

# Yoga Therapy in Practice

## Yoga for People in Pain

Neil Pearson, MSc(RHBS), BScPT, BA-BPHE

*Department of Physical Therapy, University of British Columbia, Canada*

**Abstract:** *Chronic pain is a common and important problem, but many healthcare practitioners, even those in pain management settings, do not have a clear understanding of modern pain science. Misconceptions about pain can be a major roadblock to effective interventions, including Yoga therapy. This paper introduces the latest conceptual understanding of how the nervous system experiences pain, and then addresses the limitations and inaccuracies of common beliefs about pain. The paper then applies this new understanding of pain to Yoga therapy for people in persistent pain. Research on Yoga for chronic pain is reviewed, and general guidelines for teaching Yoga to people with pain are offered. Modern science does not support a highly prescriptive approach to āsana or Yoga practice for those with chronic pain. However, a holistic, individualized approach to Yoga therapy is an effective strategy for helping people with chronic pain.*

**Keywords:** *Chronic pain, yoga, prānāyāma, mindfulness, neuroplasticity*

### Introduction

Chronic pain is a common and important problem. Approximately 29% of adults in North America live with daily pain,<sup>1</sup> and in those over 50 years of age, prevalence is as high as 39%.<sup>2</sup> Within healthcare, there are many different beliefs about pain, and about recovery from and treatment for chronic pain.<sup>3-5</sup> But recent research has shown that many healthcare practitioners, even those in pain management settings, do not have a clear understanding of pain science.<sup>6</sup> Perhaps this explains why 58% of those with chronic pain reported they did not feel well-understood by their healthcare professionals.<sup>7</sup>

Most, if not all, people would profess to a good understanding of pain. After all, we have experienced it, learned about it from family, friends, and clients, and we may have even taken courses on common injuries and other sources of pain. However, research also shows that common beliefs about pain—including those of people in pain—do not match up with the current scientific understanding of the physiology of the nervous system.<sup>4,6,8</sup>

Our confidence in the accuracy of our knowledge, and our lack of inquiry into our beliefs about pain, is a problem. Beliefs about pain can be barriers to the positive effects of

any intervention,<sup>8-10</sup> including Yoga therapy. For this reason, it is important to explore the disconnection between common beliefs about pain, our experience of pain, and the findings of modern scientific inquiry.

We all make assumptions based on personal pain experiences, our beliefs and attitudes about pain and recovery, and our knowledge about pain and tissue pathology. However, if the Yoga therapy you provide to people with persistent pain is influenced by a fear of injuring the person, then you need more knowledge about pain neurophysiology. If you provide only the therapy that worked for you, or if you provide the same therapy for everyone with the same medical diagnosis, then you need to remind yourself that we are all different divine beings who have lived different lives in different bodies. And if you believe that pain cannot be changed, then you need more knowledge about neuroplasticity and the many physical and psychological influences on pain.

In other words, sometimes before we start with our clients, we need to start with ourselves. When we understand pain in general, and chronic pain specifically, we are able to let go of our fear of injuring the student or client, and we can approach people in pain both from our heart and from the wisdom of Yoga.

In Western society, there are four common beliefs about pain:

1. The intensity of pain accurately indicates the extent of tissue injury.
2. The quality and location of pain are accurate indicators of what and where the problem is in the body.
3. Pain is a symptom.
4. It is possible to ignore pain or learn to live with it, but it is not possible to change pain.

This paper will introduce information about how the nervous system experiences pain, and then address the limitations and inaccuracies of each of the above beliefs. The second half of this paper then applies this new understanding of pain to Yoga therapy for people in persistent pain.

## How the Nervous System Produces Pain

### *Nociception*

The activation of sensory neurons (nerve cells) in the body begins the transmission of warning signals from the body towards the brain. Specialized sensory neurons called *nociceptors* send electrochemical signals from the body to other neurons in the spinal cord. Neurons in the spinal cord send signals up to relay stations in the brain. We experience pain (pain is produced), as Moseley argues, “when the brain concludes that body tissue is in danger and action is required.”<sup>11</sup>

Nociceptors can detect three different types of threat to the body: (1) potentially harmful mechanical deformation (stretch or compression), (2) extremes of heat and cold, and (3) the presence of chemicals that signify inflammation or damaged cells. Regardless of what initially excites the nociceptor, it can only send one type of message toward the spinal cord.<sup>12</sup>

Butler and Moseley describe the signal passing through the nociceptor as a danger signal.<sup>13</sup> A single nociceptor cannot send a danger signal that will differentiate whether the hamstring muscle is being stretched too far, or whether the leg is in something dangerously hot. The signal will not communicate whether the nociceptor was stimulated by the mechanical force produced by a too-intense stretch on a healthy hamstring, or by the chemicals released after your hamstring is torn. Other neurons in your body, and other sensory information, are required for this more complex analysis.

