

PAIN – PART II

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Part I of 'Pain', see Issue 27, dealt with the physiology and anatomy of pain. In this issue Fionn continues with the more practical aspects of pain that Massage Therapists should appreciate, in light of the theory of the 'pain gate' model.

DEFINITIONS OF PAIN

It is helpful to ask why this question is this relevant to students of a Remedial and Sports Massage course. The reasons are many. First off, it can help us objectify the client's situation, for example, there is evidence to indicate that athletes have greater pain tolerance as compared to non-athletes. Assessment and treatment can be more specific if we are able to discuss with our client (and other therapists) in specific terms of, for example, types of pain.

Pain may be classified in many ways. Plato described pain as the effect of disturbed elements of the air, earth, fire and water on the soul, and Aristotle described the heart as the pain processing centre. Even though the central nervous system was first described in 300BC it was not until the 1800s that an anatomical explanation of pain was offered.

Pain can be categorised under a number of headings. Acute pain frequently corresponds to a well-defined stimulus, responds well to treatment or is self-limited, and less frequently leaves psychological scars. Chronic pain may or may not have a well-defined source, responds poorly to treatment, persists beyond the expected time of tissue healing, and, invariably has psychological residua.

Benign pain is typically characterised as dull, more generalised, does not last long after exertion, and is not attended by swelling, localised tenderness, or lasting soreness. Harmful pain is considered to be sharp, localised to the injury area, experienced during and persisting after exertion, and is usually associated with swelling, localised tenderness, and prolonged soreness. Providing clients with these simple distinctions in the types of pain they may experience can assist them in more clearly identifying what kind of pain they are feeling.

This differentiation can then have a significant impact on how clients evaluate (benign or harmful), perceive (positively or negatively), and respond (continued effort or protection) to the pain. This understanding of the different types of pain may also enhance perceptions of control over pain, which may have substantial physical or psychological benefits.

As bodyworkers dealing with soft tissue trauma, it can be helpful to think of pain as being either peripheral or central in origin. Peripheral pain originates in muscles, tendons, or in the peripheral nerves themselves. Pain originating in the peripheral nerves, i.e. via trauma to the nerves, is neurogenic pain. Central pain arises from central nervous system (CNS) pathology or dysfunction. Most central pain is due to structural changes in the CNS, i.e. spinal cord injury, multiple sclerosis, stroke and epilepsy.

VARIABILITY OF THE PAIN EXPERIENCE

The discussion of pain becomes more complex when factors other than anatomy are considered. For example, the perception or interpretation of pain differs significantly between genders, at different ages, with different levels of formal education, with varying fatigue levels, and other factors. Table I describes some of the factors that influence pain thresholds.

Table I – Factors that affect pain

FACTOR	THRESHOLD LEVEL
Age	Rises with age.
Anxiety	Lowers with fear of pain, domestic distress, and other anxiety states.
Distraction	Rises with external distraction, e.g. noise.
Fatigue	While physical fatigue does not appear to influence pain threshold, mental fatigue often lower the threshold.
Laterality	Lowers on dominant side for physical pain.
Lifestyle	Lowers in patients confined to bed or home with little to occupy their minds.
Pathology	Lowers if tissue damage is present at the site of measurement, thus such a site should not be used to test general threshold.
Personality	Lower with a history of severe, prolonged childhood pain, e.g. beatings.
Placebos and direct suggestion	Increases.
Race	Lower in Blacks, Hebrews and Mediterranean races; higher in East Indian and North European people.
Skin temperature	Lowers when skin temperature is warmed.
Miscellaneous conditions	Rises with carbon dioxide retention, impaired judgment, peripheral vasoconstriction, and respiratory depression.

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It was noted, in the article in OTMS27, that according to the gate control theory of pain, our thoughts, beliefs and emotions may affect how much pain we feel from a given physical sensation. The fundamental basis for this theory is the belief that psychological, as well as physical factors, guide the brain's interpretation of painful sensations and the subsequent response.

For example, many sportsmen and women do not experience pain during the intense activity of the game. After the game, when they turn their attention to their injuries, the pain suddenly appears to come from nowhere. Many pain sufferers find that their pain is worst when they feel depressed and hopeless – feelings that may open the pain gate – and that it is not so bothersome when they are focused on doing something that demands attention or is enjoyable.

PHARMACOLOGICAL VS NON-PHARMACOLOGICAL PAIN MANAGEMENT

As Massage Therapists, this is where we begin to see the functional purpose behind studying this issue. In our use of non-pharmacological techniques to reduce pain, several benefits are evident. At a physical level, injured clients can experience less pain and unnecessary medication can be avoided. Additionally, pain will not interfere with the body's natural healing process. The use of drug-free pain management strategies can also provide psychological and emotional advantages. Perceptions of control will be enhanced, thus increasing confidence and motivation.

