by Neil Pearson

Know Pain?

A Brief Guide to Understanding Pain for Yoga Therapists

An in-depth understanding of pain is necessary for yoga therapists. Many of our students come to yoga searching for a solution to pain from injury or disease. Others develop pain while practicing yoga. Pain is an expected human experience, one that typically resolves over time regardless of tissue healing. About 10 percent of the time after an acute injury, pain lasts longer than expected.[1] Once it becomes chronic, pain morphs into a disease process of its own. This leads to more pain and disability, huge economic costs, and personal costs—including an eight-times greater risk of suicide than in depression.[2]

What is Pain?

Pain is often considered a symptom of injury or disease. This is true, yet it is not the whole truth. Thinking that pain is simple is a trap. Definitive views of pain as a biomedical, biomechanical, psychological, or spiritual problem are often passed on from teacher to student. Yet pain, like all human experience is a body-mind-spirit, or biopsychosocial, phenomenon. Pain as a phenomenon is consistent with the *pancha maya kosha* system (the five sheaths or aspects of our self), in that pain in any one aspect of our existence has widespread impacts on every other aspect of our existence.

Pain cannot be easily defined. Yet, considering a few of our attempts to define pain is beneficial. The International Association for the Study of Pain states that "Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage."[3] Lorimer Moseley, PhD, a physical therapist researcher in Sydney, Australia, states that "Pain is a multisystem output that motivates and assists the individual to get out of a situation that the brain concludes in dangerous."[4] Ruth McCaffrey states that "Pain is what the person says it is, and it is where the person says it is."[5] Responding to the medical community's general misunderstanding of the reality of pain, she successfully brought light to the need to first accept that all pain is real. This fits well with yoga philosophy, in which thoughts and emotions are considered as real as the tissues of our body, though these concepts are less consistent with popular pain paradigms or teaching.

There are a few important points to note that are contained within these definitions:

- Pain needs to be *unpleasant* to get our attention and to motivate us to change our behavior.
- Our anatomy and physiology are set up so that *we cannot have pain sensation without an associated emotion.*
- Pain is *an experience.* It is highly influenced by our brain's recollection of previous experiences and its predictions of the future relevance of the pain.
- *Potential tissue damage* refers to the fact that we can feel pain even when there are insufficient forces on the body to create damage.
- Pain is *described in terms of damage* regardless of whether there is actual tissue damage.
- *Pain is an output of the brain.* Common language about pain suggests that pain is an input into the brain. It is not. Pain is an experience created by the brain. Pain, like all perception, is a story created by the brain.
- *We feel pain when the brain concludes that there is danger* and that we need to act. If the brain concludes that there is no danger, regardless of the inputs into the brain or what is really happening in the body or in one's life, there will be no pain. Most people have noticed a cut or bruise for which there was no associated pain. Some have even experienced gross physical injury without pain. In these situations, typically the brain has concluded that there is a greater priority for something more important or dangerous.

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What is pain for?

Pain has a single, straightforward purpose—it is a protection mechanism. The job of pain is to grab our attention and motivate behavioral change. Interestingly, pain is only one of our sophisticated protection systems. The brain can protect us by influencing any system of our body, including the muscular, immune, and endocrine systems. These protection processes do not necessarily tell us where the problem is, how big it is, or what it is. It is as if this is not the concern of protection mechanisms. As such, we must let go of the belief that the intensity, location, and quality of pain provide us with accurate information about what is happening in our body. Some might suggest that in acute pain, the information is more accurate than in chronic pain. This may be true, yet yoga therapists would be better served to consider that even in acute pain, the "sensible story" that the brain comes up with in regard to where, what, and how bad the problem is might be wildly misleading. The pain of "brain freeze" provides an important example—it stops you from drinking or eating something that is too cold. Maybe only temporarily, but it is a powerfully effective protection mechanism. Yet, the intensity of the pain is not indicative of tissue damage, and the location of the pain is not indicative of where the problem is located.

Acute versus Chronic Pain

The distinctions between acute and chronic pain are important. Acute pain is considered to be the result of tissue injury or disease. Acute pain is expected to be correlated with tissue injury, inflammation, and healing. Typically, pain from an acute trauma resolves within weeks of the injury. When the pain lasts beyond three months, or another expected tissue-healing time, then it is classified as chronic. These definitions are neither precise nor based on a clear understanding of pain neurophysiology. On the other hand, they are useful working definitions for yoga therapists to differentiate chronic from acute pain. The manner in which we assist our students should be substantially different when pain persists.

