

Clinical Monograph Series

Managing Tension Headache

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Tension Headaches: Their Cause and Treatment

This monograph provides information about:

- The causes of pain that result from tension headaches
- The types of pain that result from tension headaches
- What the CYCLE OF PAIN is and how it must be broken before headaches go away
- How you should evaluate your own headaches to break the cycle of pain
- What you can do to treat your headache pain and stop it from returning

Your headache problem is unique and only you have the knowledge and insight to identify the problems and change the conditions that lead to your headache pain. This monograph contains a considerable amount of information and it is strongly suggested that you read it at least twice at two different sittings to help you retain all of the important facts.

What Causes A Tension Headache?

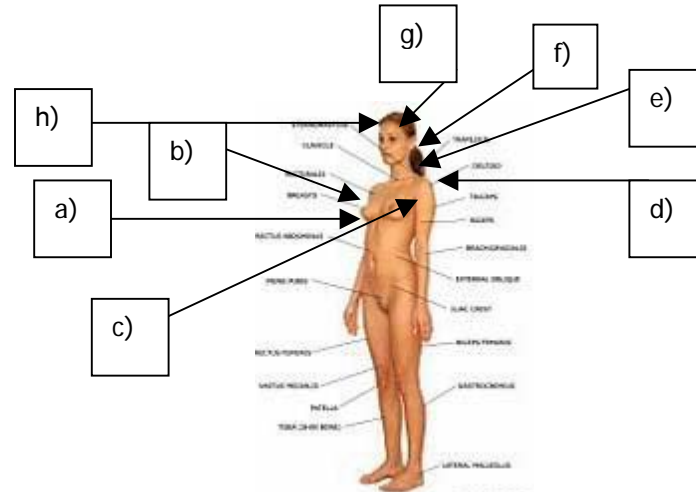
Muscle tearing, or what is commonly called a sprain, results in spasm and inflammation and is at the root of all tension-muscle contraction headaches. Unnoticed physical movement usually aggravates the tear; this occurs where one or more muscles are repeatedly stretched without allowing for healing. A common wrist or ankle sprain is usually obvious when it occurs. The sprain is generally treated with rest, anti-inflammatory medicines, and physical measures such as heat, ice and gentle physical therapy. A muscle sprain in your neck or scalp is usually not recognized because it occurs during sleep or due to a sustained prolonged posture, such as working at a computer or a workbench. Throughout such activity a person is focused on their task and does not recognize that their neck has become stiff until they sit up or stand. Compare how you feel after sitting in a comfortable seat at the movies for three hours versus sitting at a computer for three hours without getting up to move about.

Neck tears often occur during sleep when your chin drops onto your chest; a position similar to a baby asleep in a car seat. Many people wake with a stiff, painful neck after falling asleep in an airplane seat or in a car. Imagine how your neck would feel if that was the only place you could sleep.

Chronic pain depletes brain neurotransmitters – substances in the brain that are key to fighting the effects of pain. As the level of this substance falls muscle tension increases throughout your body leading to restless sleep and increased signs of stress. This sets the stage for more debilitating muscle sprains and increased pain.

What Type of Pain Is Caused By A Tension Headache?

The type of pain a person experiences from a tension headache depends on which structures are torn. Muscles, tendons and ligaments of the neck and scalp attach to each other like links in a chain. When spasm occurs in one part of the chain tension is applied to all the structures, leading to inflammation, tenderness and pain in one or more of the links.



Links in the Chain

Women Only

- a) suspensory ligaments of breasts
 - b) attach over breast bone
 - c) run up front of armpit and
 - d) attach to trapezius-shoulder muscles
 - e) shoulder muscles attach to paraspinal muscles in neck
- #### *Men and Women*
- f) paraspinal muscles attachment to scalp and skull
 - g) scalp stretched over skull
 - h) scalp attachments over temples and forehead

Women are uniquely susceptible to tension headaches because their posture is continually under stress from their figure. This is especially true if their build is slight or their breasts are heavy. The suspensory ligaments of the breast attach at the sternum (sometimes causing aching chest pain), and extend from the armpit to the trapezius, or shoulder muscles. These muscles, in turn, attach to the neck muscles, to the scalp and, ultimately to the skull at the level of the temples and the eyebrows. Many women recognize tenderness in the front of the armpit at the chest wall, over the shoulders, between the shoulder blades, in the neck muscles and at the base of the skull, or around the temples as a result of exacerbated tension anywhere along this musculature chain.

