

Scituate and Burrillville Chiropractic Centers

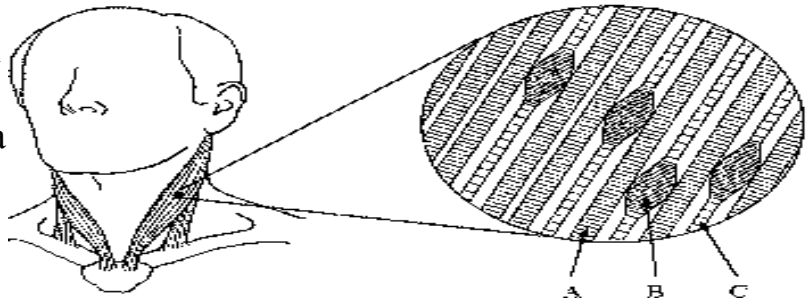


According to Doctors Janet Travell and David Simons in their widely acclaimed medical textbook, **Myofascial Pain and Dysfunction: The Trigger Point Manual**, myofascial trigger points are tiny contraction knots that develop in a muscle when it is injured or overworked.

The Physiology of a Trigger Point

The part of a muscle fiber that actually does the contracting is a microscopic unit called a sarcomere. Contraction occurs in a sarcomere when its two parts come together and interlock like fingers. Millions of sarcomeres have to contract in your muscles to make even the smallest movement. A trigger point exists when over stimulated sarcomeres are chemically prevented from releasing from their interlocked state.

The drawing is a representation of several muscle fibers within a trigger point and is based on a microscopic photograph of an actual trigger point.



Letter A is a muscle fiber in a normal resting state, neither stretched nor contracted. The distance between the short crossways lines (Z bands) within the fiber defines the length of the individual sarcomeres. The sarcomeres run lengthwise in the fiber, perpendicular to the Z bands.

Letter B is a knot in a muscle fiber consisting of a mass of sarcomeres in the state of maximum continuous contraction that characterizes a trigger point. The bulbous appearance of the contraction knot indicates how that segment of the muscle fiber has drawn up and become shorter and wider. The Z bands have been drawn much closer together.

Letter C is the part of the muscle fiber that extends from the contraction knot to the

muscle's attachment (to the breastbone in this case). Note the greater distance between the Z bands, which displays how the muscle fiber is being stretched by tension within the contraction knot. These overstretched segments of muscle fiber are what cause shortness and tightness in a muscle.

Normally, when a muscle is working, its sarcomeres act like tiny pumps, contracting and relaxing to circulate blood through the capillaries that supply their metabolic needs. When sarcomeres in a trigger point hold their contraction, blood flow essentially stops in the immediate area. The resulting oxygen starvation and accumulation of the waste products of metabolism irritates the trigger point. The trigger point responds to this emergency by sending out pain signals.

Referred Pain

The defining symptom of a trigger point is [referred pain](#); that is, trigger points usually send their pain to some other site. This is the reason conventional treatments for pain so often fail. It's a mistake to assume that the problem is at the place that hurts! Travell and Simons' research has shown that trigger points are the primary cause of pain seventy-five percent of the time and are at least a part of nearly every pain problem.

Trigger points cause headaches, neck and jaw pain, low back pain, tennis elbow, and carpal tunnel syndrome. They are the source of the pain in such joints as the shoulder, wrist, hip, knee, and ankle that is so often mistaken for arthritis, tendinitis, bursitis, or ligament injury. Trigger points also cause symptoms as diverse as dizziness, earaches, sinusitis, nausea, heartburn, false heart pain, heart arrhythmia, genital pain, and numbness in the hands and feet. Even fibromyalgia may have its beginnings with trigger points.

Self-Treatment

Luckily, the pain and other symptoms caused by trigger points occur in predictable patterns. When you know where to look, trigger points are easily located and deactivated with simple techniques of self-applied massage.

Massage of the trigger point flushes the tissue and helps the trigger point's contracted sarcomeres begin to release. In dealing directly with the trigger point, massage is the safest, most natural and most effective form of pain therapy. Most problems can be eliminated within three to ten days. Even long-standing chronic conditions can be significantly improved in as little as six weeks.