




Trigger points—tender, painful nodules that form in muscle fibers and connective tissues—can refer pain to other areas of the body, in addition to referring pain locally. *Pain Relief With Trigger Point Self-Help* teaches readers where to search for trigger points, how to treat them by applying pressure and doing stretches, and how to prevent trigger points from forming by making simple lifestyle changes, practicing proper body mechanics, and addressing nutritional deficiencies and other pertinent medical issues. Although *Pain Relief With Trigger Point Self-Help* is written for anyone who wants to successfully treat their own pain, it is also an invaluable reference for health care practitioners whose patients suffer from either chronic or acute pain.



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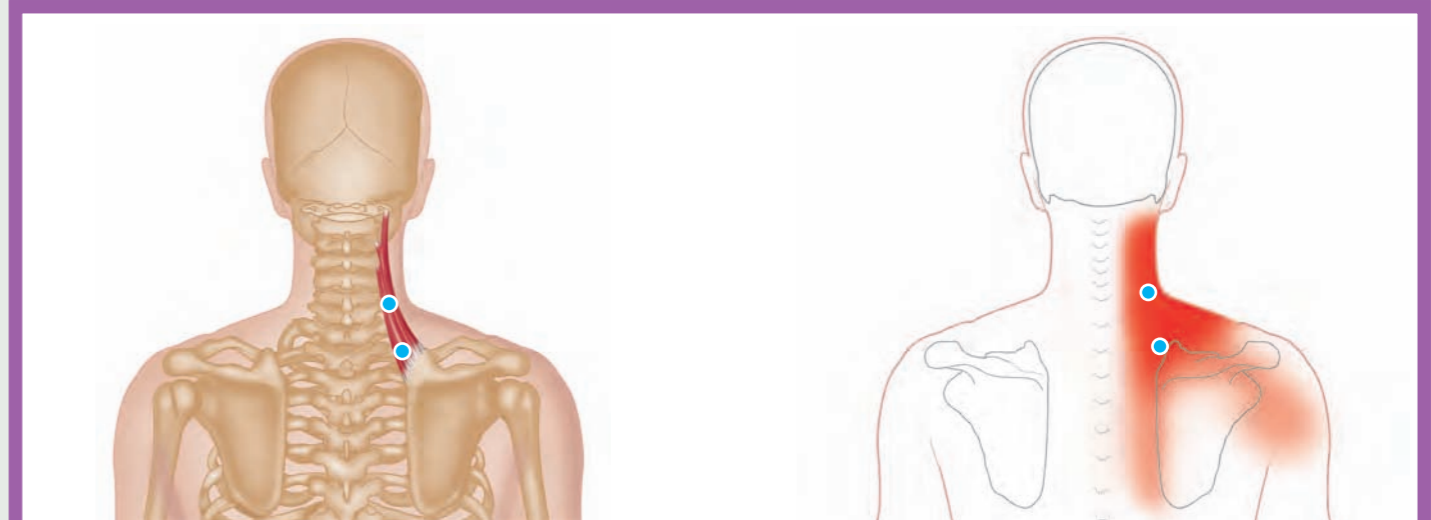
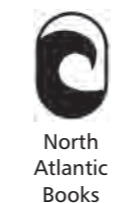
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Valerie DeLaune



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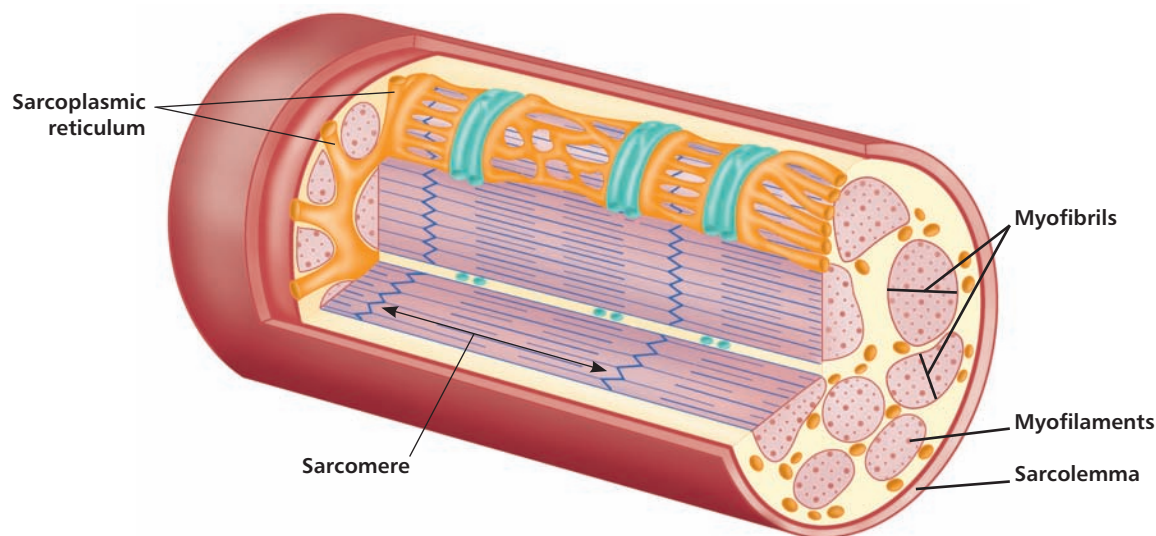
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1

Trigger Points and Chronic Pain

Muscle Anatomy and Physiology

Muscles consist of many muscle cells, or *fibers*, bundled together by connective tissue. Each fiber contains numerous *myofibrils*, and most skeletal muscles contain approximately one thousand to two thousand myofibrils. Each myofibril consists of a chain of sarcomeres connected end to end—it is in the *sarcomere* that muscular contractions take place.



Each skeletal muscle fiber is a single cylindrical muscle cell.

