So what's going on with chronic pain conditions?-An Explanation

Chronic pain conditions are one of the most common reasons people visit their GP in the UK. Sedentary jobs, poor lifestyle, an aging population, computer work and stressful living conditions are also leading to a rise in people suffering with chronic pain. But why does it happen and what can be done about it? I decided to write this article to give people a clearer understanding of the biological processes involved in chronic pain and why many chronic pain conditions do not show up on conventional medical tests (e.g. MRI scan, X-rays, blood tests, orthopaedic tests).

So how do we feel pain? We feel pain through our sensory nervous system via the central nervous system. Parts of the brain called the thalamus and cerebral cortex process pain signals from the body allowing us to 'feel' the pain signals from our nerves. The body's tissue (skin, muscle, fascia etc) contains pain receptors called nociceptors (also muscle spindles, golgi tendon organs and free nerve endings) on the ends of our sensory nerves. These pain receptors can become irritated by overstretching, compression, muscle spasm, 'pulling' forces and also mechanical trauma, lack of blood flow, lack of oxygen, blood exposure and chemicals released by injured tissue, in the case of tissue injury (e.g. strains & sprains, cuts, bruising).

People suffering with chronic pain often think the pain must be due to a 'pinched' nerve in the spine or a joint. While it is true, pinched nerves can and do cause pain (in which case osteopathic manipulation can be very helpful), the majority of chronic pain is in fact chronic 'soft tissue' pain. Soft-tissue pain (usually myofascial pain) is thought to account for the majority of chronic (long-standing) pain conditions and is due to problems with the bodies soft-tissues (muscles, tendons, ligaments & fascia). Rehabilitations exercises (such as those given by a physiotherapist or sports therapist) and specific stretches can be helpful in the recovery from many chronic pain conditions. However, usually decent 'hands on' treatment is also required to recover from chronic pain conditions and a 'soft tissue' massage & bodywork approach is the most effective way to address this soft-tissue pain. There are a number of common causes of chronic soft-tissue pain including muscular tension, traumatic injury, muscle imbalances, trigger points and myofascial adhesions.

Every joint, muscle, muscle fibre, nerve and organ in the body is covered in strong connective tissue called fascia. This 'fascia' can become tightened and develop adhesions which can pull on or compress sensitive tissue irritating the bodies pain sensors and leading to chronic pain. The pain associated with fascial adhesions is often difficult to pinpoint and may not conform to nerve routes but may be due to 'where the fascia pulls', which can confuse health professionals. Myofascial adhesions are also thought to be one of the leading causes of 'trigger points' which are thought to cause around 80% of chronic pain. Trigger points are small, painful points in the body's soft tissue thought to cause local, and importantly referred (to a different body area) pain. Various theories exist as to what causes trigger points including myofascial adhesions, groups of muscle fibres in spasm and small pockets of toxins. However what is important is that these points cause much chronic pain and can be effectively treated with Trigger Point Therapy. Myofascial Release Therapy is also required to release myofascial adhesions and/or tightness which cause chronic pain as they don't respond to massage, acupuncture or manipulation. Anything which is bad for you can cause trigger points & myofascial adhesions including stress, old injuries, poor posture, emotional trauma, poor lifestyle, overworked muscles and illness. Trigger points and myofascial adhesions are the leading course of chronic pain, but importantly, do not show up on conventional medical tests; they must be felt for or palpated for by an Advanced Massage Therapist.

Chronic (longstanding) pain is unfortunately a very common phenomenon which often remains after an injury has healed or when no obvious medical pathology can be identified. Chronic pain can, over time strongly affect an individual's mental state leading to depression, negativity, withdrawal and can even affect mental alertness. Chronic pain has a number of different causes, both physical and psychological. If chronic pain is due to an initial injury it is often due to resulting scar tissue/fascial adhesions irritating nociceptors by 'pulling' or 'compressing' them due to the tissue fibres healing in a dense, stiff, haphazard manner (massage and myofascial release during tissue healing can help prevent this by encouraging healthy tissue remodelling). The autonomic nervous system (ANS) may think that an injury exists long after the tissue has healed and the nervous system may also remain more sensitive to pain in the area. After approximately 6 weeks of pain in an area the ANS may also pass control for maintaining sensitivity to the central nervous system (CNS) and limbic brain. This may then become a 'learned behaviour', maintaining pain in the area.

An important response of the body to pain is to stimulate neurones (particularly those in the brain) to produce small, 'protein like' molecules called neuropeptides. Neuropeptides serve many purposes and three in particular are involved in the detection or control of pain. Substance P is released with pain and associated with the inflammatory process. It enhances the perception of pain and is thought to play a major role in chronic pain conditions such as fibromyalgia. Enkephalins and endorphins work as powerful natural painkillers by inhibiting the pain enhancing effects of substance P and binding to the bodies opioid (pain killing) receptors. In the past, people suffering with chronic pain were theorised to have enhanced levels of substance P. However this was disproven and it is now thought that many chronic pain suffers actually do not produce enough endorphins & enkephalins, enhancing the pain causing effects of substance P present.

A problem with chronic myofascial pain is that fascial restrictions causing pain can lead to the body laying down more fascia in the painful area, causing more restrictions, so the pain can spread/worsen. The fact individuals often immobilise a painful area to protect it can also cause increased restrictions increasing pain and reducing range of movement. Trigger points develop in restricted myofascial tissue and become hypersensitive as more restrictions develop; they can also cause reflex contraction of the surrounding muscles adding to pain and tension. Tissue injury also causes an increase in sympathetic nerves in local tissue which lowers the 'trigger threshold' for pain signals in the nerves. Pain inhibitory nerves can also die causing insufficient endorphins & enkephalins to be produced in the painful area to dampen pain perception due to substance P, so increasing the perceived pain. A pain feedback loop can also occur as pain stimulates the reticular activating system (RAS) which stimulates the sympathetic (stress) nervous system (SNS). The physiological SNS responses (including increased muscle tension) further activate the RAS and so the cycle continues and pain worsens. Repetitive use or overstrain of a muscle/s can also cause inflammation leading to painful fascial restrictions. The body lays down extra collagen fibres haphazardly, which the body cannot distinguish so remove. This along with chronic postural imbalances and guarding strategies leads to large, spreading areas of restricted fascia and associated pain, further exacerbating the chronic pain condition.

In short the causes of most chronic pain conditions do not show up on conventional medical tests but can be assessed and treated by specialist 'soft tissue' therapists. The causes of chronic pain are varied and natural but with postural advice, lifestyle improvements, effective stretching, rehabilitation exercise and advanced soft-tissue treatment most chronic pain conditions can be reduced or eradicated.

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