Men and women share paraspinal muscle strain that originates from curvature of the spine, low back pain, limping or an asymmetric (uneven) gait, all of which can cause muscles in the back to tighten and eventually pull on the neck muscles and scalp and thereby lead to a headache. To the headache sufferer it is usually not obvious that a headache may be the result of knee pain that causes them to limp, therefore, create tension elsewhere in their body.

The pain associated with a tension headache is generally described as any of the following:

Band-Like Headache:

A squeezing or tightening of the scalp, with pain in the area of the temple that recurs daily at fluctuating intensities. It is caused by one or more muscle tears at the attachment of the scalp at the temples, over the eyebrows and at the base of the skull in the back of the neck.

Cervical Tear:

A sudden and severe shooting pain at the base of the skull that is aggravated by touching, turning or direct pressure. Tearing of the muscles surrounding the skull and scalp causes it. Although it can be bilateral, involving the paired neck muscles, the pain is generally much worse on one side.

Occipital Neuralgia:

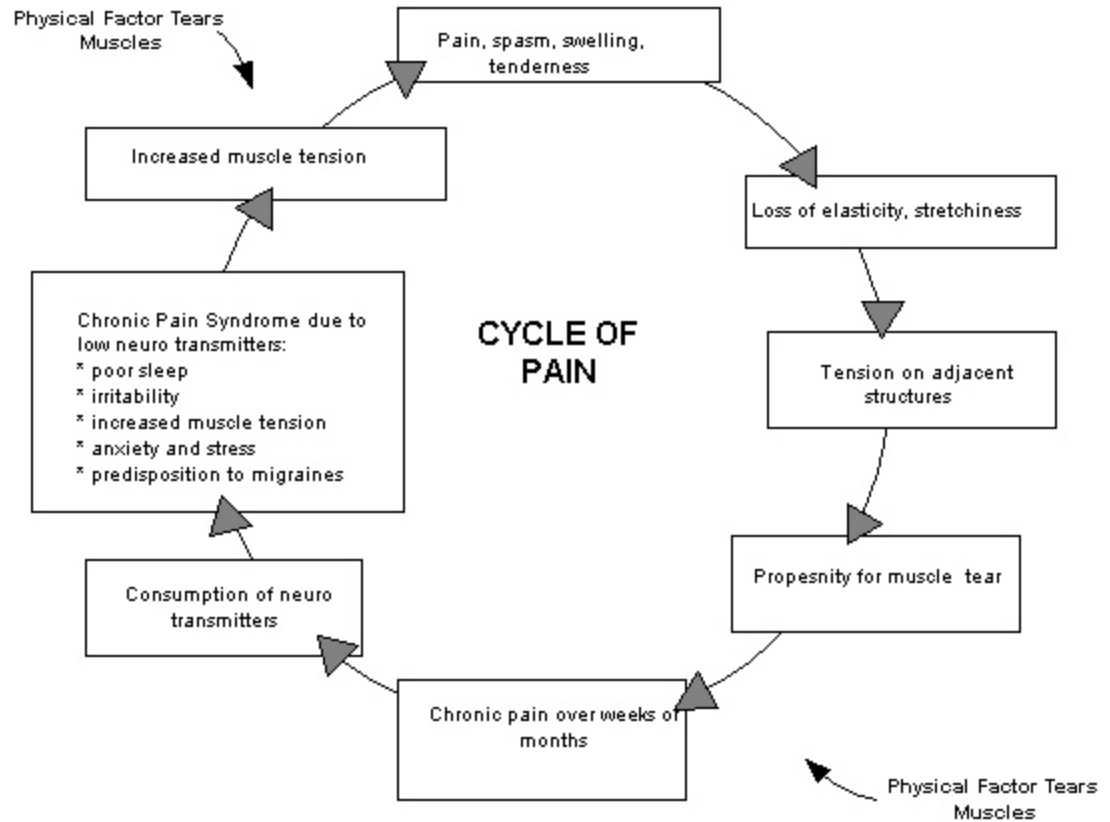
A shooting, severe pain that extends over the scalp and ends behind or over the eye, causing the eye to water and the patient to wince during an attack. It is often followed by a dull clutching sensation over the scalp on the affected side. It is caused by pressure and irritation on the occipital nerve as it enters the scalp at the back of the skull due to swelling of muscles and tendons from a cervical tear.