A *muscle spindle* is a sensory receptor found within the belly of a muscle. Muscle spindles are concentrated where a nerve enters a muscle and also around nerves inside the muscles. Each spindle contains three to twelve *intrafusal muscle fibers*, which detect changes in the length of a muscle. As the body's position changes, information is conveyed to the central nervous system via sensory neurons and is processed in the brain. As needed, the *motor end plate* (a type of nerve ending) releases *acetylcholine*, a neurotransmitter that tells the *sarcoplasmic reticulum* (a part of each cell) to release ionized calcium. The *extrafusal muscle fibers* then contract. When contraction of the muscle fibers is no longer needed, the nerve ending stops releasing acetylcholine, and calcium is pumped back into the sarcoplasmic reticulum.

Trigger Point Physiology: Contractions and Inflammation

One of the current theories about the mechanism responsible for the formation of trigger points is the "Integrated Trigger Point Hypothesis." If a trauma occurs, or there is a large increase in the motor end plate's release of acetylcholine, an excessive amount of calcium can be released by the sarcoplasmic reticulum. This causes a maximal contracture of a segment of muscle, leading to a maximal demand for energy and impairment of local circulation. If circulation is impaired, the calcium pump does not get the fuel and

oxygen it needs to pump calcium back into the sarcoplasmic reticulum, so the muscle fiber stays contracted. Sensitizing substances are released, causing pain and stimulation of the autonomic nervous system, resulting in a positive feedback system with the motor nerve terminal releasing excessive acetylcholine...and so the sarcomere stays contracted.

Another current theory is the “Muscle Spindle” hypothesis, which proposes that the main cause of a trigger point is an inflamed muscle spindle (Partanen, Ojala, and Arokoski, 2010). Pain receptors activate skeletofusimotor units during sustained overload of muscles via a spinal reflex pathway, which connects to the muscle spindles. As pain continues, sustained contraction and fatigue drive the skeletofusimotor units to exhaustion, and cause rigor (silent spasm) of the extrafusal muscle fibers, forming the “taut band” we feel as trigger points. Because the muscle spindle itself has a poor blood supply, the inflammatory metabolites released will be concentrated inside the spindle and lead to sustained inflammation.

In a ground-breaking study, Shah et al. (2008) were able to measure eleven elevated biochemicals in and surrounding active trigger points, including inflammatory mediators, neuropeptides, catecholamines, and cytokines (primarily sensitizing substances and immune system biochemicals). In addition, the pH of the samples was strongly acidic compared to other areas of the body. In a study conducted by Issbener, Reeh, and Steen (1996), it was discovered that a localized acidic pH lowered the pain threshold sensitivity level of sensory receptors (part of the nervous system), even without acute damage to the muscle. This means that the more acidic your pH level in a given area, the more pain you will experience compared to someone else. Further investigation is needed to determine whether body-wide elevations in pH acidity and the substances mentioned above predispose people to the development of trigger points.

More studies, therefore, are needed to determine the exact mechanisms of trigger point formation and physiology.

Central Sensitization, Trigger Points, and Chronic Pain

The *autonomic nervous system* controls the release of acetylcholine, along with involuntary functions of blood vessels and glands. Anxiety and nervous tension increase autonomic nervous system activity, which commonly aggravates trigger points and their associated symptoms.

The *central nervous system* includes the brain and spinal cord, and its function is to integrate and coordinate all activities and responses of the body. The purpose of the acute stress responses of our bodies is to protect us by telling us to pull away from a hot stove burner, flee from a dangerous situation, or rest an injured body part due to pain. But when emotional or physical stress is prolonged, even just for a few days, there is a maladaptive response: damage to the central nervous system, particularly to the sympathetic nervous system and the hypothalamus-pituitary-adrenal (HPA) systems. This is called *central nervous system sensitization*.

Pain causes certain types of nerve receptors in muscles to relay information to *neurons* located within part of the gray matter of the spinal cord and the brain stem. Pain is amplified there and is then relayed to other muscles, thereby expanding the region of pain beyond the initially affected area. Persistent pain leads to long-term or possibly permanent changes in these neurons, which affect adjacent neurons through *neurotransmitters*.

Various substances are released: *histamine* (a compound that causes dilation and permeability of blood vessels), *serotonin* (a neurotransmitter that constricts blood vessels), *bradykinin* (a hormone that dilates peripheral blood vessels and increases small blood vessel permeability), and *substance P* (a compound involved in the regulation of the pain threshold). These substances stimulate the nervous system to release even more acetylcholine locally, adding to the perpetuation of trigger points.

Active Trigger Points vs. Latent Trigger Points

If a trigger point is active, it will refer pain or other sensations and limit range of motion. If a trigger point is *latent*, it may cause a decreased range of motion and weakness, but not pain. The more frequent and intense your pain, the greater the number of active trigger points you are likely to have.

Trigger points that start with some impact to the muscle, such as an injury, are usually active initially. Poor posture or poor body mechanics, repetitive use, a nerve root irritation, or any of the other perpetuating factors addressed in chapters 2–4 can also form active trigger points. Latent trigger points can develop gradually without being active first, and you do not even know they are there. Most people have at least some latent trigger points, which can easily be converted to active trigger points.

Active trigger points may at some point stop referring pain and become latent. However, these latent trigger points can easily become active again, which may lead you to believe you are experiencing a new problem when in fact an old problem—perhaps even something you have forgotten about—is being reaggravated. Any of the perpetuating factors discussed in chapters 2–4 can activate previously latent trigger points and make you more prone to developing new trigger points initiated by impacts to muscles.

What Causes and Perpetuates Trigger Points?

Trigger points may form after a sudden trauma or injury, or they may develop gradually. Common initiating and perpetuating factors are mechanical stresses, injuries, nutritional problems, emotional factors, sleep problems, acute or chronic infections, organ dysfunction and disease, and other medical conditions; these conditions are discussed in next three chapters.

You will have more control over some perpetuating factors than others. Addressing any pertinent perpetuating factors is so important that you may obtain either substantial or complete relief from pain without any additional treatment. If you do not eliminate perpetuating factors to the extent possible, you may not get more than temporary relief from self-help pressure techniques or practitioners' treatments. Hopefully, you will learn enough about perpetuating factors that at least if you choose not to resolve them, you are making an informed choice about whether the relief of pain is more important to you than continuing to do things that make you feel worse.

