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By Niamh Moloney PhD, MManipTh, BPhysio,
 SMISCP and Marnie Hartman DPT, CSCS, RYT

Yoga: An Introduction

The word yoga can elicit a number of reactions from the general public, including: "I am not flexible enough to do yoga" or "I already have a faith system". These responses represent a misunderstanding of what yoga is and what the practice involves. Yoga is the study of self and living with awareness. It encompasses philosophies and tools to facilitate this, to promote self-regulation, and hence to improve wellbeing. The yoga philosophy presented here and throughout the rest of the book *Pain Science – Yoga – Life*, as we weave the concepts of yoga with pain science, is a product of the combination of our individual yoga teacher training, clinical experience, self-study and contemplations. While reading, we encourage you to keep in mind the primary purpose of this book, which is to use yoga to facilitate a change in one's relationship with pain. We recognise that yoga as it is presented may feel over-simplified for some or difficult to fully digest for others. It may be helpful to proceed with the mindset of 'take what you need and leave the rest.'



ROOTS OF YOGA

and How it Pertains to Pain

Many people, if not most, think of yoga as being useful for developing flexibility or perhaps for rehab, and know that it has 'some sort of mindfulness' aspect. This article sets straight some of the misconceptions about yoga as well as describing the Eight Limbs of yoga, the concepts of which can inform a complete way of 'being'. Combined with an emphasis on how these ideas are relevant to pain, this article will enable you to encourage your patients to manage their pain holistically – both physically and emotionally – as well as being of benefit in your own life. This article has been extracted from the authors' book *Pain Science – Yoga – Life*. Read this article online <https://bit.ly/3yWYcMB>

Yoga misconceptions:

- It is not a religion.
- It is not a fixed series of exercises for flexibility or handstands.
- It is not a trendy lifestyle of clothing, foods and social media posts.

Yoga does encompass:

- A spiritual connection and practice with the many layers of ourselves and the world we live in.
- Exercises or postures known as *asanas* that promote strength, proprioception, flexibility and mindfulness or awareness.
- Positive thinking and mindfulness with meditation practices.
- Awareness of, and activities to promote understanding of, our own perceptions of body, emotions and the self.
- Awareness of, and activities for, breathing known as *pranayama*.
- Awareness of how we nourish ourselves through food, society, nature, thought, etc.
- Promotion of rest and relaxation.
- Positive social and environmental living, harnessing wisely from these entities, taking no more than we need and learning to give back as well.

At its core, yoga is the study of self and living with awareness. In Sanskrit, yoga's root language, the word yoga comes from the root word, *yuj*, meaning to yoke, to unite or bring together. This can be thought of simply as connecting the body, mind and spirit. For our purposes, spirit can be thought of as the way our inner self connects with the outer world. At a more in-depth level, this union is the ability to detach from dualistic thinking. Non-dualism allows the bringing together, yoking, of all things. Comprehension of dualism is challenging; we will look more closely at it in just a moment.

A Look at the Self – One Potential Viewpoint

People spend years attempting to understand and define 'the self'. To keep it simple and for the purpose of pain, we will consider the self as one entity with two distinct layers. The *superficial self* is the physical body, including the senses, the brain and the psychological mind. The mind here is all of your thoughts, beliefs and opinions. This is the self that we tend to identify strongly with, the one that we put up against others for comparison. This is the ego-driven

●● AT ITS CORE, YOGA IS THE STUDY OF SELF AND LIVING WITH AWARENESS ●●



Figure 1:
Depiction of
the concepts of
dualism Moloney
and Hartman.
Pain Science
– Yoga – Life.
Handspring 2020

As humans are part of the natural world we are all simply molecules in different forms. One human to another is no different than these two water molecules: here one molecule is in wave form while the other is part of the spray, different but the same.

self. The second or deeper layer of self can be thought of as the *true self*. The true self is not driven by ego or comparison. It is the consistent centre of you, the one that doesn't change based on the outer environment. When yoga is thought of as the study of self, it is this deeper layer of self that one is seeking to connect with and understand. With practice we can learn to live our lives more connected to and rooted in this deeper, more consistent self. It is from here that we can process the vicissitudes of life with greater equanimity.