Having noted our own vested interest, it is only fair to assess the issue from the other perspective, and again, knowledge of it will make us better therapists. Pain due to injury and the type of pain medication that is used can be classified as mild, moderate and severe.

Non-steroidal anti-inflammatory drugs, including aspirin and ibuprofen, are considered in the mild category, and are most commonly used with minor injuries, such as muscle pulls and first-degree sprains. These drugs are all effective analgesics, and aspirin and ibuprofen also offer anti-inflammatory activity for the swelling that is commonly associated with sports injuries.

Weak opioids, such as codeine or propoxyphene, are part of the moderate class and are usually used for more serious injuries, such as bone fractures and severe lacerations. These drugs are strong analgesics that have a significant impact on the perception of pain. Medication for severe pain includes stronger opioids, such as morphine, and are typically used in the early stages of treatment for serious injuries such as ligament reconstruction and compound fractures.

NON-PHARMACOLOGICAL PAIN MANAGEMENT

Non-pharmacological pain management strategies can be classified into two general categories: pain reduction and pain focusing. Pain reduction techniques act directly on the nociceptive aspects of the pain, thus decreasing the actual amount of pain that is present. They work to reduce sympathetic nervous system responses that increase the experience of pain. Pain reduction techniques, include deep breathing, muscle relaxation training, meditation and therapeutic massage.

Pain focusing techniques involve directing attention onto (association) and away from (dissociation) the pain as a means of reducing the pain. Consistent with the gate control theory, these methods act to send efferent inhibitors to the afferent transmission of pain. Pain focusing strategies include pleasant imaging, rhythmic cognitive activity. Pain acknowledgement, and hypnosis.

The goal of pain reduction is to diminish autonomic changes associated with increased pain, including peripheral vasoconstriction, muscle spasm and muscle bracing. As noted previously, these sympathetic alterations produce the release of norepinephrine, which appears to increase the sensitivity of pain receptors.

The objective of pain reduction is accomplished with strategies aimed at inducing states of physiological relaxation. There are many techniques that assist pain reduction, such as deep breathing. Deep breathing is often overlooked because people do not always understand the relationship between breathing, physiological changes and the experience of pain.

Pain inhibits breathing, which lessens blood flow and causes muscle spasms and bracing. This lack of oxygen in the system leads to more muscle tension and an accompanying increase in pain. Deep breathing diminishes sympathetic nervous system activity by transporting sufficient oxygen throughout the body, relaxing muscles, and increasing parasympathetic nervous system activity. It also acts as an internal distraction. If clients are focused on their breathing, they will be paying less attention to their pain.

Deep breathing can be a valuable and non-intrusive addition to several aspects of rehabilitation. It can be incorporated into the beginning and end of physical therapy exercises. Particularly for range of motion exercises, deep breathing can facilitate muscle relaxation which, in turn, should result in greater flexibility.

Other techniques include muscle relaxation training and meditation, which, in its many forms, has been used for centuries as a means of creating a state of physical relaxation and psychological tranquility.

Of course, of particular interest to us is Massage, which is primarily concerned with manual manipulation of muscles, a benefit of which is pain reduction. Some of the techniques often used for injury rehabilitation include direct pressure,

approximation, reciprocal inhibition, myofascial release, and positional release. These methods can be used separately or in concert, and their benefits may be maximised when combined with deep breathing, mental imagery, ice, heat and stretching.

USING PAIN MANAGEMENT

A variety of non-pharmacological pain management strategies are available to the Massage Therapist. It is necessary to present these with a structure in which the client can learn about the methods and apply them to their pain needs. This process of putting pain management into action involves several steps that should lead clients to a clear understanding of the pain management techniques and how to use them to reduce their injury-related pain.

The first step in this process is to introduce the client to the concept of non-pharmacological pain management and educate them as to its value. With a level of awareness now created, injured the client may be more receptive to learn more about the value of non-pharmacological pain management. Describing in more detail the use of these strategies will help clarify and demystify them, and show clients that their use can be effective and pleasant. Educating them about the distinctions between pain management techniques based on the associative versus dissociative, and internal versus external, dimensions may further pique their interest and desire to learn more.

The final step of this process is to allow the client the opportunity to use the pain management techniques when they are experiencing pain. This approach enables them to experiment with different strategies to find out which ones are most effective for them. This allows them to practice the techniques, become more familiar and comfortable with them, and adapt them to fit their particular needs in response to rehabilitation pain.

...AND FINALLY!

We know that pain can be all-pervasive, affecting our thoughts and memories, attitudes and emotions, movements and behaviours, though as Dennis Turk claimed, 'the reign of pain is mainly in the brain'.

Fionn McKee has recently completed the Scottish Massage Schools' Remedial and Sports Massage Diploma course in Edinburgh and is currently practising in Glasgow. He can be contacted by calling 0141 429 7204.

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