Shoulder Pain:

A feeling of achy, tenderness in the muscles between the shoulder joints and the neck, the trapezius. Women with heavy breasts or poor posture often experience it. These muscles are chronically strained by maintaining an upright sitting or standing position, and are aggravated by bending forward, as in the case of a person sitting at a computer keyboard, or bending over a kitchen sink doing food preparation. Pain can be somewhat relieved by lying back with the shoulders, neck and head comfortably supported.

The Cycle of Pain and How to Find Lasting Relief

The **Cycle of Pain** is a continuous series of events that if not broken at some point leads to the development of a Chronic Pain Syndrome wherein a headache sufferer finds it difficult to achieve lasting relief. The following displays the key events in this cycle.



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Each step in the **Cycle of Pain** must be addressed before a headache will go away.

Acute headaches are easily treated by simple measures such as aspirin and rest. Once a headache becomes chronic (or long term), however, every element of the pain cycle must be treated, or the headache will continually recur. *This is because the individual's musculature is under constant stress and neurotransmitters in the brain become chronically depleted.* Treatments for acute headaches such as the use of painkillers, chiropractic manipulation, and simple relaxation techniques may bring immediate, but rarely lasting relief. In fact, excessive use of painkillers such as Tylenol or Excedrin, often make long term treatment more difficult, and can even induce rebound migraine headaches; the latter being extremely difficult to treat once started.

What the headache sufferer must identify

For successful treatment of chronic tension headaches, the headache sufferer must (1) identify the physical factors that cause and perpetuate pain, (2) immediately eliminate or modify the related environmental conditions that cause the headaches, and (3) act to restore neurotransmitters to normal levels.

The first order of business is to identify the physical conditions that may create stress and tension in your muscles.

List the wide range of activities you engage in during the day and night, and consider their related physical postures that may lead to muscle sprains in your neck or back. It is important to observe that you may not feel pain in your neck at the time of an injury. If you did you would quickly change to a more comfortable position. This is similar to an athlete who sprains their foot during a game, but does not fully notice its pain effects until the next morning. When the player gets out of bed and puts weight on the sprained foot, they will undoubtedly experience the pain.

When neck muscles are torn the resultant pain is usually later felt as headache or shoulder pain. The only sign of injury in the neck may be morning stiffness.

Excessive Neck Flexing:

Excessive stretching, twisting or resting the neck in positions which place extreme strain on the neck muscles is the usual cause of muscle tears in the neck. This unsupported position often causes muscle tears where the muscles attach to the shoulders and to the scalp and base of the skull. A tension headache sufferer will undoubtedly find times during the day and night when their head and neck are in this position.

Daytime activities:

During the course of a day do you find yourself regularly doing any of the following?

1. Using a telephone that is wedged between your shoulder and ear?
2. Working at a computer terminal where the:
 - Keyboard is at the wrong height?
 - Computer monitor is at the wrong height or placed to one side of the desk causing you to frequently turn your head?
 - Sitting far forward in your seat without support for your shoulders or upper back?
3. Placing your car seat too far back or forward, or at an uncomfortable angle?
4. Engaging in any unique activities that may put stress on neck or shoulders – for example, playing a violin, or holding a baby?
5. Falling asleep in a recliner after work, or while reading or watching television?
6. Falling asleep in a car or bus while commuting to work, or while traveling in an airplane?
7. And, if you are a woman, do you have heavy breasts or posture problems that cause chronic muscle strain?

Nighttime Activities:

Ninety percent of neck problems occur during sleep and are not recognized. They often come on the heels of a breathing problem caused by a cold or an allergy, sinusitis, or an asthma attack; all of which make it uncomfortable to lie flat while asleep. Are you aware of doing any of the following while you sleep or lying in bed?

- Using more than one pillow, or using a very high pillow to elevate your head?
- Reading or watch TV in bed?
- Sleeping on a waterbed?

HOW YOU CAN TREAT CHRONIC HEADACHE PAIN

To find long-term relief from chronic headache pain it is most important that you identify and treat the physical factors that cause undue strain and stress on the neck. Without such intervention the **Cycle of Pain** will continue, unabated.

During the night

Elevate Your Bed

To improve breathing during the night, elevate the head of your bed 4 to 6 inches or as high as you feel comfortable, using blocks or books. This will increase the supply of oxygen to your lungs. Your sleep should be much less restless, which should help you to relax your neck. Do not place a wedge under your mattress. It will position your body in such a fashion that it will be difficult to roll over on your side (similar to sleeping on a lawn chair) and it will result in back pain. Additionally, use a single foam pillow around four inches high. Elevating the head of the bed makes it much easier to lie flat on a single pillow.