An Introduction to Dualism

Dualism is a philosophical concept that is centuries old. Simply stated, it is the idea that for most experiences or entities a division into categories can occur (1*). We, as humans, tend to view the world through the lens of expectations, judgments and comparisons. For example, good versus evil, you versus me, mind versus body. Dualism is a recognition of differences. It is rooted in comparison and often in the idea of better or worse, good or bad, success or failure, power or submission. If we live primarily from the superficial layer of self it is difficult *not* to live with a dualistic outlook. This comparative

outlook can be prevalent in pain states and may be a root of unnecessary suffering. Pain is perceived as a negative experience or negative state, a state to be rid of. A non-dualistic outlook on pain would suggest that pain is not good or bad, it just is: a normal sensory or emotional experience and a part of all human life.

Non-dualism is the recognition that all living things are made equal and are precious: everything made from nature (humans, animals, plants, etc.) is made of particles and elements, and is connected as one aspect of a bigger whole. It is the recognition that life's experiences will be varied, including pleasure and pain, neither being more or less important than the other. This view can be incredibly challenging to grasp because it is not exactly tangible. However, once accepted, even on a conceptual level, it can be healing for many human struggles and promote a place of loving kindness for ourselves and others. Think of this: a water molecule at the top of a wave looks at its neighbour and says: "Why would you think you are less worthy than the entire ocean? You are in fact the same, just in a different form" (Fig. 1). Can you see that we humans are all the same, just in different forms? The connectivity and likeness don't stop at humans. When we find this ability to recognise connection rather than separateness, we can begin to step away from unhealthy attachments to our own sufferings, comparisons and perceived short-comings. This perception or 'awakened/enlightened' mindset is not easy and will only come with observation and practice.

When we think about persistent pain, we often think of it as a negative, as a disability. These thoughts come from comparison: "I used to be able to...", "Because of my pain I can no longer...", but what if we choose to see pain and its effects as one part of a whole? Take Russell, for example. He is an Alaskan smoke-jumper: he hurls himself out of helicopters to fight forest fires and ensure the safety of humans and wildlife. At age 34 he began to struggle with recurrent back pain. To him, this pain could easily have become a disability, and a threat to his sense of self-worth: "If I can't

jump with the crew, what good am I?" If he attached his sense of self to this vocation, he would undoubtedly suffer with catastrophic thinking patterns which would most likely drive his pain and sensitivity further (see Chapter 4 of the book for more details on this process). However, by recognising that smoke-jumping is something he does and not who he *is*, he was able to see this scenario as an opportunity to simply continue to learn and grow and add to his life skill set. Now 37, Russell has returned to university to pursue a career in teaching literature. He gets to be a smoke-jumper with back pain and a literature student, and still he is Russell – a human, a part of nature, not better, not worse. Because he has learned to relate to the world from his true self, he can smoothly transition into this additional role without comparing it or getting lost in dualistic thinking and suffering.

The Eight Limbs of Yoga

Historically, yoga was taught only verbally and by direct instruction from sage to student. This was said to keep the knowledge pure and prevent excessive intellectual contemplation. Sometime around 400CE, Sage Patanjali wrote the Yoga Sutras, which have become known as the first comprehensive system of yoga, also known as the Eight-Fold Path or Eight Limbs (2,3). The Eight Limbs are: 1. *Yamas*, 2. *Niyamas*, 3. *Asana*, 4. *Pranayama*, 5. *Pratyahara*, 6. *Dharana*, 7. *Dhyana*, 8. *Samadhi*, and help to establish a formula for practice. Each limb could be considered a window for observation with curiosity of the various features of ourselves. Each serves as a means to learn who we are and how we tend to connect with what surrounds us.

There are many other tools in yoga traditions. If you already have a yoga foundation or practice that delves into other traditions, please don't think you need to abandon that in any way. If we blend traditional

practices with pain science, we may see yoga as a toolbox for self-regulation and self-care (Fig. 2): first becoming aware of the integration of inputs and outputs associated with pain, and then starting to regulate these processes. With consistent practice the ability to use tools such as self-regulation becomes more natural and efficient (4*).

1. Yamas

The first limb represents self-restraint, moral discipline or vows, and incorporates five subsets:

- *ahimsa*: non-violence;
- *satya*: truthfulness;
- *asteya*: non-stealing;
- *brahmacharya*: positive use of energy (*prana*); and
- *aparigraha*: non-greed, non-attachment, non-grasping.

It is easy to see how these can be practised as outward expressions and vows of moral actions towards others. However, in yoga these are also emphasised as behaviours towards ourselves. To practise non-violence (*ahimsa*) with others we must first find self-compassion and loving kindness inwardly. Harboured feelings of guilt and shame are two of the most violent acts we endure. We must also hold ourselves accountable for our own truths (*satya*). If I have feelings of anger or jealousy, I can choose not to act out these feelings but I have to admit to myself that they are there. Denying or ignoring such emotional states is an act of lying to the self.

