Latent (pain free) trigger points shown to cause rapid fatigue with pain-and underlie many other issues

Summary

A trial published in the journal *Pain Medicine* 2011 found that muscles containing latent (pain free) trigger points fatigued quickly and became painful. This is not surprising considering a trigger point is part of a muscle constantly in a hyper-contracted state, already suffering from local hypoxia and a build up of metabolites. Because of this latent trigger points should be a prime consideration any time there is pain and fatigue following prolonged postures or repeated exertions. This is especially true when considering the high prevalence of latent trigger points, and that aggravations such as overloading or even a change in temperature can transform a latent trigger point into an active (pain producing) trigger point creating a chronic pain syndrome.

In addition, the researchers found that when latent trigger points were present the nervous system quickly recruits adjoining muscle fibres and muscles to assist. This altered control of muscles in the presence of latent trigger points has also been shown in research summarised elsewhere in this guide. This, along with the fatigue and characteristic tightness of muscles with latent trigger points, can have a far-reaching role in postural changes and biomechanical dysfunction, which in turn can underlie a lot of pain syndromes, injuries and joint degeneration.

The basics

The role of the central nervous system

Movement and posture are guided by conscious thought but are largely under subconscious control. For example, one may consciously choose to stand. However, the central nervous system uses pre-programmed instructions combined with feedback from sensors such as those in the muscles, connective tissues and joints to co-ordinate the muscle activity to produce this goal. It is likewise when making practically any movement or doing any activity.

Optimum movement and posture

Optimum posture is where a balance is achieved: minimising tension on muscles and stress on connective tissues, while maintaining even pressure on the joint surfaces. The central nervous system is continually monitoring these aspects and making appropriate adjustments. Likewise, optimal movement is where mechanical advantages are maximised and stress on the muscles, connective tissues and joints is minimised. Again, the central nervous system is monitoring these aspects in order to make the appropriate muscle activations.

Dysfunction

When we have a deviation from optimal posture or biomechanics there is an increase in muscle tension and stress upon connective tissues. Also, pressure is distributed less evenly across joint surfaces. This can lead to pain syndromes, an increased risk of injury and accelerated degeneration.

Why do we get dysfunction?

Some dysfunction may be habitual or learned, but much is due to adaptations made by the central nervous system as it adjusts or compensates. Let us consider a simple example- when a latent trigger point affects a postural muscle. A characteristic of such a muscle would be tightening. The central nervous system would detect this tightening and make adjustments to compensate, probably tilting slightly towards the affected muscle. This would in turn alter joint orientation, along with increasing the tension on other muscles and stress on connective tissues and joints. The central nervous system would make the best adjustments it could given the abnormal situation. The research showed that muscles containing latent trigger points fatigued quickly and became painful. Likewise, the central nervous system would detect this and make appropriate changes. This also applies to articular dysfunction. As described elsewhere in this guide would create abnormal sensory feedback, also resulting in the central nervous system making compensations. There would be added stress elsewhere, but the central nervous system would be doing the best it could do in the circumstances. Of course the muscles, connective tissues and joints forced to compensate may then over time develop their own issues forcing further compensations, creating a chain of changes increasingly more complex and chronic issues.

Clinical implications

Latent trigger points (and articular dysfunction) are highly prevalent. They cause abnormal posture and biomechanical dysfunction, which are behind a vast array of musculoskeletal complaints. They should always be considered.

Reference

Ge HY1, Arendt-Nielsen L, Madeleine P. Accelerated muscle fatigability of latent myofascial trigger points in humans. Pain Med. 2012 Jul;13(7):957-64

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