (bilateral)
Anterior scalenes (bilateral)
Longus capitis (bilateral)
Longus colli (bilateral)

Extension 55°

Upper trapezius (bilateral)
Levator scapulae (bilateral)
Splenius capitis (bilateral)
Splenius cervicis (bilateral)
Rectus capitis (bilateral)
Oblique capitis superior (bilateral)
Semispinalis capitis (bilateral)
Longissimus capitis (bilateral)
Longissimus cervicis (bilateral)
Iliocostalis cervicis (bilateral)

Lateral Flexion 20–45°

Upper trapezius (unilateral)
Levator scapulae (unilateral)
Splenius capitis (unilateral)
Splenius cervicis (unilateral)
SCM (unilateral)
Longus capitis (unilateral)
Longus colli (unilateral)
Anterior scalene (unilateral)
Middle scalene (unilateral)
Posterior scalene (unilateral)
Longissimus capitis (unilateral)
Longissimus cervicis (unilateral)
Iliocostalis cervicis (unilateral)

Cervical Spine continued

Ipsilateral Rotation 70–90°

Levator scapulae (unilateral)
Splenius capitis (unilateral)
Splenius cervicis (unilateral)
Rectus capitis (unilateral)
Obliquus capitis (unilateral)
Longus colli (unilateral)
Longus capitis (unilateral)
Longissimus capitis (unilateral)
Longissimus cervicis (unilateral)
Iliocostalis cervicis (unilateral)

Contralateral Rotation 70–90°

Upper trapezius (unilateral)
SCM (unilateral)
Anterior scalene (unilateral)
Middle scalene (unilateral)
Posterior scalene (unilateral)

Thoracic Spine

Extension 20–30°

Spinalis
Longissimus
Iliocostalis
Multifidi
Rotatores
Semispinalis capitis
Latissimus dorsi

Mandible

Elevation (contact of teeth)

Masseter
Temporalis
Medial pterygoid

Depression 35–50 mm

Suprahyoid
Infrahyoid
Digastric
Platysma

Protraction 3–7 mm

Lateral pterygoid
Medial pterygoid

Retraction

Temporalis
Digastric

Contralateral Lateral Deviation 5–12 mm

Lateral pterygoid
Medial pterygoid

Passive ROM

Compare the client's P ROM on one side to the other when applicable. Notice and compare the end feel for each range.

- **Passive flexion of the cervical spine** may be restricted due to shortened cervical extensors.
- **Passive lateral flexion or rotation of the cervical spine** may be restricted unilaterally if the client's posture favors lateral flexion or rotation to the opposite side.
- **Passive extension of the cervical spine** will likely occur with ease but may produce pain at the end point.

Resisted ROM

Use resisted tests to assess the strength of the muscles that cross the joints involved. Compare the strength of the affected side to the unaffected side.

- **Resisted flexion of the neck** may reveal weakness in the anterior neck muscles.
- **Resisted rotation or lateral flexion of the neck** may produce or refer pain if the muscles responsible for that action are tight or contain trigger points, and may reveal weakness in their antagonists.



Figure 5-3 Vertebral artery test.



Figure 5-4 Spurling's test.

SPECIAL TESTS

The following special tests will help you determine when a client should be evaluated by a health care provider using X-ray or other tools, which may reveal conditions that are contraindicated or require special considerations when planning treatment with massage.

The **vertebral artery test** may reveal insufficiency in the vertebral artery and is performed if the client states that they experience vertigo, blurred vision, or light-headedness during activities of daily living (Fig. 3).

1. Position the client seated in a chair facing you with the eyes open.
2. Instruct the client to fully rotate and extend the neck to one side for 30 seconds.
3. If, during this time, the client complains of nausea or dizziness or if you notice involuntary motion of the eyes, the test is positive for insufficient circulation through the vertebral artery, and the client should be referred to their health care provider.
4. If the test is negative on one side, test the other. Do not test the other side if the first side tests positive.

Spurling's test may reveal compression of a nerve or irritation to the facet joint in the cervical spine and is performed when the client has had an injury, complains of pain that radiates, or experiences numbness and tingling in the arm. Although massage may not be contraindicated for a client with these conditions, refer the client to a health care provider for more detailed information or a massage therapist with advanced training in treating difficult cases. If the client tested positive for vertebral artery insufficiency, do not perform Spurling's test.