You cannot realistically make all of the changes discussed in chapters 2–4 at once, but make a list of the perpetuating factors that might apply to you. Prioritize and work on resolving those you think might be the most important.

2

Perpetuating Factors: Ergonomics, Body Mechanics, and Clothing

Poorly designed or misfitting furniture, improperly using your body, and ill-fitting clothing causes and perpetuates trigger points, and are nearly always correctable. Investing in well-designed furniture, modifying certain activities, and wearing properly-fitting clothing will greatly speed your healing and provide long-term relief.

Ergonomics

Poorly designed or misfitting furniture causes chronic mechanical stress that leads to the development of trigger points and a self-perpetuating cycle of pain. Modifying your furniture can be one of the most important things to do in order to resolve your pain.

Office Furniture

Misfitting furniture is a major cause of muscular pain, particularly at the office or other workplace. There are many things you can do to minimize the amount of stress placed on your muscles. Even if you do not have a desk job, you may be coming home and spending a fair amount of time on a computer and/or at a desk.

There are companies that specialize in correcting your office arrangement and supplying you with furniture that fits your body. Your employer may balk at the cost, but if they do not change your misfitting furniture, they will end up paying for lost work time and workers' compensation claims. If your employer will not pay for it, you should consider paying for it yourself. What is it worth to you to be pain free?

Solutions

Computer station

Your computer screen should be about 1.5 to 2 feet away, located directly in front of you with the middle of the screen slightly below eye level. The copy should be attached to the side of the screen with a copy-holder so that your head is not tipped up or down, or turned to the side too far. Evaluate your workstation to make sure that you do not have glare on your screen, that your lighting is adequate, and that you have a computer screen that is not bothering your eyes.

If you have a keyboard tray, it should be height-adjustable. Your forearms should be parallel to the floor and your wrists should be straight. You may want to use a wrist rest. Be sure you are close enough to the desk so that you are leaning against the back of your chair, and that your elbows and forearms are supported on armrests or the desk. I see a lot of what I call "mouse injuries"—arm and shoulder pain due to using a computer mouse for extended periods of time without proper arm support. Move and relax your arms when you are not typing. Take frequent breaks and intersperse your computer work with non-computer tasks.

3

Perpetuating Factors: Nutrition, Food, and Beverages

What you eat and drink, or *do not* eat and drink, may cause and perpetuate trigger points. If diet is a factor, improving your nutrition, drinking enough water, and avoiding certain foods and drinks may greatly decrease both the intensity and frequency of your symptoms from trigger points.

Changing your diet will likely take some time, but you can easily start with little effort by taking a multivitamin supplement as well as a multimineral supplement, and drinking enough water. As you identify which foods you need to avoid, start replacing them with foods high in the needed vitamins and minerals. Be sure you are getting enough protein.

Inadequate Nutrition

It is easy and relatively inexpensive to improve your nutrient intake to see if it will decrease your symptoms. Doctors Travell and Simons found that almost **half** of their patients required treatment for vitamin deficiencies or insufficiencies* to obtain lasting relief from the pain and dysfunction of trigger points, and thought it was one of the most important perpetuating factors to address. The more deficient in nutrients you are, the more symptoms of all kinds you will have, and your trigger points and nervous system will be more hyperirritable. Even if a blood test for vitamin and mineral levels determines that you are at the low end of the normal range, you may still need a greater quantity of some nutrients, since your body will pull nutrients from the tissues before it will allow a decrease in the blood levels. Building up sufficient levels of vitamin B₁₂, vitamin D, and iron may take several months; do not get discouraged if you do not see immediate results, though you may start gradually feeling better within a few weeks from taking multivitamin and multimineral supplements.

Several factors may lead to nutrient deficiency or insufficiency, including an inadequate intake of a nutrient, impaired nutrient absorption, inadequate nutrient utilization, an increased need by the body, a nutrient leaving the body too quickly, and a nutrient being destroyed within the body too quickly.

What Should I Take and When?

Even if you have a fairly healthy diet, you may need to take supplements. The soils in many agricultural fields have been depleted of nutrients by repeatedly planting the same crop in the same location, rather than rotating them. Use of chemical fertilizers and pesticides can also adversely affect both crops and the soil. Shipping food over long distances or storing it for long periods also depletes the nutritive value; too much time passes between when the crop is picked and when it is consumed. Most people need to take some kind of multivitamin and multimineral supplement to ensure proper nutrition, especially if you fall into one of the high-risk groups mentioned below.

** A nutrient insufficiency means that levels are within the lower 25% of the normal range, which may cause subtle clinical signs and symptoms. Most health care providers will dismiss lower levels of a vitamin or mineral as being irrelevant, since results are within a "normal" range. However, insufficiencies can cause and perpetuate chronic pain.*

4

Perpetuating Factors: Medical Conditions

There are several other perpetuating factors that may be very important in the role they play in causing body-wide trigger points. Treating new injuries promptly can help prevent the formation of trigger points. Treatment of older injuries and treating spinal misalignments and other problems in the skeletal system can help stop the perpetuation of trigger points.

Sleep problems, emotional factors such as anxiety and depression, acute and chronic infections, allergies, hormonal imbalances, and organ dysfunction and disease can all cause and perpetuate trigger points. Some of these conditions need to be diagnosed by laboratory tests, and you may want to ask your health care provider if some of these tests would be helpful in your case. See “Helpful Laboratory Tests” on page 39 for an outline of some possible diagnostic tests.

Injuries

An injury is one of the most common initiators of trigger points in general. A healthy muscle is pliable to the touch when it is not being used, but will feel firm if called upon for action. If a muscle feels firm at rest, it is tight in an unhealthy way, even if you work out. I like to use an analogy of a rubber band or stick. Imagine that a sudden, unexpected force is applied to the “stick,” or tight muscle, such as during a fall. Like a stick, the muscle will be damaged. If a sudden force is applied to a pliable muscle, or “rubber band,” it will stretch with the force instead, and will be much less likely to be injured. Since latent trigger points restrict range of motion to some degree, and almost everyone has some latent trigger points, a muscle may be tight and restricted without you being aware of it, and can be easily injured if a sudden force is applied.