When the neurons from the spinal cord reach the brain, they relay the danger signals to many brain structures.<sup>14</sup> This means that the experience of pain involves activity in many areas of the brain. Specific areas of the sensory cortex, along with the limbic system (associated with emotion processing,

stress, and memory), the anterior cingulate cortex (associated with conflict, risk monitoring, and attention), and the insula (associated with emotion and internal sensory processing) are all involved in the production of pain.<sup>11,14,15</sup>

All of these brain regions are intimately linked to one another, and to many other areas of the brain. This expansive processing allows the brain to integrate all of the sensory information from the external environment and the physical body with emotional states, memories of the past, and predictions about the future. The processing then provides one with an interpretation of the current experience. Depending on the brain’s interpretation, pain may or may not be produced.

As Butler and Moseley state, “The challenge for the brain is to construct as sensible a story as possible, based on all the information that is arriving.”<sup>13</sup> This story is based in part on the location and type of the sensory receptors that sent the signals, the rate at which they fire, as well as the pattern of signals sent from sensory receptors throughout the body.<sup>12,16</sup> In computing its story, the brain also takes into consideration all the other current input to the brain from the body, emotions, the environment, past experience, and expectations.

All this happens without one’s awareness. Moseley points out that “it is the implicit perception of threat that determines the output.”<sup>39</sup> We assume that all sensory perception is an accurate indication of what is really happening in the body. It is not! We simply do not have the anatomical structures or the physiology to provide a pain sensation that is a consistently accurate indication of the type of tissue damage. Signals from the body are filtered, modified, and amplified by all other inputs into the central nervous system, including psychological factors. Together, these factors can lead to unexpectedly strong or weak pain sensations.<sup>17</sup> As Candace Pert has observed, “In both pain and emotions, the brain interprets the sensory input, and makes decisions about them. Our experience of pain and emotions is due to the brain’s response to the input.”<sup>18</sup>

### *Endogenous Pain Control*

The spinal cord is not a passive transmitter of information between the brain and the body. For every neuron taking nociceptive information up the spinal cord, there are even more neurons sending information down the spinal cord.<sup>16,19,20</sup> These descending neurons carry messages that will either inhibit or facilitate the incoming danger signals. Research suggests that there are more inhibitory pathways than there are facilitatory.<sup>19</sup> Depending on the balance of the descending input into the spinal cord, signals from the

body can be either suppressed or amplified. This central processing of incoming sensory information has been shown to be one important way that expectations are involved in the suppression or amplification of pain experience.<sup>9</sup>

The central nervous system has a number of anti-pain systems.<sup>9,14,16,19</sup> These are our own (“endogenous”) powerful mechanisms for pain control. These include the serotonergic system, the opioid system, and the diffuse antinociceptive systems. Each system is highly connected with the autonomic nervous system, the immune system, and the emotional systems of the brain. These systems are able to inhibit danger signals from spinal cord neurons, and they are able to inhibit the transfer of danger messages into and between the brain centers.<sup>19</sup>

Research is starting to investigate intervention techniques that can stimulate these pain-inhibitory systems. Activities such as meditation,<sup>21,22</sup> rhythmic breathing,<sup>23</sup> and walking<sup>24</sup> have all been shown to stimulate production and release of neurotransmitters and opioids that can dampen the experience of pain.

Beliefs about whether pain is controllable also have a major impact on this endogenous blocking of pain signals. If we believe we have control over the pain, we are more likely to engage the parts of the nervous system that inhibit pain experience. If we believe that we cannot control the pain, the powerful pain-inhibitory systems may not be activated. In one recent study, researchers used functional MRI to investigate how a sense of control influences the brain's responses to painful stimuli.<sup>25</sup> In the self-controlled scenario, subjects were able to stop the progressively intensifying stimulus whenever they wanted. In the externally controlled scenario, the subjects believed that someone else was controlling how intense the stimulus became.