1. If the client has recurring symptoms on one side only, begin with that side.
2. Stand behind the seated client and instruct them to extend, laterally flex, and rotate the head to the affected side.

3. Gently and slowly press down on the client's head (Fig. 4). If the client cannot extend, laterally flex, or rotate the neck, perform a simple compression test without these actions.
4. If the client experiences radiating pain, numbness, or tingling in the arm, the test is positive for nerve root compression.
5. Ask the client to describe the location of symptoms because this may suggest which nerve is compressed.
6. If the client feels pain that does not move past the neck, the test is positive for irritation of the facet joint.
7. Applying gentle traction to the neck after the test may relieve symptoms. If traction does relieve symptoms, this is considered reinforcement that Spurling's test was positive for compression of a nerve or facet joint irritation.

Palpation Assessment

Muscles that commonly contribute to tension headaches attach at the occiput, mastoid process, ligamentum nuchae, the cervical vertebrae, the upper thoracic vertebrae, and the scapulae. Palpate these areas for tenderness. Carefully palpating the many muscles attached to those bones will give you the most complete picture. The muscles most commonly involved in tension headaches include the trapezius, scalenes, SCM, splenius capitis and cervicis, semispinalis capitis and cervicis, the cervical erector spinae, levator scapulae, and suboccipitals. Palpate these for hyper- or hypotonicity and trigger points.

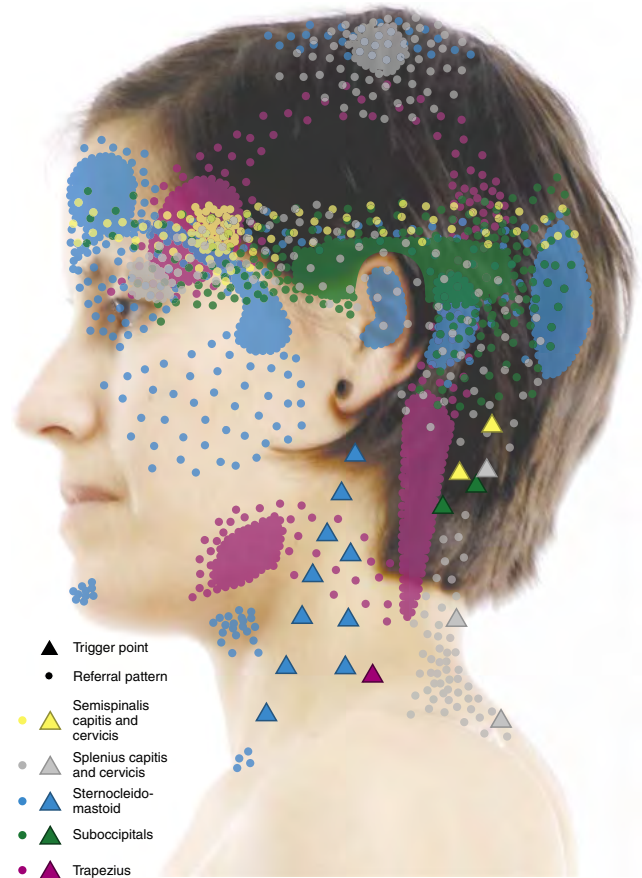
The muscles of mastication and respiration may also be hypertonic and tender, especially if hyperkyphosis, the head-forward posture, temporomandibular joint dysfunction, or a respiratory disorder is present. Palpate the temporalis, masseter, and pterygoids to assess their involvement. The intercostals and diaphragm may be tender or hypertonic. The occipitofrontalis, which includes the occipitalis, frontalis, and galea aponeurotica between them, may be tender.

CONDITION SPECIFIC MASSAGE

Because headaches may be a secondary condition or may have a structural cause, it is important to know the health history of the client. If a systemic condition or degenerative bone or disc disease is present, it is advisable to first discuss treatment with the client's health care provider and to adjust accordingly. Temporomandibular joint dysfunction is another condition that may contribute to tension headaches. Temporomandibular joint dysfunction is not covered in this text, but you may treat the muscles of mastication generally to offer some relief, study this condition in greater detail elsewhere, or refer the client to a massage therapist with training in this area.

It is essential for treatment to be relaxing. You are not likely to eradicate the pain associated with chronic tension headaches, or any of the conditions associated with it, in one treatment. Do not try to do so by treating aggressively. Be sure to ask your client to let you know if the amount of pressure keeps them from relaxing. If the client responds by tensing muscles or has a facial expression that looks distressed, reduce your pressure. Remember that you are working on tissue that is compromised.