In fact, even in acute pain there is no direct link between pain and tissue injury. Pain is a body-mind-spirit experience, regardless of how long the pain has lasted. Tissue injury is one of the important influencers of pain in acute pain, yet it is one of many. Referring to the definitions of pain above, it is clear that pain is also impacted by past experiences and predictions of the future and by the activity in every other system in our organism. As much as pain changes our breath, body tension, thoughts, and emotions, so too do each of these inter-

act with inputs to the brain about tissue injury, even when the pain is acute.

When pain persists, everything changes. Nerve cells, peripheral nerve bundles, nerve connections, the spinal cord, the autonomic systems, and the brain all become wound up, more easily excited, and sensitized. Overall, we can say that when pain persists, the problem becomes one predominated by hypersensitivity. No longer can we state that the problem is primarily related to tissue health. Now, alterations in nervous system functioning have become equal to or more important than pain.

That persistent pain is related to the nervous systems provides us with optimism and hope in the face of ongoing pain, because the nervous systems are changeable. From the level of nerve cells up to the central and autonomic nervous systems, change is continuous and rapid, allowing us to adapt to our external and internal environments. Our yoga therapy interventions take advantage of neuroplasticity (ongoing chemical, physiological and structural adaptations in the nervous systems), reinforcing adaptive changes that assist in returning the systems to a more balanced, less (hyper)sensitive state. When pain persists, it is not just the nervous systems that change. Pain touches, or relentlessly grips, every aspect of our existence. The following is an abridged list of common changes witnessed by people with persistent pain.

- Breathing becomes shallow, apical, arrhythmic, rapid, and shaky. It is common to observe a rapid pace to exhalation. Blowing out too much CO_2 produces respiratory alkalosis, which in turn increases sympathetic nervous system activity, and thus heightens the brain's view that something dangerous is happening in the body.[6]
- Muscle tension is altered. With the body in a state of alert, muscles that typically work to guard us remain "on" even when we rest. Muscles such as the upper trapezius and psoas are "on guard," while others are inhibited, and less responsive as protective responses. These include aspects of deep neck flexors, the rotator cuff, scapular retractors, hip abductors, and knee extensors.
- The ability to feel body position, movement, and physiological state is diminished. Functional brain imaging reinforces what we see in our students.[7] The brain develops an intense narrow focus on the pain, at the expense of attending to body sensations. These changes create difficulty when attempting to restore movement without first restoring some ability to sense the body.
- Body image is adversely impacted by persisting pain.[8] Distortions of body awareness intertwine with stories of hopelessness, helplessness, physical fragility, unhealed tissues, and poor self-efficacy to create an image of the body that is far from a truly sensible story.
- Thinking patterns change to more negative, less hopeful, and less joyful. There is a general sense that one has less control or influence over life than in the past. Setbacks and flare-ups are viewed from a catastrophic perspective, making it difficult not to ruminate on them and exaggerate their significance. The pain drives people to search relentlessly for the cause of it. Typically, the line of reasoning is that there must be a purely physical tissue-based reason for the pain. Such linear thinking is of no help, and will only become entrenched when poorly informed, well-meaning therapists reinforce it. Without an adequate understanding of pain it is easy, though completely inappropriate, to blame the person and the pain on single or simple reasons. *(continued on page 16)*