Wear a soft collar to bed

Finally, you may want to wear a narrow, comfortable soft collar while sleeping to limit neck motion. It keeps your chin from flexing onto your chest or your ear from pressing into your shoulder. It only needs to be worn at night for approximately 4 to 6 weeks. This is comparable to wearing an ace bandage for a sprain. Do not use a collar that is too wide. It will stretch your neck and make the condition worse. Most people should wear a collar that is no more than two (2) inches wide.

Change Your Mattress and Do Not Sit Up In Bed

Get out of your waterbed and sleep in a conventional bed for 4 to 6 weeks. You may be able to get back into the waterbed, but for many, the waterbed is the problem and needs to be replaced with a more conventional mattress. Do not read or watch TV in bed. Do not sleep on the couch or a recliner. If you need to take a nap, use your bed.

During the Day

Change Your Work Station

- If you use a telephone, especially while working at a desk or a computer, get a telephone headset. It will keep your hands free and prevent you from twisting your neck. Adjust your workstation and your chair so that your shoulders and upper back are well supported.

- Place the computer monitor directly in front of you and at eye level so that you do not have to tilt your head up or down, or to the side. Put the keyboard in your lap or at a level just above your knees. Lifting your arms higher than that to type puts tremendous strain on your shoulders, neck and back. See the diagrams at the end of this monograph.
- Treat any medical conditions that interfere with breathing

If you have difficulty breathing while you sleep treat the condition the best you can. See your doctor, or talk to your pharmacist about medications that will relieve a stuffy nose due to a cold or an allergy. Also be aware that more serious conditions such as sleep apnea, asthma and congestive heart failure can make it difficult to sleep and should be treated immediately. Again, please see your personal physician for diagnostic and follow-up care.

Change Your Driving Position

Move your car seat forward. Tilt the seat back a little to support your back and shoulders. Make sure your arms are adequately flexed, not fully extended. Try holding the bottom of the steering wheel to reduce the strain on your shoulders.

Monitor daily activities

Monitor your routine daily activities that can cause neck and shoulder strain, for example carrying a baby with one arm, playing the violin, talking on the telephone while cooking, sewing, or working at a computer, workbench or kitchen counter for extended periods of time.

Wear proper support

If you are a woman with heavy breasts or poor posture, wear a sports bra or garments that flatten your breasts against your chest to support the weight and reduce slouching. Consider reductive mammoplasty if this is a serious problem. Insurers will generally pay for the procedure if the condition is causing chronic neck, shoulder and head pain.

HOW MEDICATIONS TREAT TENSION HEADACHES

Painkillers never cure tension headaches. They provide temporary relief but can increase the risk of overuse and rebound, withdrawal vascular (migraine-like) headaches. This is particularly true for medicine containing caffeine. A long-term treatment plan that focuses on the cause of the headache, and not simply the symptom, is critical to eventual relief.

While aspirin or other painkiller will help, if you have a "stone in your shoe," unless you remove the stone the pain will always return.

Medicines to treat chronic pain syndromes need to be taken on a daily basis, often for as long as 6 to 9 months. Like taking iron pills for chronic anemia, it takes this long for the body to replenish and stabilize depleted neurotransmitters in the brain. However, medicines by themselves will not cure a tension headache. They must be taken in conjunction with changing the physical factors that perpetuate the headaches. Every step in the **Cycle of Pain** must be evaluated and treated.

Chronic Pain /Pain Syndromes

With chronic headache pain (i.e., pain lasting more than 2 to 3 weeks) certain brain chemicals become depleted, resulting in **Chronic Pain Syndrome**. To treat **Chronic Pain Syndrome** these brain chemicals must be replenished. Physical therapy, chiropractic treatment, aspirin and similar treatments are effective for acute sprains; however, they can actually aggravate chronic pain conditions, or will only bring relief lasting no more than a day or two. Phantom Limb Syndrome is an example of a kind of chronic pain syndrome.

Diabetic patients suffering severe foot pain due to chronic gangrene frequently complain of unabated foot pain, even after the foot is amputated. The brain chemicals have changed so that the brain still feels the pain, even when the initial source of pain is removed.

Depleted levels of Serotonin, is one of the most common conditions found in chronic

pain syndromes. Serotonin is needed to induce sleep, relax muscles to normal tone (like in a conditioned athlete), combat stress and to reduce symptoms of anxiety and depression. Low Serotonin is, in fact, one of the triggers for migraine. Serotonin is replenished during restful sleep, and that is why sleep often alleviates migraine. Chronic tension headache, with accompanying low levels of Serotonin is one of the main causes of severe, prolonged migraine attacks in people susceptible to migraines.