Ask the client to let you know if any part of your treatment reproduces symptoms. If deep palpation of a trigger point reproduces symptoms, explain this to your client and ask them to breathe deeply during the technique. As the trigger point is deactivated, the referral pain will also diminish. Muscles with trigger points that refer pain into the head include the trapezius, SCM, masseter, temporalis, medial and lateral pterygoid,



- ▲ Trigger point
 ● Referral pattern
 ● Semispinalis capitis and cervicis
 ● Splenius capitis and cervicis
 ● Trapezius

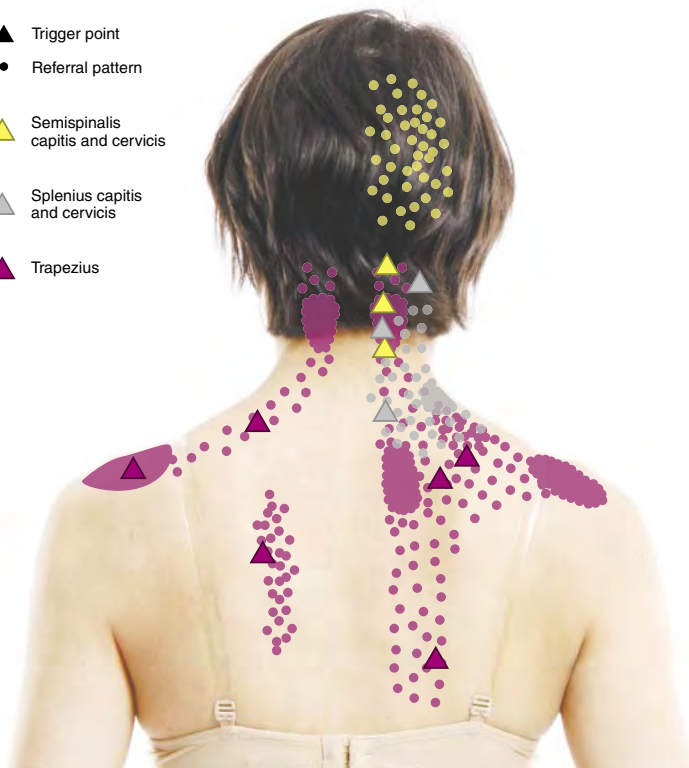


Figure 5-5 Common trigger points and referral patterns associated with tension headaches.

suboccipitals, semispinalis capitis and cervicis, and splenius capitis and cervicis. Common trigger points that refer pain into the head are shown in Figure 5.

If any other reproduction of symptoms occurs, adjust the client to a more neutral position, reduce your pressure, or move slightly off the area, and make a note about it, as it may help you understand more clearly exactly which neuromuscular conditions are contributing to the client's symptoms. Instruct your client to use deep but relaxing breathing to encourage calming.

The following suggestions are for the treatment of tension headaches. You may not need a full hour to treat the muscles commonly involved in tension headaches, and overtreatment may reproduce symptoms. Treating too many trigger points in one session may increase pain. If time remains, address any other postural deviations or contributing factors you may find in your assessment.

Treatment Goals:



Increase circulation



Reduce adhesions



Reduce tone/tension



Lengthen tissue



Treat trigger points



Passive stretch



Clear area

- If light affects the client's condition, cover their eyes with an eye pillow or pillowcase. Ask the client if scents or sounds are disturbing, and adjust accordingly. If hyperkyphosis is present, use a rolled towel or other bolster along the length of the spine in the supine position. If the client's neck is in extension, fold a pillowcase or hand towel into a small bolster, and place it under the occiput without obstructing your access to the posterior neck muscles.



- If it is comfortable for the client, place moist heat on the neck and shoulder muscles.

- If shortened pectorals or hyperkyphosis is a factor, treat this area fully. If the pectorals are not involved, treat the area superficially to relax the client, and open the channels of circulation in the thorax.



- Assess the tissues of the lateral neck for myofascial restrictions. These may be found near the mastoid process and along the lateral neck toward the acromion process and lateral clavicle. Reduce adhesions if indicated.



- Assess and treat tissues from the cervical vertebrae to the acromion process to reduce adhesions in the upper trapezius and to begin assessing for taut bands in the cervical muscles. Treat tissues from the cervical vertebrae toward the superior angle of the scapulae to assess and treat the levator scapulae.