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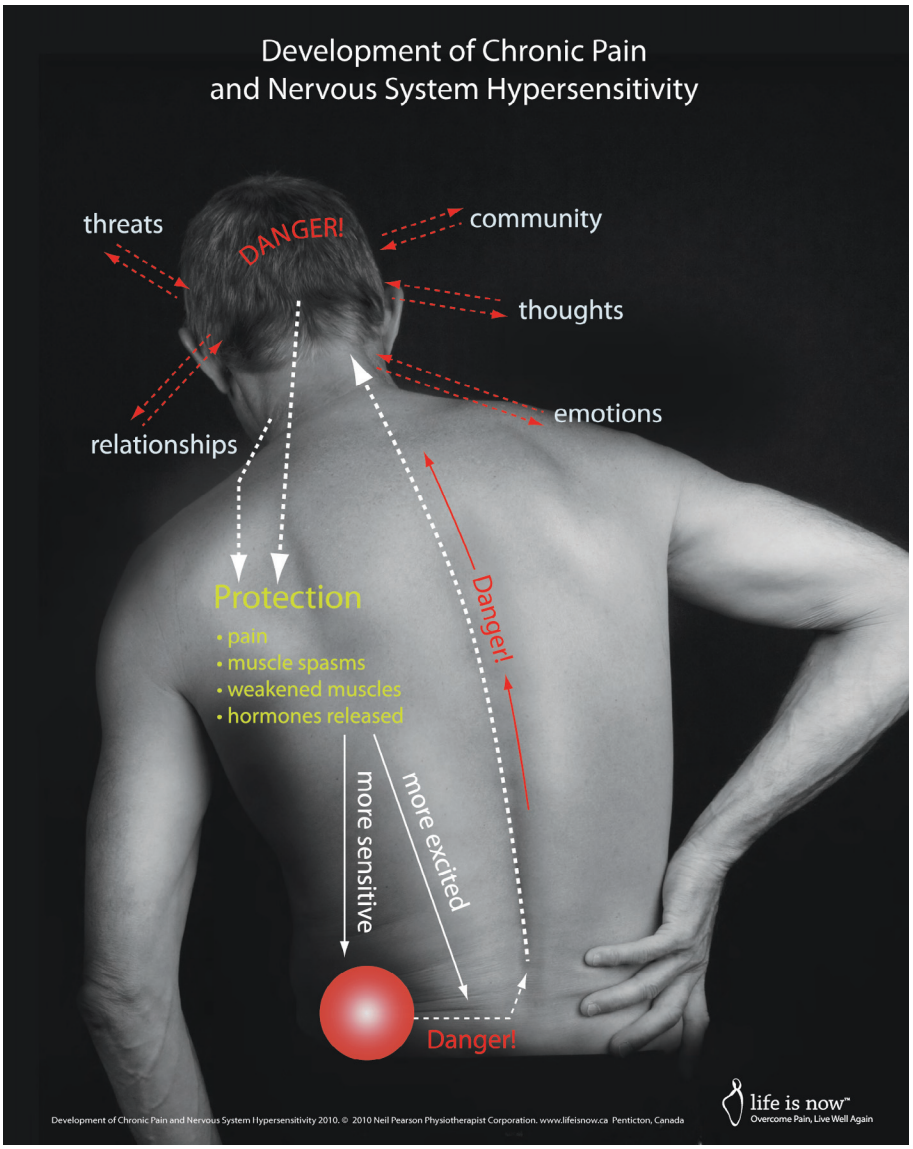
Pain is influenced by everything, including DNA, and every input into your body-mind-spirit since the beginning of its existence.

- Pain often motivates us to consciously do things that are not beneficial to recovery. In the face of ongoing pain, we typically decide that there are two ways to approach movement and activity. In some situations, we believe the movement will be dangerous to our body, and so we avoid the movement. However, this avoidance leads to increased sensitization of the nervous system and to more avoidance of movement. Alternatively, we grit our teeth and push through the pain, ultimately stopping when the pain is too bad to carry on. This strategy gets the job done, but causes our protective systems to act as if they have to scream at us before we will stop. The first strategy is "flight," the second is either "flight" or "fight." Neither is an effective approach to calming down a wound-up, hypersensitive nervous system.
- Emotions become less balanced, with little activation of happiness, bliss, peace, joy, or love. Persistent pain is associated with higher levels of anxiety, depression, anger, and grief. Any of these, by themselves, seem able to drive the hypersensitivity associated with ongoing pain. Just as pain is a protective response, so is each of these. Altered sense of love and peace can have profound impact on our spirit, often disconnecting us from what is truly important to nourish our soul.



Pain is complex. Without a clear and deep understanding of its physiology and of the lived experience of pain, yoga therapy can be a disservice to people in pain. It is easy to increase nervous system sensitization and to reinforce maladaptive patterns related to pain. Calming the nervous systems is harder. Recovering movement and life in the face of ongoing pain protection responses can be equally difficult.

How Can Yoga Help?

Yoga provides a path toward calming the body-mind-spirit. Through yoga we can create positive neuroplastic change, leading to less pain, better movement, and improved quality of life in the face of chronic pain. Often the best success comes from enlisting assistance from regulated health professionals and trained spiritual advisors to overcome complex physical, psychological, and spiritual barriers. As yoga therapists, we provide the opportunity for our students in pain to decrease sensitization, gain new awarenesses and put these into practice, and work alongside specialists in the area of pain management. As we gain a deeper understanding of complex human experiences such as pain, we will then let go of unhelpful pain paradigms and focus on guiding individuals through the powerful health process of yoga. YTT

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