The subjects' brain activity was monitored, specifically looking at the prefrontal cortex (PFC), an area believed to be involved in emotion regulation, attention, and endogenous pain control. The results showed that when subjects believed they had no control, they experienced increased pain, and the PFC did not have increased activity. When subjects believed they had the ability to exert control over the painful stimuli, there was greater activation of the PFC and less self-reported pain experience—but only among those who had a strong sense of personal control. This key finding supports the idea that perception of control is as important as actually having control.

Stress also has important effects on the pain system. Stress leads to hyperalgesia (an increase in pain) through a number of mechanisms. Stress can produce hypersensitivity in sensory neurons,<sup>26</sup> thus decreasing their threshold

for excitation and potentially increasing the intensity of a pain experience. Stress also leads to greater activity in the hypothalamus-pituitary-adrenal axis and in the sympathetic nervous system.<sup>24</sup> These changes interact with the central nervous system, peripheral neurons, and endocrine (hormone) systems, leading to an experience of increased pain without an increase in tissue damage or irritation.

### *Neuroplasticity and Chronic Pain*

The nervous system is considered to have certain characteristics of plastic, which can be molded into almost any shape with the right force over sufficient time. With learning, the nervous system can change its structure and function in a way that produces more pain, but also in a way that decreases pain.

Many changes occur in the nervous system when pain persists, and these changes can increase the experience of pain independent of new injury. For example, research shows that the nociceptors become more easily stimulated and are able to send more signals when pain persists.<sup>27</sup> At the spinal cord, similar changes occur, with the production of more receptors, the engagement of previously inactive receptors, and increasing resting excitement of the spinal cord neurons.<sup>28</sup> All of these changes allow more danger signals to travel up to the brain. In the brain, changes can occur that distort perception of the painful body part,<sup>28</sup> impair motor control and proprioception,<sup>29</sup> interfere with perception of normal sensations,<sup>30</sup> and sensitize the emotional and attention areas of the brain during pain perception.<sup>31</sup>

Neuroplasticity is as equally important for recovery from chronic pain as it is for the development of chronic pain. Since the nervous system is plastic, we must take advantage of this as we help people recover. Science shows that there are techniques that can alter the nervous system and thus alter pain in a positive and lasting way. The most convincing evidence is that knowledge changes physiology.<sup>32</sup> A recent research review has also shown that increasing physical activity has positive effects on pain and the nervous system.<sup>33</sup> There is also evidence that imagery (visualizing a body part as pain-free and imagining pain-free movement of it) is a powerful method for changing pain.<sup>34,35</sup> Mindfulness practices,<sup>36</sup> meditation,<sup>37</sup> and breathing practice<sup>38</sup> have all been shown to have positive effects on pain.

Many of the techniques shown to alter the nervous system are aspects of Yoga practice, and one goal of Yoga therapy is to take advantage of the natural capacity for neuroplasticity. The Yoga therapy guidelines described further on in this paper will discuss how to teach Yoga practices from a pain-science and neuroplasticity perspective.

## Exploring the Four Common Beliefs

With this basic information about how the nervous system processes pain, it is possible to reconsider four common beliefs about pain.

### *1. Pain intensity accurately indicates the extent of tissue damage.*

Do you find yourself noticing that some people seem to have less pain than you expect, while others have more than you would expect? These expectations are based on the belief that pain intensity should match tissue damage, and that pain intensity and tissue damage correlate. However, more pain is not an indication of more tissue damage, and less tissue damage does mean there will be less pain.<sup>13</sup> When one experiences or witnesses intense pain from small injuries, or minimal pain from extensive tissue damage, it becomes clear that damage and pain are not necessarily related to each other. Consider a paper cut. This is a small injury that typically produces unexpectedly intense pain.