Solutions

Treat new injuries

If you have an injury, begin treatment as soon as possible. Apply cold during the first 48 hours, and use some form of arnica homeopathic orally and/or topically as soon as possible. There are Chinese herb formulas for trauma that you can get from an acupuncturist or possibly a health food store. Have these available in your medicine cabinet since it may be hard for you to go to the store after you are injured, and because these work best when you start taking them immediately after the injury. See an acupuncturist or massage therapist who is experienced in working with recent injuries. You may also need to see a chiropractor or osteopathic physician.

Treat scar tissue

Both injuries and surgeries will likely leave some amount of scar tissue, which can perpetuate trigger points. Scar tissue can be broken up to some extent by vigorous cross-friction massage, but most people will not work on their own scars vigorously enough due to the pain it causes. You will probably need to see a practitioner for help. Acupuncture can treat scar tissue and help eliminate the pain from trigger points around the area. I recommend using both cross-friction massage and acupuncture as part of the treatment protocol, rather than just one or the other.

6

Trigger Point Location Guides

Any muscle can develop trigger points, potentially causing referred pain and other symptoms. Remember, there are approximately four hundred muscles in the human body, but a few of them may or may not be present in some people. There are also individual variations in fiber or tendon arrangement, so trigger points may be located in different places for different people.

To figure out which muscles to work on first, look at the trigger point location guides and refer to the chapters listed for each. Examine the photos of referral patterns in each chapter and try to find those that most closely match your pain pattern, and read the list of symptoms for each muscle. Refer to chapter 5 for additional instructions on where to start and general guidelines for applying pressure, stretching, and general muscle care.

Blank Body Chart

You may wish to make copies of the blank body chart on page 50 and draw your symptom pattern on one of them with a colored marker. Then you can compare your pattern with the pain referral pictures in chapters 8 through 72. Out to the side of each painful area, note your pain intensity on a scale of 1 to 10 and the percent of time you feel pain in that area—for example, 6.5/80%.

I recommend that you fill out a body chart at least a couple of times per week. Date them so you will be able to keep them in order. This chronological record will come in handy in several ways. It will:

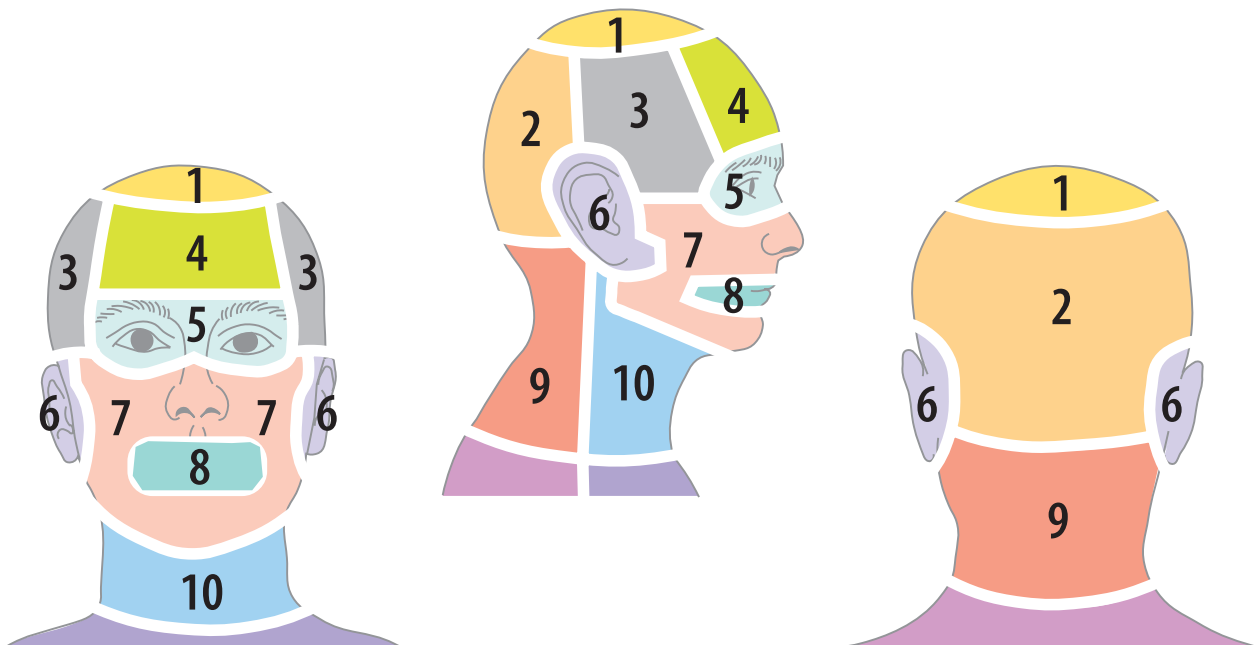
- make it easier for you to discern which patterns fit your pain referral most closely;
- help you recognize the factors that cause and perpetuate your symptoms by matching fluctuations in the level and frequency of your symptoms;
- allow you to track your progress (or lack thereof) and provide a historical record of any injuries.

As your condition improves, you may forget how intense your symptoms were originally, and you may think you are not getting any better. You will be able to see that you are improving, even if you have an occasional setback. One thing to note, however, is that not everyone can accurately draw their pain location, due in part to lack of familiarity with anatomy, so take that possibility into consideration and check muscles with adjacent referral patterns just in case your drawing is inaccurate.