- Assess and reduce tension at the attachment sites of all posterior cervical muscles including the acromion process, clavicle, and spine of the scapulae. Follow with the same technique along the transverse and spinous processes of the upper thoracic, all cervical vertebrae, and the occiput.



- Assess the SCM, suboccipitals, semispinalis capitis and cervicis, and splenius capitis and cervicis for taut bands and trigger points, and treat those you find.



- Arrange your four fingers of both hands along the occiput and apply pressure to perform Golgi tendon release along the occiput.



- Thoroughly stretch all muscles that extend and laterally flex the neck.



- Assess and treat the tissues of the anterior neck, in particular the SCM and scalenes. Gently nudge the SCM medially to assess and treat the anterior scalenes. Warm the tissues thoroughly, treat any trigger points found, and follow with a full stretch to the SCM and scalenes.



- Treat the muscles of mastication, including the temporalis, masseter, and pterygoids to reduce tension. Assess for taut bands and treat any trigger points found. Wearing non-powdered or washed gloves, stretch these muscles by gently opening the mouth passively and holding for at least 15 seconds. You can also perform postisometric relaxation techniques by asking the client to close the mouth against your resistance, taking care to instruct the client not to bite down completely, and then releasing the contraction for a full stretch. Intra-oral treatment may be prohibited according to your state regulations.



- Gently treat the rest of the face, particularly around the sinuses. If you suspect sinus pressure to be a contributing factor, spend a bit more time warming and softening the contents of the sinuses by placing your finger at the sinus and using gentle pressure. You may actually feel movement of fluid during this technique. Follow with gentle tapping at the sinuses, asking the client to hum deeply, explaining that the vibration may help to break up congestion. Follow with superficial gliding strokes moving inferiorly to drain the sinuses.



- Treat the full scalp to increase circulation and release tension in the occipitofrontalis. If the client tolerates it, pulling the hair very gently may be useful in increasing circulation and reducing tension in the scalp.