Modern knowledge of pain neurophysiology provides insight into why pain intensity is not an accurate indication the extent of tissue injury.<sup>11,13,39</sup> Simply stated, the mechanisms of the nervous system allow every input into the system to alter perceptions, including pain experience. As discussed above, all aspects of the environment, one's mood, worries of the future, state of stress, past experience, the activity being performed, muscle tension in the body, posture, and all other sensory input influence how the nervous system will interpret signals from the body about danger. As Butler and Moseley state, "One experiences more pain when the brain concludes there is more danger," not when there is more damage to the body.<sup>13</sup>

### *2. Quality and location of pain are accurate indicators of what and where the problem is in the body.*

Most Yoga therapists understand that it is possible to experience referred pain. Referred pain is experienced in a place where there is no tissue damage and from which no nerve signals are originating. Examples include pain experienced as being in the leg that is actually arising from problems in the hip joint or lumbar spine, or pain experienced in the arm that is referred from the neck, the shoulder joint, or even from the heart, in the case of angina (ischemic heart pain). Referred pain can occur in acute injuries, but it is especially common in chronic pain conditions.

Research into the physiology of the central nervous system (spinal cord and brain), including how the brain maps sensation from the body, provides a clear explanation of how referred pain occurs.<sup>14,15</sup> Sensory signals from the body are relayed to the sensory areas of the brain. We expect the sensory area of the brain to be able to provide us with an accurate location of where there is danger to the body. However, the brain does not have a highly detailed virtual map for the majority of the body. There is a very detailed map of much of the skin, but otherwise, the map for tissues below the skin is extremely poor to non-existent.

This means that when signals about danger travel from the body to the brain, a process of the brain must conclude where the signals originate from. If the signal comes to an area of the sensory cortex where the virtual body map is less detailed, the brain will do its best to come up with an accurate location. Due to this imprecise process, one often feels pain where there is no tissue problem. This imprecision is the norm when people have problems in internal tissues such as organs, or in the intervertebral discs and joints of the spine. The imprecision and plasticity of the virtual map also explains why people with amputations can continue to feel sensations and pain in the area of the body they no longer have, or why a woman may continue to feel sensations from her uterus even after a hysterectomy.

### *3. Pain is a symptom*

In Western medicine, pain is typically considered a symptom.<sup>40,41</sup> Most Yoga teachers and therapists have been told that a symptom is a subjective sign of a particular disease or disorder. However, pain is not always an *accurate* sign of a particular disease or disorder.

As described above, pain is a subjective output of the brain. It is not an input to the nervous system. Pain is an experience produced by a body and mind trying to interpret sensation and determine whether a threat is present. This means that your experience of pain does not depend exclusively on how much the body is damaged, unhealthy, or worn out. More importantly—especially to people with chronic pain—it is possible to feel pain without any new threat, and even without sensory danger signals heading from the body to the brain.

### *4. It is possible to ignore pain, but not to change pain.*

Some people learn that distraction is the best way to deal with pain, or a great strategy to motivate people in pain to practice *āsana*. Clinical observations suggest that using distraction to ignore pain may be an effective cop-

ing strategy for immediate, acute pain control, but this strategy does not typically lead to recovery, or to lasting improvements in how the nervous system experiences pain. Typically, people with chronic pain will describe how they have become masterful at these distraction or suppression techniques—yet the pain persists.

Recent scientific findings confirm that distraction is not the best strategy. For example, in one study, researchers investigated how acceptance versus thought suppression influenced pain tolerance and pain recovery times when college students placed their hand and arm in iced water.<sup>42</sup> The students, all of whom had previously shown lower-than-average tolerance for this task, were separated into two groups. Each group was trained (for 20 minutes) to use a different strategy for pain control while their hands were in the water. The two strategies were (1) acceptance, observation, and not controlling pain-related sensations, emotions, and thoughts; or (2) thought suppression (silently yelling “Stop!” and then taking a deep breath followed by exhaling slowly when they noticed thoughts such as “It hurts a lot,” “It is unbearable,” or “I am getting nervous.”) Those who suppressed the pain had significantly lower pain tolerance and took significantly longer to recover from the pain sensation.

Why doesn't distraction help during activity? Science cannot answer this definitively. However, if you imagine how a sophisticated protective alarm system might respond if its alarms were ignored, you can see what might happen to the human body when its alarm system (pain) is ignored! The body and nervous system may amplify the signals to get attention. Pain could then intensify without further tissue damage, the experience of pain could spread to new areas, previously non-painful movement might become painful, gentle touch over the area of pain could become excruciating, and the perception of a painful body part could become distorted.<sup>28</sup> Suppressing these messages will not make them stop.