Head and Neck Pain

The muscle names are followed by the chapter number

- | | | |
|---|---|---|
| <p>1. Sternocleidomastoid (10)
Splenius capitis (9)</p> <p>2. Trapezius (8)
Sternocleidomastoid (10)
Posterior neck (9)
Occipitalis (12)
Digastric (16)
Temporalis (11)</p> <p>3. Trapezius (8)
Sternocleidomastoid (10)
Temporalis (11)
Posterior neck (9)</p> <p>4. Sternocleidomastoid (10)
Semispinalis capitis (9)
Facial / Scalp (12)</p> | <p>5. Sternocleidomastoid (10)
Temporalis (11)
Posterior neck (9)
Masseter (13)
Facial / Scalp (12)
Trapezius (8)</p> <p>6. Lateral pterygoid (15)
Masseter (13)
Sternocleidomastoid (10)
Medial pterygoid (14)</p> <p>7. Sternocleidomastoid (10)
Masseter (13)
Lateral pterygoid (15)
Trapezius (8)
Digastric (16)
Medial pterygoid (14)
Facial / Scalp (12)</p> | <p>8. Temporalis (11)
Masseter (13)
Digastric (16)</p> <p>9. Trapezius (8)
Cervical multifidi (9)
Splenius cervicis (9)
Levator scapula (19)
Infraspinatus (35)</p> <p>10. Sternocleidomastoid (10)
Digastric (16)
Medial pterygoid (14)</p> |
|---|---|---|



7

Head and Neck Pain

There are several general self-help techniques that will assist you in treating trigger points in your head and neck. Retraining yourself to hold your head properly and breathe correctly will help treat several muscles in the neck and torso. There are also a few techniques that will help resolve temporomandibular joint dysfunction and headaches and migraines, including checking all of the muscles in the head and neck section for trigger points.

Improper Breathing and Trigger Points

Learning to breathe properly is important for resolving trigger points in several muscles, including the posterior neck muscles (9), sternocleidomastoid (10), thoracolumbar paraspinal muscles (18), serratus posterior inferior (21), abdominal muscles (25), serratus anterior (26), intercostals and diaphragm (27), and pectoralis minor (43).

Solutions

Place one hand on your chest and the other on your belly. When you inhale, both hands should rise. As you exhale, both hands should fall. You need to train yourself to notice when you are breathing only into your chest and make sure you start breathing into your belly.



Head-Forward Posture and Trigger Points

Head-forward posture leads to the development and perpetuation of trigger points. Have someone look at your side profile to see if your head is further forward than your trunk. The further you hold your head forward of your shoulders, the greater the likelihood that you will develop a larger number of trigger points. Head-forward posture can be aggravated while sitting in a car, at a desk, or in front of a computer, or while eating dinner or watching TV.

Solutions

Get lumbar supports and orthotics

Head-forward posture can be caused and aggravated by common daily activities such as sitting in a car or watching TV. Using a good lumbar support everywhere you sit will help correct poor sitting posture, while orthotic inserts in your shoes may improve your standing posture. See chapter 2, “Ergonomics” and “Body Mechanics.”

Retrain yourself

Postural exercises can help eliminate head-forward posture. To learn proper posture and correct a head-forward position, stand with your feet about four inches apart, with your arms at your sides and thumbs pointing forward. Tighten your buttocks to stabilize your lower back, then, while inhaling, rotate your arms and shoulders *out* and *back* by rotating your thumbs backward, and squeeze your shoulder blades together in the back. Keep holding this position while dropping your shoulders down and exhaling. Move your head back to bring the ears in line with the shoulders and hold this position for about six seconds while breathing normally.



When moving your head, do not move your nose up or down, or open your mouth. Relax, but then try to maintain good posture once you release the pose. If holding this position feels uncomfortable or “stiff,” try shifting your body weight from your heels to the balls of your feet, which causes your head to move backward over your shoulders. This exercise should be repeated frequently during the day in order to retrain yourself in good postural techniques, at least every one to two hours. It is better to do one repetition six or more times per day than to do six repetitions in a row.

Temporomandibular Joint Dysfunction and Trigger Points

Temporomandibular joint (TMJ) dysfunction can be caused by problems in the joint itself due to alignment problems and inflammation and/or untreated trigger points in the muscles in and around your mouth. Trigger points can eventually lead to changes in the joint or to *malocclusion*, which means that the teeth in the upper and lower jaws do not fit together properly.

People without jaw restrictions can get at least two knuckles vertically between their top and bottom front teeth. If you cannot do this, you do not have a normal range of motion. If your jaw deviates to one side when you open your mouth, the side it deviates toward is the one more likely to contain trigger points. If you experience a great deal of pain when you press right over the joint and inside your ear, the joint itself is probably inflamed. A displaced jaw disc may cause a feeling of pressure, leading you to bite down in an attempt to relieve the pressure, and subsequently adding to the problem.

Trigger points can be caused by clenching or grinding your teeth, pressing your tongue against your teeth or the roof of your mouth, abnormal head and neck postures, or direct trauma to your face. If your jaw makes grating or popping sounds, you may have disc erosion, bone on bone, or arthritis. This can be caused by long-term trigger points that have not been relieved, so it is important to inactivate trigger points before permanent damage results. Latent trigger points may cause symptoms other than pain, so it is wise to treat the likely trigger points even if you are not experiencing the pain of active trigger points.

Solutions

Tongue rolls

Tongue rolls help relax the muscles of the mouth. First, take three deep breaths, and continue breathing deeply through your nose during the entire exercise. Keeping your lips sealed, begin rolling your tongue in big circles on the outside of your teeth, but inside your lips. Roll your tongue ten times in each direction, or if you cannot do this many initially, do as many as are comfortable.

Supplements

Take calcium, magnesium, and folic acid, as a deficiency can play a role in grinding your teeth, called *bruxism*. See chapter 3 for more information.

Try adjustments and acupuncture

Your jaw may need an adjustment from a chiropractor or osteopath. Acupuncture very successfully treats both emotional tension and TMJ problems. Even if there is degeneration or arthritis of the jaw joint, acupuncture is still helpful for pain control, but will not restore the joint to its original condition.

See a dentist for evaluation

Always ask to use a bite block during dental procedures, such as when getting a filling.