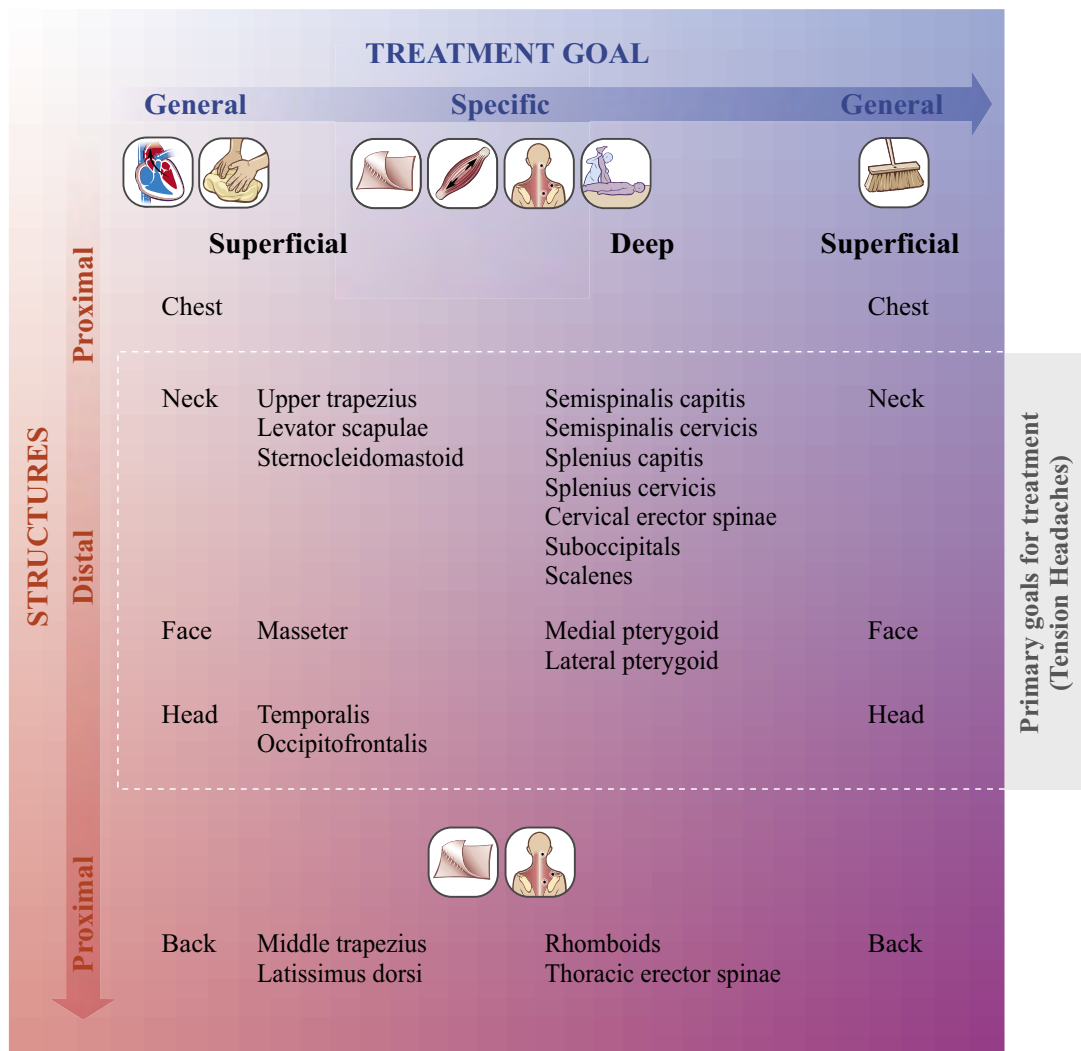


- Apply clearing strokes to the face and head.

- If time permits and the client can tolerate the face cradle in the prone position, treat the posterior thoracic muscles as needed. If hyperkyphosis is involved, you may find overstretched rhomboids, middle trapezius, and thoracic erector spinae and hypertonic cervical erector spinae, lower trapezius, and latissimus dorsi. If a respiratory condition is a factor, be sure to assess and treat the serratus muscles.

CLIENT SELF-CARE

The following are intended as general recommendations for stretching and strengthening muscles involved in tension headaches. The objective is to create distance between the attachment sites of muscles that have shortened and to perform repetitions of movements that decrease the distance between the attachments of muscles that have weakened. If you have had no training in remedial exercises and do not feel that you have a functional understanding of stretching and strengthening, refer the client to a professional with training in this area.



Clients often neglect self-care because their daily lives are busy. Encourage them to follow these guidelines:

- Instruct the client to perform self-care activities throughout the day, such as while taking a phone call, reading e-mail, watching television, or performing other activities of daily living instead of setting aside extra time.
- Encourage the client to take regular breaks from repetitive actions.
- Demonstrate gentle self-massage to keep adhesions and hypertonicity at bay between treatments.
- Encourage the client to perform relaxed, deep breathing exercises when pain arises.
- Encourage the client to keep a headache journal, which may help identify patterns and aggravating factors.
- Instruct the client on proper posture to keep pressure off weakened joints. For the client who spends long hours at a desk or on the telephone, it is essential to demonstrate the proper seated posture and to instruct the client not to hold the phone between the ear and shoulder. Recommend a sleeping position that does not stress the client's affected structures.
- Demonstrate all strengthening exercises and stretches to your client and have them perform these in your presence before leaving to ensure that they are performing them properly and will not harm themselves when practicing alone. Stretches should be held for 15–30 seconds and performed frequently throughout the day within the client's limits. The client should not force the stretch. It should be slow and gentle, trying to keep every other muscle as relaxed as possible.



Figure 5-6 Cervical extensor stretch.



Figure 5-7 Cervical flexor strengthening.

Stretching

To stretch the posterior neck muscles, instruct the client to let the head hang so that the chin approaches the chest (Fig. 6). They should not force the chin to touch the chest with an active contraction. To increase the stretch, the client can rest the hands on the back of the head and allow the weight of the arms to gently pull the chin toward the chest. It may help to gently rotate the flexed neck to one side to more specifically target muscles that need lengthening.

To stretch the cervical rotators and restore mobility, instruct the client to slowly and gently rotate the neck to one side, hold for 5–10 seconds, then rotate to the other side and hold; repeat this 5–10 times or as often as is comfortable before the client feels fatigue or weakness. For some, it may feel good to rotate the head in extension as well, but this is not advised if the client is at risk for nerve compression or herniation. Even in the absence of disc disease or nerve compression, one rotation in extension may be performed after several side-to-side rotations in flexion, but do not instruct the client to do a full repeated circumduction of the head.