## Yoga and Chronic Pain

### *Research Review*

Research evidence exists to support the use of Yoga as a therapeutic intervention for people with some chronic pain conditions. The evidence is strongest in the area of chronic low-back pain (CLBP). Well-designed studies using Viniyoga<sup>43</sup> and Iyengar Yoga<sup>44</sup> found significantly greater improvements in reported pain and in functional abilities immediately after a course of yoga and at follow-up compared to control groups. Iyengar Yoga has also been shown to decrease the symptoms of people with knee osteoarthritis.<sup>45</sup>

The positive effects from Yoga therapy for these difficult-to-treat conditions could be considered as strong evidence in support of Yoga for other musculoskeletal conditions.

Positive outcomes for people in pain have also been found in studies considering other aspects of traditional Yoga practice. In a study of a Mindfulness-Based Stress Reduction Program (developed by Jon Kabat-Zinn), 78 adults with chronic pain had significant improvements following a 10-week comprehensive mind-body program that included breath awareness, body awareness, meditation, and gentle *Hatha* Yoga.<sup>46</sup> Improvements were sustained as long as one year post-intervention.

In related study, a six-week daily *prānāyāma* practice led to significant improvements in depression, anxiety, optimism, and stress.<sup>38</sup> Considering the comorbidity of chronic pain with anxiety and depression, and the links between stress, hopelessness, and chronic pain, these findings support the benefits of Yoga therapy for people with chronic pain.

Support for the benefits of other aspects of Yoga for pain comes from research into the positive effects of relaxation,<sup>47</sup> rhythmic breathing,<sup>23</sup> lovingkindness meditation,<sup>48</sup> imagery,<sup>34, 49, 50</sup> and meditation<sup>21, 36</sup>.

### *General Teaching Guidelines*

Possibly the most important strategy when working with a person in pain is to really listen and observe. We can gain much from research, but any one person is potentially both similar to and quite different from the “typical” person with chronic pain. Listen to how this person describes their pain and its effects on their life. Observe how this person moves, holds him- or herself, breathes, and talks. The point is to learn about this individual person in front of you. The therapy you provide must be what is right for them, not what is right for “every other” person with chronic pain. There will be patterns seen across people in pain, but there is no recipe for the best Yoga therapy.

The next and equally important strategy is to let your knowledge about pain guide your choices, but not to overwhelm your student/client. You as a Yoga therapist or teacher understand that pain is not an accurate indication of tissue injury.<sup>11</sup> You also know that when pain persists, the nervous system becomes hypersensitive to any danger signals coming from the body,<sup>51</sup> and that more of the brain attends to the painful area.<sup>52</sup> You know that pain can be triggered by normally innocuous stimulation such as gentle movement,<sup>53</sup> and that the brain's “anti-pain” systems are generally suppressed.<sup>25</sup> With this knowledge, the threat-value of pain will be much less. You will be less concerned about

causing damage to your student or client who tells you they have persistent pain. At the same time, you will know that ignoring the pain or pushing through it are not approaches supported by science.

However, for many people in pain it is difficult to believe that the intensity and location of pain can have little to do with the characteristics of tissue injury, or that pain is not always a clear signal that what they are doing is dangerous. Before you share this idea with a student or client, consider the possible consequences. What would occur if you told this to a person who believes that the sharp intense electric pain in their neck is absolutely a pinched nerve? Having this information yourself does not mean that you need to immediately force it on students or clients. It may be best to skip this discussion until you have a solid trusting relationship with the person, and the Yoga therapy practices you have chosen (based on your understanding of pain) have already benefited the student/client. There is no recipe for who will respond best to knowledge first and who will respond best to experience first. When you work with a person who is responding well to receiving a new understanding of their body and their nervous system, remember to not overload them.

Working with a person in pain means assisting them with many different issues, potentially over many months. Yoga therapists are typically action-oriented people. Like our students, we want to get to the results. However, recovering from chronic pain can be a slow process. Clients need to learn many different skills and then be able to practice them all together, not only on the Yoga mat but in their life. People in pain have hypersensitive nervous systems, and may require a slower approach than you typically take with students not in pain. When you notice the client struggling, consider that this might be due to expectations and previous coping strategies. Many people report that the only way they have found to get things done is to push through the pain. This is not a useful recovery technique. When working with people with persistent pain, you will occasionally spend considerable time slowing them down and helping them match their *tapas* with patience, compassion, and kindness.