Since changes in your bite can be either the cause of *or* the result of trigger points, it is wise to first identify and relieve your trigger points before making *any* kind of permanent dental corrections. Since working on your muscles can change your bite, perform the self-help techniques for at least four weeks before being fitted for any dental appliances. Work on *all* trigger points in the neck and head, including the sternocleidomastoid muscle pressure (chapters 8 through 16). You do not want to have to pay for a second night guard or occlusal splint because your bite has changed, or have your bite adjusted irreversibly.

You may need to be fitted with a night guard or occlusal splint with a flat occlusal plane which can change your bite. While bite guards and splints will not prevent you from clenching, they will help protect your teeth and relieve some of the muscular fatigue. The soft plastic bite splints available over the counter in pharmacies are too soft and will not help TMJ dysfunction. You need to be fitted by your dentist for a hard, acrylic bite guard. If your teeth contact prematurely (your bite is off), your dentist may recommend an occlusal splint. Your dentist may have other solutions for your particular situation. If the above suggestions do not work, then you may need to have a dentist adjust your bite, but this should be a last resort since it is irreversible. Be sure to choose a dentist who has experience with trigger points and TMJ dysfunction, and will take the time to make sure corrective devices fit properly. Improperly fitted devices can make trigger points worse and can cause additional jaw joint problems. You may need to see a specialist in TMJ evaluation.

For more information on trigger points and TMJ dysfunction, see *Trigger Point Therapy for Headaches & Migraines: Your Self-Treatment Workbook for Pain Relief* (DeLaune, 2008).

Headaches, Migraines and Trigger Points

A headache is defined as aching or pain in one or more areas of the head or neck. Both the frequency and the pain level can vary greatly. About 90% of all headaches fall into three categories: tension headaches, migraines, and cluster headaches.

People who have headaches are almost twice as likely to have postural abnormalities, such as head-forward posture, and to have trigger points in the back of the neck, particularly in the suboccipital muscles (9). The greater the number of active trigger points, the more frequent and severe the headaches.

People with migraine headaches have the same prevalence of postural abnormalities and number and location of trigger points as people with tension headaches, even when they tend to have one-sided migraines. With one-sided headaches, a greater number of active trigger points are located on the same side as the headache. People who suffer from both migraine and tension-type headaches are far more likely to have a greater number of active trigger points than those who only have one kind of headache. This means that the probability of trigger points being part or the entire problem in the majority of headaches is likely to be high.

Solutions

Trigger point self-work

If you have headaches, they can be a composite of trigger point pain referrals from neck and chewing muscles. Be sure to check all the muscles found in this section of the book (“head and neck pain”) to eliminate all sources of referred pain. Trigger points will be more tender during a headache and will probably be more tender just prior to and immediately after the headache.

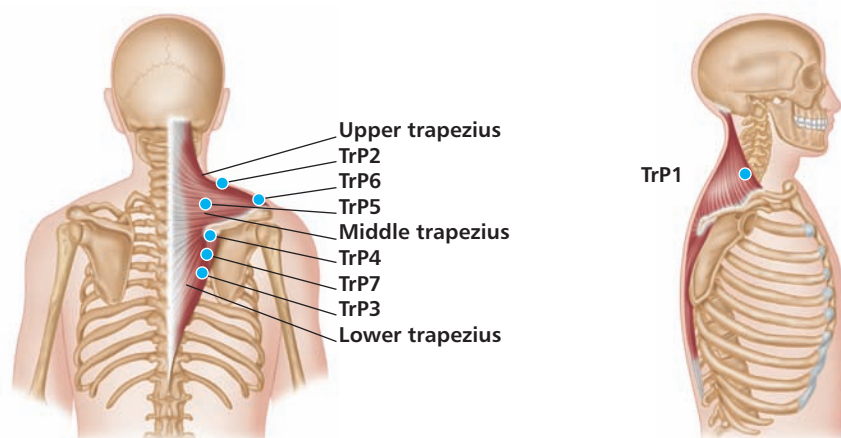
For more information on trigger points and headaches and migraines, see *Trigger Point Therapy for Headaches & Migraines: Your Self-Treatment Workbook for Pain Relief* (DeLaune, 2008); for headache symptoms and perpetuating factors tables, and a headache diary worksheet form, see www.triggerpointrelief.com.

Each muscle chapter in this section will contain additional solutions for these conditions and others affecting this part of the body.

8

Trapezius

As you can see from the muscle drawing, the *trapezius* is a large diamond-shaped muscle. It is the most superficial muscle and covers much of the mid and upper back, and the back of the neck, attaching near the base of the skull, to the collarbone (*clavicle*), shoulder blade (*scapula*), and the C6 to T12 vertebrae. There are three main parts to the muscle—the upper, middle, and lower trapezius—and each part has its own attachments, actions, and common symptoms.



The main function of the trapezius is to move the shoulder girdle and the shoulder blade in various directions, depending on which fibers are being used. This muscle commonly contains trigger points, and referred pain from these trigger points compels people to seek help more often than pain caused by any other trigger points.

Common Symptoms

Upper Trapezius

- Headaches on the temples (TrP1).
- Facial, temple, or jaw pain (TrP1).
- Pain behind the eye (TrP1).
- Severe neck pain (TrP1 and TrP2).
- Dizziness or vertigo (in conjunction with the sternocleidomastoid muscle) (TrP1), a stiff neck (TrP1 and TrP2), limited range of motion (TrP1 and TrP2), and intolerance to weight on the shoulders (TrP1 and TrP2).