Low Serotonin is associated with many psychological symptoms associated with stress.

Fitful sleep, insomnia, worry, anxiety, panic attacks and depression are common in people with chronic headaches. Symptoms of depression include loss of interest, inability to experience pleasure, sadness, diminished self-image, feelings of guilt and a sense of helplessness. Other signs include decreased energy levels, loss of memory and concentration, early morning awakening, diminished sexual drive, changes in eating habits and weight. People may have only a few or all of the above symptoms.

Increasing Levels of Serotonin

Before Serotonin-restoring medicines were available, people treated chronic pain syndromes with extended periods of rest and relaxation, and improved diets. Health spas and asylums existed solely for these purposes. Of course, very few people now have the time or money to take long "rest cure vacations," but most headache sufferers will readily agree that there is little wrong with them that will not be "cured" by a six month paid vacation in Tahiti. Luckily for people who cannot make dramatic changes in their daily life, medicines are now available that can restore depleted Serotonin and cure the symptoms of chronic pain syndromes.

Antidepressants, especially those that work on Serotonin, are exceptionally effective in treating chronic headache syndromes, as well as migraines. Although the pharmaceutical package inserts in antidepressant medications list depression as the indication for their use, many people with chronic tension headaches, but without signs of depression, have excellent results when using these drugs for their headache pain.

The selective Serotonin Re-uptake Inhibitors (SSRI's) such as Paxil®, Prozac®, Zoloft® and others, help your body build up depleted Serotonin stores. Unlike medicines and other substances that have a definite dose-related effect (like, for example, alcohol or caffeine), SSRI's only work if Serotonin stores are low. Your body uses the SSRI to build up low Serotonin to normal levels, as it does with iron supplements to restore blood levels to normal if you are anemic. The Serotonin level in your body is regulated by your brain, not by the dose of the medicine you take. If your Serotonin stores are normal, SSRI's will have no effect. Your brain will not make extra Serotonin with bigger doses of SSRI. And, like iron, a dose bigger than the daily requirement will simply pass through your system.

It takes 2 to 3 weeks for SSRI's to begin to work, since your brain must "grow" new Serotonin, similar to making new blood cells if you are anemic. It may take up to six (6) months for Serotonin stores to plateau. Discontinuing SSRI's before nine (9) months of use may result in Serotonin again falling below normal levels. Depending on a person's circumstances, chronic use of SSRI's may be useful to counteract the effects of relentless stress. SSRI's have been shown safe, without cumulative side effect or risk in usage over decades.

Once Serotonin levels are normalized, muscle tone improves and they are able to stretch without tearing. Sleep also improves. A sense of well being is generally restored and symptoms of stress are greatly diminished. In people susceptible to migraine the frequency of migraine headache is usually much less and such headaches are easier to treat. At this time, reinstatement of treatments that are effective on acute headache syndromes can also be useful. Physical therapy, exercise and chiropractic treatment can be very helpful in restoring conditioning that further prevents headache and a relapse of symptoms.

WHAT YOU CAN DO TO KEEP HEADACHES FROM RETURNING

Keep a Headache Diary

Keep a headache diary on your calendar. List headache days, the kind of headache you experience and any causes you can identify. Also list the days you did not have a headache. The absence of pain is normal. When a person has a perfect result treating their headache they have no pain and may erroneously conclude, after a few weeks, that they need not continue treatment. After stopping treatment, however, headaches will invariably return if they are chronic in nature. Patients also tend to recall only those days that they suffered headaches, and may erroneously conclude that the treatment did not work because they can not remember headache free days.

Consult Your Physician

Always consult your physician before stopping or changing your treatment. Be sure to report any perceived side effects or problems. Some "side effects" when starting SSRI's are actually the "effects" of increasing Serotonin levels. Having chronically low Serotonin is similar to a person who has not been in the sun for a few years; they are extremely susceptible to sun burning with little sun exposure. With small increments of sun over time, however, they can normally tan. Some people need to begin with very small doses of SSRI's and increase over a period to reduce Serotonin's side effects.

Do the things your mother told you were good for you

When you are feeling well, get plenty of exercise, avoid excessive amounts of caffeine and alcohol, eat healthy, balanced meals and most importantly, do things that you find relaxing. Combat stress by taking regular vacations and engage in activities you enjoy.