### Specific Practices

The following specific recommendations for teaching the *yamas* and *niyamas*, *āsana*, *prānāyāma*, *pratyāhāra*, and *dhāranā* can assist the recovery of a person with persistent pain.

### Yamas and Niyamas

When working with people with pain, teaching the *yamas* and *niyamas* becomes an integral part of the Yoga as

therapy. The *yamas* and *niyamas* also offer guidance for how to approach *āsana* and *prānāyāma*. Each *yama* and *niyama* is interpreted with subtle differences by many writers. The following list includes a brief thought on how one might apply each of these principles to a Yoga therapy practice for someone with persistent pain.

- *Ahimsā* (non-harming). Teach people to be kind and compassionate to themselves as they practice *āsana*. It is important that people learn to let go of trying to prove to others that they are really trying to get better by pushing through the pain. Students can also explore the effects of the pain on their kindness toward others.
- *Satya* (truthfulness). People in pain often live in a world of what they used to be, or what they want to be in the future. Part of living the truth is to be present to what we can do now; making this our reality helps find the path to recovery.
- *Asteja* (non-stealing). Traditionally, this relates to not stealing from others. Sometimes pain can become a person's identity, which can take a major toll on both the person with pain and the people in his or her life. Guide students to explore how this new identity may steal one's own, and others', energy or resources.
- *Brahmacharya* (energy regulation). People in pain typically push through the pain in *āsana*, or they avoid activities to avoid any increase in the pain. Neither strategy will help them move forward. Encourage the student to challenge the edge of the pain, or to find the middle way.
- *Aparigrahā* (non-grasping). Acceptance is a key ability. People in pain often seek to escape the pain, grasping for the pain-free future they prefer. Recovery may require learning how to be with the pain without reacting negatively.
- *Saucha* (purity). People in chronic pain report that it is difficult to focus their thoughts and calm their mind. Explore practices that first engage their mind, and then with practice, start to provide practices that require progressively more evenness of mind.
- *Santosha* (contentment). People with chronic pain commonly tell themselves they will only be happy when they are pain free. Explore philosophy and practices that help the student/client choose contentment independent of specific conditions or prerequisites.
- *Tapas* (persistence, discipline). People in pain need persistence to recover. They need discipline to practice daily and to practice strategies that assist recovery more than they practice maladaptive strategies. Encourage students to practice the techniques you teach them during their daily activities as well as in their daily *sādhana*.

- *Svādhyāya* (self-observation). Encourage students to learn more about their pain. Maybe they gain more knowledge of pain science, or maybe they spend time paying attention nonjudgmentally to the pain or looking at it from new perspectives. Suggest that they consider that there might be a deeper meaning to this pain.
- *Ishvara pranidhānā* (surrender to the Divine). Surrender can be considered much like acceptance. Explore practices in which letting go is the best way to move forward.

### Getting Started

*Savāsana* is a great way to begin Yoga practice for the person in pain. This will typically calm the sympathetic nervous system, providing a foundation for other practices. If traditional *savāsana* pose is not comfortable, start in a position where there is less stress on the body, and where the person reports that pain is at a minimum.

For many people in pain, it is easier to follow the sound of your voice or focus on the breath than to lie in *savāsana* with nothing for their mind to do but listen to the pain. The length of time the person rests with no external voice or mental focus can be gradually increased, to develop *pratyāhāra*.

While the person is in *savāsana*, you can begin simple *prānāyāma*. Most important is to find a technique that this person finds calming, and that they can stay focused throughout. Breathing techniques that promote longer exhalations and a smoother-paced exhalation are usually beneficial for individuals with pain. Some examples include the three-part breath; bee breath (*bhrāmari*); and alternate nostril breathing (*nādi shodhana*), with hand or visualization alone. These practices can gently replace maladaptive breathing patterns and keep the person's mind focused.