In the context of *asteya* and *aparigraha*, it is said if we take more than we need we are indeed stealing and acting out of greed, be it with food, material objects or emotional/intellectual

justifications. These practices suggest that being mindful of our true needs ensures we don't take more than we need and we balance the act of taking with the act of giving back. Activities we participate in can either feed our

energy or deplete it (*brahmacharya*). The five positive aspects listed above are all a means of nurturing and boosting ourselves physically, emotionally and psychologically. In yoga, giving back to the self may be referred to as increasing one's *prana* or life force.

Yamas and Pain

Ahimsa: Non-violence

Many of us have a metaphorical tendency to beat ourselves up, especially when we are in pain. This can be a result of negative thought patterns, for example: "I am broken/I can't/my bad back..." This can also manifest in the actions we take, participating in too much or too little activity. Even though violence can be a bit of an extreme word, these negative thoughts and actions towards our physical body can be an act of harm for ourselves. If we learn to shift to a more compassionate thought process and learn a balance of physical participation, we may feel a shift in pain.

Satya: Truthfulness

It is quite common to hear things like: "Everything hurts, I can't do anything, my pain is horrible, my shoulder is ripped to shreds, it's all because of the stupid driver who hit me". All of these things might feel real. But are they actually true? See Chapter 3 of the book to specifically understand the practice of '*real but not true*'. While learning to be fully honest with ourselves can be difficult and uncomfortable, truthful examination allows us to see the entire scenario for what it really is. This practice may give insight into the areas we have the ability to control and shift us towards the direction we need for healing and recovery. A patient recently stated he had had 18 years of back pain. He said he can no longer do his work as a composer: "I just can't work at all", he firmly stated. However, with further questioning he revealed he spends

four hours per day for at least five days per week in his studio, composing – working. He hadn't been fully truthful to himself; this simple misrepresentation of the truth might lead to a belief, an input, that adds to his pain experience.

Asteya: Non-stealing

If we think of non-stealing, for pain this might be over-using medical or healthcare provision or asking more from our friends and family than we are giving back to them. Stealing sounds intentional and malicious but it may be an unintentional lack of awareness and realisation. Are we taking more than we are giving? Expecting someone else to heal us or fix something? Are we contributing equally to our healthcare, doing as much as we can to improve the situation? There are times in life when we need others to take care of us, but even during these times it is important to take only what is actually needed and to continue to offer what we can to give back to those around us, as well as ourselves.

Brahmacharya: Positive Use of Energy (Prana)

This means keeping our thoughts and actions around pain in a positive perspective. This could be as simple as focusing on what we can still do instead of what we can't. Let us look again at the composer. How much time in the studio does he spend ruminating about what he can no longer do, and how his studio time is much less than he would like it to be? This is not a productive use of his time or physical tolerance. He may actually be more productive if he can shift into the optimistic and grateful outlook – he then has four hours to accomplish his desired tasks. This is written as if it is a simple shift to put in place. Of course, it is more complex. Emotional lability about what has been lost will happen and is important to process. But grieving the loss during times of attempting productivity becomes unproductive for both emotional processing and, in this case, composing.

●● IF WE BLEND TRADITIONAL PRACTICES WITH PAIN SCIENCE, WE MAY SEE YOGA AS A TOOLBOX FOR SELF-REGULATION AND SELF-CARE ●●

**Aparigraha: Non-greed,
Non-attachment, Non-grasping,
Non-possessiveness**

In yoga this goes beyond the idea of wanting money, power or food. This limb also reflects the side of human nature that can lean towards grasping and clinging. In a persistent pain scenario, aparigraha may be practised through the ability to maintain realistic expectations. If walking for

10 minutes is difficult, then having a goal of returning to mountaineering in the next month may be greedy, or grasping at a past demonstration of physical ability. A goal to improve walking tolerance to allow a 30-minute stroll in the woods may be more realistic and obtainable. This isn't to say mountaineering will never be possible, but learning to accept smaller yet meaningful achievements might actually aid a fuller recovery. This may also mean accepting the scenario at hand, feeling the discomfort or pain, learning how to cope with it and regulate it without trying to escape it or simply get rid of it.

be filled with interruptions, and slowed internet and cellular services. Because of past experiences, my physical posture is affected, based on the visual cue of a cruise ship. Practising saucha might mean letting go of my patterned reactions and allowing the day to unfold however it may.