If temporomandibular joint dysfunction is a contributing factor, and the joint does not dislocate during movement, instruct the client to open the mouth as widely as is comfortable and to hold for 15 seconds, relax for 5 seconds, and repeat this stretch 5–10 times. If possible, have the client alternate between opening the mouth straight and then opening the mouth with the lower jaw to the right, then to the left, always coming back to the middle between stretches. You may also instruct the client to perform gentle massage to the muscles of mastication.

Strengthening

The client can strengthen the deep anterior neck muscles with resisted flexion of the neck. Instruct the client to rest the forehead in the palm of their hand, and with the spine erect and thorax in proper alignment, flex the neck against the resistance of the hand (Fig. 7). These can be held for approximately 5–10 seconds with 3–5 seconds of rest between each resistance. The client can perform 10 or more repetitions for as long as it is comfortable before feeling fatigue or weakness in the neck.

If hyperkyphosis is a contributing factor, the client must also strengthen the middle trapezius and rhomboids in order to oppose the pull of the shortened pectoral muscles. Instruct the client to stand with the arms comfortably hanging at the sides while squeezing the scapulae together. When this is done properly, only the middle trapezius and rhomboids should contract while the shoulders are relaxed.

SUGGESTIONS FOR FURTHER TREATMENT

Ideally, the client with chronic tension headaches will have treatments once or twice a week until symptoms are absent for at least 7 days. As treatment continues, the period of symptom-free days should increase until headaches become occasional or are relieved completely. After this, the client can schedule as necessary. If the headaches are caused by muscle tension, there should be some improvement with each session. If this is not happening, consider the following possibilities:

- There is too much time between treatments. It is always best to give the newly treated tissues 24–48 hours to adapt, but if too much time passes between treatments in the beginning, the client’s activities of daily living may reverse any progress.
- The client is not adjusting their activities of daily living or is not keeping up with self-care. As much as we want to fix the problem, we cannot force a client to make the adjustments we suggest.
- The condition is advanced or involves other musculoskeletal complications that are beyond your basic training. Refer this client to a massage therapist with advanced clinical or medical massage training. Continuing to treat a client whose case is beyond your scope of practice could turn the client away from massage therapy altogether and hinder their healing.
- The headaches have an undiagnosed, underlying cause. Discontinue treatment until the client sees a health care provider for medical assessment.

If you are not treating the client in a clinical setting or private practice, you may not be the therapist who takes this client through the full program of healing. Still, if you can bring some relief, it may encourage the client to discuss this change with a health care provider and to consider massage therapy rather than more aggressive treatment options. If the client agrees to return for regular treatments, the symptoms are likely to change each time, so it is important to perform an assessment before each session. Once you have released superficial tissues in general areas, you may be able to focus more of your treatment on a specific area. Likewise, once you have treated the structures specific to tension headaches, you may be able to pay closer attention to compensating structures and coexisting conditions.

Professional Growth

Case Study

Grace is a 20-year-old college student. She was an athlete in high school and has tried to continue in sports, but her current responsibilities make it difficult for her to stay active. Grace does her best to choose healthy options when she finds the time to eat a proper meal. She rarely has time for exercise, but walks to and from classes, which are approximately a mile away from her home. She has been getting headaches in the late afternoon a few days a week.

SUBJECTIVE

Grace stated having headaches that begin in the late afternoon. The headaches get better while she is walking home but sometimes kick up again after dinner when she does her homework and persist until she goes to sleep or takes an aspirin. She does not wake up with the headache. She has had occasional

headaches at school for a few months, but recently they have become as frequent as 3 or 4 times per week. She feels the pain on the side of her head as if it wraps around her ear. The pain is often on the left side, but occasionally it feels like it fills her whole head. She also stated that recently she noticed that she feels pain on the left side of her upper back when she gets a headache. She stated that her desk at work is set up with the phone and keyboard to the left of her screen, so she often holds the phone with her left shoulder and has to turn her head to the right to look at the screen when typing. When asked to describe the character and intensity of pain, she stated that it felt as if she were wearing a helmet that is too tight, and that the pain was distracting and slowed her down but did not cause her to stop working. On a scale of 1–10, Grace stated that she felt pain at a level 6 most of the time, occasionally at 7 or 8. When asked, Grace was unsure whether she has the tendency to grind her teeth. When asked, she stated that she has had no numbness, tingling, extremes of temperature, or other unusual sensations in the extremities, has felt no dizziness, vertigo, nausea or changes in vision or speech, and has never experienced an aura or sensitivity to light with her headaches. Grace drinks water regularly throughout the day.