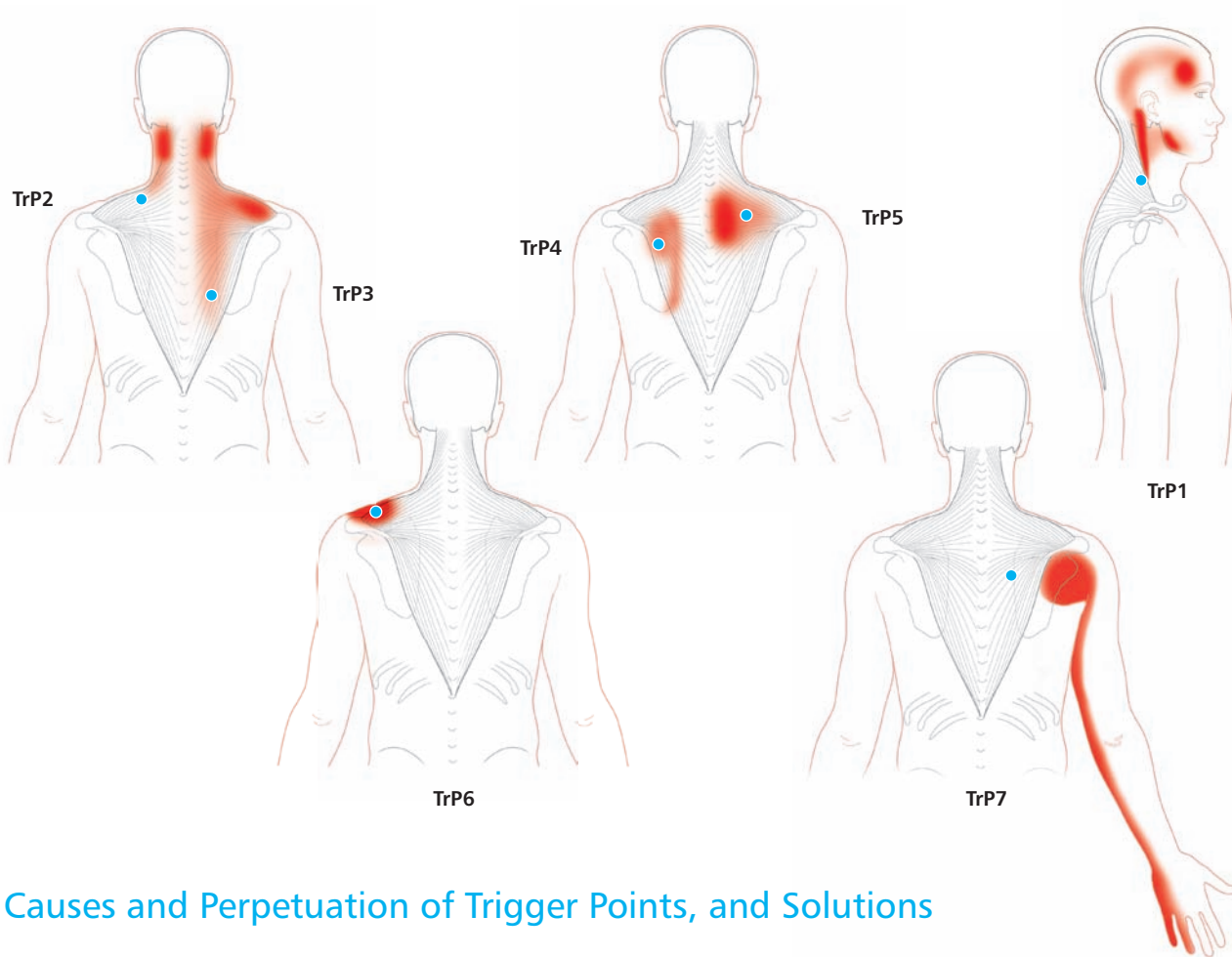
Middle Trapezius

- Mid back pain.
- Headaches at the base of the skull.
- TrP5 refers superficial burning pain close to the spine.

- TrP6 refers aching pain to the top of the shoulder near the joint.

Lower Trapezius

- TrP3 can cause mid back, neck, and/or upper shoulder region pain.
- TrP7 can possibly cause referral on the back of the shoulder blade, down the inside of the arm, and into the ring and little fingers, very similar to a serratus posterior superior referral pattern.
- TrP3 can cause headaches at the base of the skull.
- TrP3 can refer a deep ache and diffuse tenderness over the top of the shoulder.



Causes and Perpetuation of Trigger Points, and Solutions

- Poor posture and ergonomics at your desk workstation, such as sitting in a chair without armrests or with armrests that are too high, typing with a keyboard that is too high, cradling a phone between your ear and shoulder, or sitting slumped without a firm back support. Any profession or activity that requires you to bend over for extended periods, such as a dentist/hygienist, architect/draftsman, and secretary/computer user. Walking with a cane that is too long.

Solutions

- Modify or replace your misfitting furniture and pillows. See chapter 2, “Ergonomics,” for detailed information. If you use a walking cane, be sure it is not so high that it hikes up your shoulder.

- Other poor postural positions, such as tensing your shoulders, sewing on your lap with your arms unsupported, sleeping on your front or back with your head rotated to the side for a long time, turning your head to one side for long periods to have a conversation, playing a violin, or head-forward posture.

Solutions

- Retrain yourself to relax your shoulders, repeatedly noticing tension and relaxing. When having a conversation, turn and face the person, rather than rotating your head in their direction. Putting your hands in your pockets takes the weight off the trapezius muscle. See the exercise for postural retraining in chapter 7.

- Anything that puts constricting pressure on the muscles, such as shoulder or torso bra straps that are too tight, a purse or daypack/backpack that is too heavy, or a heavy coat. Carrying a daypack or purse over one shoulder—even if you think you are not hiking up one shoulder, you *are*, no matter how light the item.

Solutions

- Putting shoulder pads in a heavy coat can help take the weight off the upper trapezius. See page 19, “Clothing,” for more information on how to resolve other clothing issues.

- Sports such as jogging, bike-riding, kayaking, and weight lifting, turning your head to one side to breathe while swimming, and activities with sudden one-sided movements.

Solutions

- You may need to modify or stop doing these activities until trigger points are inactivated. Swimming provides good aerobic exercise, but you need to vary your strokes so you do not unduly stress the trapezius muscle. See page 17, “Body Mechanics,” for more information.

- Structural problems such as one leg anatomically shorter than the other, a hemipelvis that is smaller on one side (either the left or the right half of the pelvic bone), large breasts, or short upper arms (which causes you to lean to one side to use the armrests).

Solutions

- If you have a body asymmetry or short upper arms, see a specialist to get compensating lifts or pads. If your breasts are large enough that they cause backaches, your insurance company may cover breast reduction surgery if your health care provider recommends it. Carefully consider the risks of surgery if you are considering this option.