### Prānāyāma

People in pain typically do not breathe in an adaptive manner.<sup>54</sup> These breathing patterns can be reinforced by the mental hypervigilance and muscle tension that occur in some people with persistent pain,<sup>29,31</sup> both of which increase the activity of the pain alarm system. The breathing techniques described above are good places to start, and research also shows that rhythmic breathing can activate the brain's anti-pain systems.<sup>23</sup>

Research also suggests that rhythmic repetitive movements of the jaw may reduce pain.<sup>55</sup> For this reason, *mantra* can be particularly powerful for pain management. An example of this technique is the repetition of “*Sa Ta Na Ma*” while rhythmically touching fingers to thumb. Touch index finger to thumb (*Sa*), touch middle finger to thumb

(*Ta*), touch ring finger to thumb (*Na*), and touch little finger to thumb (*Ma*). One or both hands can be used. This technique incorporates rhythmic breathing, sounds, finger movements, and jaw movements, along with a focus on the meaning of the words: “Truth is my identity.”

Whatever breathing techniques you teach, keep in mind that people in pain may be anxious. Rapid exhalation or holding the breathing can increase anxiety. Anxiety may also be increased by forcing a person to follow your breathing pace or by recommending that the student close his or her eyes. Additionally, some people need to hear the *prānāyāma* instructions and then have a chance to practice at their own pace. Others will need to keep their eyes open until they feel comfortable closing them.

### Svādhyāya and Dhāranā

After the initial *savāsana* and *prānāyāma*, many people in pain will benefit from being guided through a body scan. It is common for people with chronic pain to have a distorted body image, along with changes in thoughts and emotions about their body.<sup>28,31</sup> Body scans provide an opportunity for people to be mindful and have awareness of the sensations in the body, their thoughts, and their emotions, all of which influence pain and recovery. Body scans also allow the person an opportunity to practice concentration without exclusively concentrating on or ignoring the pain. As such, body scanning can be considered a practice of both *dhāranā* and *svādhyāya*.

When first providing a body scan, you will need to communicate with your clients about their experience. If the client informs you that his or her mind is racing, or that he or she is having considerable trouble concentrating, start with a shorter scan, with less time to explore each area. Some clients will want to know your opinion of what they noticed as they scanned their body. Their interpretations are what is most important. If images or thoughts continue to arise that are disturbing to the client, this is a sign that the individual might benefit from counseling. Research shows that multidisciplinary treatment is often the most effective intervention for people with chronic pain.<sup>56</sup>

### Āsana Practice

Gentle repetitive movements and rhythmic breathing not only engage the pain-inhibition systems, but also engage the nervous system in a healthy way, decreasing the attention of the brain to the painful body part.

Start *āsana* practice with a focus on the breath, not the pose. For example, have the student first practice *ujjayi* breathing with the sense of energy rising up the spine on

the inhalation and releasing down the spine on the exhalation. Then begin arm movements combined with the flow of breath. While the person is doing this, describe one of the *yamas* or *niyamas*. For instance, for *ahimsâ*, you could discuss how there is no benefit to pushing through the pain, and how moving to the edge of pain and encouraging the body, breath, thoughts, and emotions to let go will be more effective than pushing through or trying to ignore the pain.

Discussing *svâdhyâya* at the beginning of *âsana* practice is another option. Talk about the importance of reconnecting to the body. Explain how pain leads us to focus on other things, distract ourselves, and lose connection. Distraction can be a great coping strategy, yet it does not lead to recovery. It helps temporarily, but does not lead to lasting change. We need to listen to our body in the right way, and learn what works best through practice.

### Setting an Intention for *Âsana* Practice

Ask the person to decide how he or she will practice today. Encourage an intention or resolution for the Yoga practice that suits this person on this day. During your guidance through the practice, remind the student to reconnect to that intention. Typically, individuals will quickly learn how to set an intention based on what they really need, and not based on what they think they ought to be able to do. This is a very useful process for people with pain to experience.

Sometimes it can be of value to set an overarching intention for your students, such as the intention to stay connected and present during the Yoga practice, especially *âsana*. This can completely change someone's Yoga experience by providing the opportunity to drop their expectations about movement and pain. What we expect to happen plays an important role in what we experience. When individuals expect something to really hurt, there is less descending inhibition of danger signals, and thus more pain experience.<sup>9</sup> Dropping one's expectations is a difficult process. Yoga provides a safe place to practice this powerful and effective strategy for decreasing pain with movement.