OBJECTIVE

When I stood to Grace's right, she was able to look toward me by rotating only her head. When I stood to her left, she rotated her whole thorax to look in my direction. Postural assessment revealed a head-forward posture and an elevated left shoulder. Her head is laterally flexed left and rotated to the right. Her thorax is slightly flexed to the left. Her hips are slightly rotated to the right. Palpation assessment revealed that her superficial neck extensors are adhered and dense. It was difficult to distinguish individual muscles or to feel muscle fibers initially.

ACTION

I began treatment in the supine position with a bolster under the occiput and an eye pillow over the eyes. I performed myofascial release on the superficial adhesions along the occiput toward the mastoid process and down the lateral neck. I spent a significant amount of time warming the lateral and posterior neck with effleurage and cross-fiber friction. I applied muscle stripping to the upper trapezius bilaterally. I found a trigger point approximately 2 inches medial to the left acromion process that referred pain into the head around the ear at a pain level of 8. Compression followed by focused muscle stripping reduced the intensity of the referred pain to level 5. I applied pincer grip petrissage to the SCMs. No trigger points were found. I used cross-fiber friction on the scalenes followed by muscle stripping. I found a trigger point in the left anterior scalene approximately 1 inch superior to the clavicle that referred pain across the left shoulder at level 6. Compression followed by muscle stripping reduced the referred pain to level 2. I applied a deep stretch to the upper trapezius, SCMs, and scalenes bilaterally. I also applied cross-fiber friction to the neck extensors and circular petrissage along the spine of the scapulae, superior angles of the scapulae, and the thoracic and cervical vertebrae. Taut bands were found in the left splenius capitis and levator scapulae. No trigger points were found. I used deep friction on the neck extensors to reduce adhesions and release taut bands. With the remaining time, I paid minor attention to the full length of the erector spinae, latissimus dorsi, internal and external obliques, and quadratus lumborum to assess and begin reducing thoracic flexion and rotation in hips.

Grace stated that she felt less stiff than when she arrived.

PLAN

I demonstrated stretches to the neck extensors and rotators. I recommended that she practice these frequently throughout the day, particularly when she is working or studying. I also recommended that she reorganize her desk so that she can look straight ahead instead of rotating her head toward the screen. I recommended that she use, when possible, a speakerphone or headset or to hold the telephone with her hand instead of using her shoulder. I recommended biweekly treatments for 2 weeks followed by reassessment. This will help to keep adhesions at bay so that we can target more specific tissues in subsequent sessions. Grace scheduled a 1-hour session 4 days from today.

Critical Thinking Exercises

1. Develop a 10-minute stretching and strengthening routine for a client that covers all of the muscles commonly involved in tension headaches. Use Box 5-1 and Figure 5-5 as a guide. Remember that a stretch increases the distance between the origin and insertion of a muscle and is important for those muscles that are shortened, while strengthening is performed by actively bringing the origin and insertion closer together and is important if the antagonists of shortened muscles have weakened. Describe each step of the routine in enough detail that the client can perform it without your assistance.
2. A potential client explains that about 6 months ago she started feeling stiffness and pain in her neck and shoulders. She associates this pain with being pulled and spun abruptly during a tango class. She saw her doctor when the pain persisted for a week but was released with no injuries found. No X-rays or special tests were performed. The doctor recommended chiropractic treatment, and the client complied. No X-rays were taken, but orthopedic tests were negative for a herniated disc. The chiropractor adjusted the cervical and thoracic vertebrae, which brought relief for only a day or two. Three subsequent visits also resulted in only temporary relief. In the past few weeks, the client has been experiencing chronic headaches. Assuming that the abrupt movement while dancing was the primary contributing factor, what injury may have occurred that would result in chronic pain and headaches? What are some things to consider in your assessment of an injury that was only temporarily relieved by chiropractic adjustment to the vertebrae? Which structures will you assess and what abnormalities might you expect to find?
3. Discuss special considerations and adjustments to treatment for a client who has chronic tension headaches as well as a condition such as hypertension or atherosclerosis that is currently under control and being monitored by a health care provider.
4. Conduct a short literature review to explain how the following conditions may put a client at risk for chronic headaches:
 - Nerve root compression
 - Diabetes
 - Chronic bronchitis
 - Dental overbite
 - Whiplash
 - Menopause
 - Depression or anxiety
 - Withdrawal from drugs, alcohol, caffeine, or cigarettes

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