- Fatigue.

Solutions

- See page 32, “Sleep Problems.” If you suffer from chronic fatigue syndrome, see an acupuncturist or naturopathic doctor.

- Injuries such as whiplash caused by a car accident, falling on your head, or any sudden jerk of the head, or tight pectoralis major muscles.

Solutions

- Work on the muscles listed at the end of this chapter for associated trigger points.

Self-Help Techniques

Applying Pressure

Thoracolumbar Paraspinal / Trapezius Pressure

See chapter 18 for how to use a ball to apply pressure to most of the thoracolumbar paraspinal muscles and the mid to lower trapezius muscle.



Backnobber®

If you are at work and unable to lie on the floor, I recommend using a Backnobber® from Pressure Positive Company to apply pressure to the trapezius muscle. Note how both hands are pulling the Backnobber® away from the body in the direction the arrows are pointing, rather than pressing it into the front of the trunk to lever pressure onto the back.



Trapezius Pinch

Place your elbow and forearm on a surface high enough to support the weight of your arm. With the opposite hand, reach across your front and pinch the upper portion of the trapezius muscle. Be sure to stay on the meat of the muscle and *do not dig your thumb into the depression directly above the collarbone*. You may need to tilt your head slightly toward the side you are working on, to keep the muscle relaxed enough to be able to pinch it.

Supraspinatus Pressure

The supraspinatus pressure (34) will also help treat the upper trapezius.

Posterior Neck Pressure

Perform the self-help posterior neck pressure (9) on the back of your neck with a golf ball.

Stretches

Trapezius Stretch

This stretch benefits the middle and lower trapezius. Start with your arms at your sides and then move them through the positions indicated in the photographs. End with your arms at your sides and take two deep breaths. Repeat three to five times.



Posterior Neck Stretch

See the posterior neck muscles (9) and perform the self-help stretch for the back of your neck.

Pectoralis Stretch

The pectoralis stretch (17) will benefit the trapezius muscle.

Also Check

Supraspinatus (34). Sternocleidomastoid (10). Levator scapula (19). Infraspinatus (35). Pectoralis major (23). Pectoralis minor (43). Rhomboid (20). Temporalis (11, satellite trigger points). Facial and scalp muscles (12, occipitalis – satellite trigger points). Posterior neck muscles (9, satellite trigger points). Masseter (13, satellite trigger points).

Differential Diagnosis

If you are unable to relieve your symptoms with trigger point self-help techniques, you may need to see a health care provider to rule out occipital neuralgia and cervicogenic headaches. Or, you may need to see a chiropractor or osteopathic physician to be evaluated for vertebrae that are out of alignment.

Pronunciation of Muscle Names

MUSCLE NAME	PRONUNCIATION
Abductor Digiti Minimi	ab-DUK-ter DIJ-ih-tye MIN-ih-mye
Abductor Hallucis	ab-DUK-ter HAL-oos-is (or HAL-uh-kiss)
Adductor Brevis	ad-DUK-ter BREV-is
Adductor Hallucis	ad-DUK-ter HAL-ah-sis
Adductor Longus	ad-DUK-ter LONG-us
Adductor Magnus	ad-DUK-ter MAG-nus
Adductor Pollicis	ad-DUK-ter POL-ih-sis (or POL-ih-kiss)
Anconeus	an-KO-nee-us
Biceps Brachii	BYE-seps BRAY-kee-eye
Biceps Femoris	BYE-seps FEM-uh-ris
Brachialis	BRAY-kee-al-is
Brachioradialis	BRAY-kee-oh-ray-dee-AL-is
Buccinator	BUK-sih-NAY-tor
Bulbospongiosis	bul-boh-spun-jee-OH-ses
Coccygeus	KOK-si-jeez
Coracobrachialis	KOR-uh-ko-BRAY-kee-al-is
Deltoid	DEL-toyd
Diaphragm	DYE-ah-fram
Digastric	di-GAS-trik
Extensor Carpi Radialis Brevis	ek-STEN-ser KAR-pye ray-dee-AL-is BREV-is
Extensor Carpi Radialis Longus	ek-STEN-ser KAR-pye ray-dee-AL-is LONG-us
Extensor Carpi Ulnaris	ek-STEN-ser KAR-pye ul-NAIR-is
Extensor Digitorum	ek-STEN-ser dij-i-TOH-rum
Extensor Digitorum Brevis	ek-STEN-ser dij-i-TOH-rum BREV-is
Extensor Digitorum Longus	ek-STEN-ser dij-i-TOH-rum LONG-us
Extensor Hallucis Brevis	ek-STEN-ser HAL-ah-sis BREV-is
Extensor Hallucis Longus	ek-STEN-ser HAL-ah-sis LONG-us
Extensor Indicis	ek-STEN-ser IN-di-kis
External Abdominal Oblique	eks-TER-nal . . .oh-BLEEK
Flexor Carpi Radialis	FLEK-ser KAR-pye ray-dee-AL-is
Flexor Carpi Ulnaris	FLEK-ser KAR-pye ul-NAIR-is
Flexor Digiti Minimi Brevis	FLEK-ser DIJ-ih-tye MIN-ih-mye BREV-is
Flexor Digitorum Brevis	FLEK-ser dij-i-TOH-rum BREV-is
Flexor Digitorum Longus	FLEK-ser dij-i-TOH-rum LONG-us
Flexor Digitorum Profundus	FLEK-ser dij-i-TOH-rum pro-FUN-dis
Flexor Digitorum Superficialis	FLEK-ser dij-i-TOH-rum soo-per-fish-ee-AL-is
Flexor Hallucis Brevis	FLEK-ser HAL-oos-is (or HAL-uh-kiss) BREV-is
Flexor Hallucis Longus	FLEK-ser HAL-oos-is (or HAL-uh-kiss) LONG-us
Flexor Pollicis Longus	FLEK-ser POL-li-sis LONG-us
Frontalis	fron-TAL-is

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