It is also important to keep in mind your own expectations. Your students will listen to you and typically be confident in what you tell them. Pessimism about a student's abilities or recovery can have a significant effect on their experience.

Once you start providing *âsana*, continue to focus on the importance of mind and spirit as much as on body. Instruct your students that *âsana* practice is where they get to practice calming the body and mind while moving. Teach your students to listen to all their alarms during *âsana*— their pain, their body tension, their breath, their thoughts, and their emotions. Let them know that for people with chronic

pain, the level of pain by itself is not an accurate indication of how far to move in *âsana*. The breath, body, and mind are better indicators. If a person cannot breathe calmly, then he or she has gone too far. If a person cannot relax body tension, he or she has gone too far. If a person can keep the mind focused and present, and emotions calm, while at the same time challenging the physical body, then he or she is in the right spot. For many people, this "just right" spot is also where they still feel safe.

Physically, we need to find *âsanas* that allow clients to gently push their physical limits. The right amount of movement will promote adaptive changes to the tissues and the nervous system, and give people the feeling of success. The use of props, performing slow repetitions of movements or postures, and slow consistent increases in repetitions and depth of movement, are key to finding the right amount of movement.

It is important to remember that people in pain typically have low self-efficacy.<sup>47</sup> They may have attempted movements many times before that have led to more pain. Enhancing self-confidence decreases this barrier to recovery. Provide encouragement and authentic positive feedback. Work with the student to find the balance between pushing so hard that he or she fails or experiences a flare-up, and pushing so little that change does not occur. Experiencing one's own ability, and seeing how commitment leads to improvements over time, can help reactivate the brain's endogenous anti-pain systems.

During *âsana*, it is beneficial to incorporate *bandhas* and *mudras*. From a neurophysiological point of view, these techniques provide unique and engaging stimulation to the nervous system that may promote lasting changes.<sup>58</sup> Any techniques that challenge your students to maintain their focus on normal body sensations, and that draw their attention away from the pain signals without unhealthy distraction, will be beneficial.

Playfulness is also important. Encourage your students to be playful and have some fun during Yoga practice. People in pain typically do not stimulate their anti-pain or endorphin systems through smiling and laughing. These are powerful systems, and Yoga is a great way to teach a person to reengage them.

### *Savâsana* to End a Practice

Practice should typically end with *savâsana*, using similar guidelines to those described for beginning a practice with *savâsana*. Yoga *nidrâ* is a powerful procedure to provide to students during *savâsana*. Yoga *nidrâ* teaches focus, attention, and the power of the mind to change perceptions.



People in pain typically have difficulty concentrating and spend their time trying to be less aware of themselves and their pain.<sup>59</sup> A Yoga *nidra* practice can leave students with a profound sense of peace, and may provide many benefits for people in pain.

## Conclusion

Modern science is beginning to show us how and why Yoga can be effective for people with persistent pain. Modern science is also showing us that many of the beliefs we hold about pain are inaccurate and not helpful. Pain beliefs can be barriers to recovery from chronic pain. As Yoga therapists, we must understand pain; otherwise, *we* become a barrier to our student's recovery. With a deeper and more up-to-date understanding of pain neurophysiology and chronic pain, we will be able to let go of our outdated pain attitudes and be more able to provide effective, individualized therapeutic Yoga for people in pain. Yoga practice itself can provide us with the techniques to let go of dysfunctional beliefs and experience pain in a different way.

Modern science does not support a highly prescriptive approach to *asana* or Yoga practice for those with chronic pain. To date, there is no evidence that one style of *asana* is best, or that specific *asanas* are required for specific chronic pain problems. Whenever we work with an individual with chronic pain, we must remember that pain is a multifaceted problem. We must move our therapeutic focus away from the physical injury and from providing the "right" *asana* for the diagnosis or pathology. We must neither ignore the original tissue injury nor unnecessarily restrict a Yoga practice to focus on physical injury. Pain has effects on each of the *koshas*, and recovering from pain can be accessed through any of them. When we practice in this manner, we move past providing physical therapy, to being a Yoga therapist.

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Direct correspondence to Neil Pearson at [info@lifeisnow.ca](mailto:info@lifeisnow.ca) or (Tel): 250-486-5056.