



Trigger points and other chronic soft tissue problems

What is a trigger point?

Some of the main issues treated by our massagers are myofascial trigger points (trigger points) and other issues related to chronically tightened muscles. Research has found that trigger points are actually small sections of muscle that have gone into spasm and will not relax. The science behind them is quite involved and still evolving. The following is a summary.

- The initial cause is thought to be microscopic damage to sections of the muscle.
- The protective stretch reflexes lock into a positive feedback loop causing sections of the muscle to constantly contract (spasm).
- The constant nerve discharge causes a built up of neurotransmitters, further perpetuating the spasm.
- The contraction of the section of muscle restricts blood flow which causes a depletion of oxygen and a build up of metabolites.
- The shortening of the section of muscles causes the whole muscle to be tight.

Trigger points are said to be caused by a number of things including overuse or prolonged tightness, chemical imbalances and emotional stress. Practically every adult develops them, and they cause a host of problems.

What problems do they cause?

Initially trigger points were found to be lumps in muscles that would shoot pain when pressed upon. Since then science has sought to understand them further and discovered a lot of other far reaching effects.

The effects of tightness

Tightened muscles restrict movement and are prone to being injured. Also the chronic tension placed upon attachment points can result in the development of pain syndromes such as tendonitis and lateral epicondylitis of the elbow (tennis elbow).

Spasm and reduced blood flow

A muscle in such a state will obviously underperform. Trials have shown that they are also prone to rapid fatigue and pain upon exertion.

Compensations

The central nervous system will make automatic adjustments to the body's posture and biomechanics to compensate for these tightened underperforming muscles. It may tilt joints

and body parts to help remove tension. Other muscles may be recruited to help. Studies have even shown the timing and coordination of muscle activity can be completely re-arranged. Optimal posture and movement reduces stress on tissues and maintains the correct relationship between joint surfaces. A change from this can place unusual stress on the joints and other parts of the body. It is a key cause of many injuries, postural pain syndromes, and joint pains including “impingement syndromes”.

Pain syndromes

The most obvious consequence is that when a trigger point worsens or is aggravated it may start causing continuous pain. This is a major cause or contribution to pain syndromes ranging from low back pain through to headaches and even pain mimicking tooth aches.

Sensitisation of the nervous system: fibromyalgia and migraines

Trigger points do not show up in x/rays or blood tests so they are often overlooked as a cause of pain syndromes. If left undiagnosed and untreated they continuously bombard the nervous system with pain impulses. Over time this can cause the nervous system to become sensitised, so painful stimuli are exaggerated and normal stimuli become painful. As the nervous system is an important part of the body's control system there can also be a host of other seemingly unrelated problems. This is the mechanism behind most fibromyalgia and sometimes migraines.

How trigger points are treated

Basic principles

Any treatment of trigger points needs to address each of the following key issues.

- The positive reflex feedback loop needs to be disrupted
- The muscle needs to be relaxed
- The blood flow needs to be increased to remedy the hypoxia plus the build up of metabolites and neurotransmitters.

There are many forms of therapy ranging from painful massage therapy to injections. Each works on one or more of these issues. Vibration massage has been shown to do all three. The key to effective treatment with vibration massage is to apply the massager for long enough for the vibrations to disrupt the reflex and relax the muscle. Science tells us that this application will disrupt the spasm and relax the muscle, then there will be at least 15 minutes of increased blood flow. As a guide we recommend clinicians start with applications of 30-60 seconds per trigger point. Obviously some trigger points will take longer than others. By re-examining post application a clinician will refine his or her judgement.

Trigger points require regular treatments over time

The treatment of a trigger point can sometimes produce dramatic relief, however research shows conclusively that their complete elimination requires a large number of applications over time. The instant relief felt is usually the trigger point (temporarily) reverting from its active (pain producing) state to its latent state (just causing pain when pressed upon). They are still sitting there causing all the previously mentioned problems, waiting to be re-aggravated and start shooting pain again.

Most studies of treatments for trigger points assess effectiveness by measuring pain and other symptoms rather than re-examining for the presence of trigger points. They show good results, but do not consider whether the underlying cause remains. One that did do this was a study of the treatment of patients with shoulder pain (1). Patients were given 12 weekly sessions of trigger point therapy. Rather than use a single therapy the researchers used a combination of several

forms of therapy . However, after these 12 extensive thorough sessions of multiple therapies examination revealed that about 2/3 of the original trigger points were still remaining. In addition the researchers believe that microscopic damage that caused the trigger points in the first place would cause trigger points to re-occur. They also stated that ongoing causative and aggravating factors may also cause trigger points to develop.

1. *Bron et. al. Treatment of myofascial trigger points in patients with chronic shoulder pain: a randomized, controlled trial BMC Medicine 2011,*

Practical Recommendations

Symptomatic care

There are many different therapies for trigger points. Most would be useful. From clinical experience and the fact that it has been shown to address all the key elements we believe that that the use of vibration massage is as good as any, and better than most. Further, a 60 second application with a vibrating massager is more comfortable and requires less effort than a painful massage technique, while being safer and less invasive than the use of needles.

Elimination of trigger points

If one was only after one or two applications to give some relief the choice of therapy may just come down to personal preference. However, as the trial of 12 very thorough sessions only eliminated 1/3 of trigger points complete elimination may take 20 or even 50 applications. Further, microscopic damage and the continuation of causative factors or aggravating issues may result in their re-development, requiring continuing therapy. The question now becomes how can a patient receive 20, 50 or more applications of effective therapy? Would a patient pay for and endure 50 sessions of painful massage or 50 sessions of needles? It is unlikely. If vibration massage is used practitioners can do some in clinic while the patient can perform supplementary massage at home under advice. This way they can practically get what they need.

Don't forget causes, aggravating factors etc.

While the use of vibration massage is an excellent therapy the whole clinical picture needs to be addressed. Are there any causative or aggravating factors that need to be addressed? Trigger points can refer pain to distant parts of the body. Have they all been identified and remedied? Are there any other problems or issues that need to be addressed? At DrGraeme we actively discourage self diagnosis and management, and respect the role of the professional clinician.

Prevention and maintenance

Professional sports clubs often use regular massage to help maintain the muscular health of their athletes. Some dedicated patients may book in for a monthly or even a weekly massage. This care is excellent as it helps deal with existing trigger points and deals with new ones before they become chronic. The self use of a vibration massage allows a patient/client so do this daily.

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