Santosh: True Contentment

This is an intention to accept and understand that all is impermanent and nothing in the outer world will supply us with joy or acceptance; we have to find these for ourselves from within.

Tapas: Discipline, Self-will

Tapas does not mean Spanish appetisers, rather it is said to be the internal fire that drives us or motivates us. It is said that within our tapas is where we find the strength to change our behaviours, emotions and perspectives and to endure when things become uncomfortable. Tapas is also how we promote the output of energy or physical strength and endurance. This could be seen as the driving force behind self-regulation.

Svadyaya: Self-reflection

This acts as a catalyst for change. Making space for awareness is the first step towards a shift in regulation and responses. It is encouraged to be practised as an observation of patterns with kindness and compassion. What would change if we began to treat our own mind and emotions like a small child? We each have the ability to make a friend or a slave out of ourselves. Positive encouragement towards desired changes rather than self-resistance can create a greater balance towards healing for the whole system.

Isvarapranidaha

This is the recognition or belief in a higher being or power; it can be inclusive of all faith systems.

Niyamas and Pain

Saucha: Cleanliness

With respect to pain, this practice could be thought of as a means to starting and ending each day 'fresh and clean'. Pain, especially as it persists, is unpredictable and

2. Niyamas

This second limb encompasses self-observances or self-study, and also has five subsets:

- *saucha*: cleanliness;
- *santosh*: contentment;
- *tapas*: discipline, self-will;
- *svadyaya*: self-reflection and spiritual studies; and
- *isvarapranidaha*: surrender to a system of faith or higher power.

In this limb, the greatest aim is to create a flexible mind, releasing the tendency towards rigid thoughts and beliefs. Again, these can be looked at as outward acts with an inner shift of perspectives.

Saucha: Cleanliness

This includes cleansing the mind and emotions of attachment. For the purpose of pain, this might be thought of as a means of cleaning out unhelpful and automatic reactions of our minds or movement patterns. Have you ever noticed how sights and sounds can cause our posture to shift? For instance, every Wednesday in the summer, a giant cruise ship full of curious passengers arrives in my small community in Alaska. On Wednesday mornings, pedalling around the corner to my office, my eyes land on the large structure docked in my view. Automatically, I can feel my body 'armour'. My chest will puff a little, my shoulders rise up towards my ears. I begin to avoid eye contact with tourists and edge towards being unapproachable. I know the day will

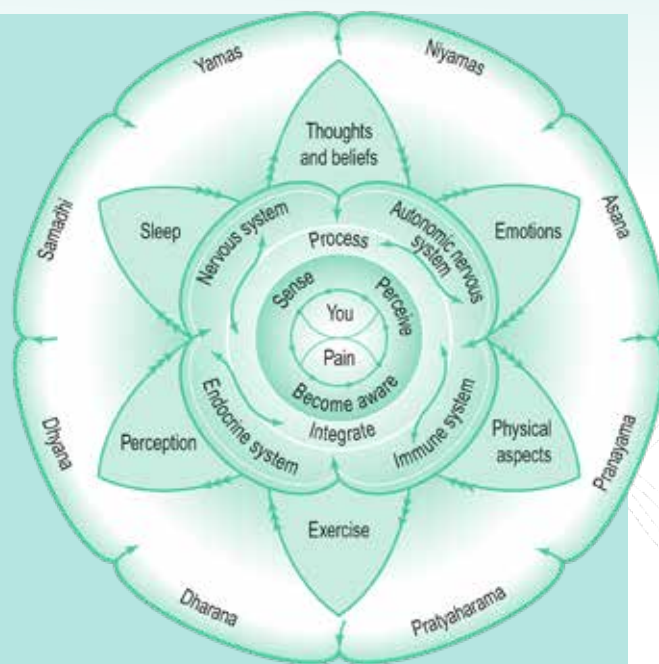


Figure 2: Pain and yoga mandala Moloney and Hartman.

Pain Science – Yoga – Life. Handspring 2020

This mandala depicts aspects of the human experience of pain covered in *Pain Science – Yoga – Life*. The petals represent 'inputs' to the pain experience. The next layer demonstrates systems that are influenced by these 'inputs'. Listed here are: the somatosensory nervous system (listed as nervous system), the autonomic nervous system, the endocrine (hormonal) system and the immune system. The inner circles represent how this information is processed and integrated to culminate in our awareness, our perception, and our sense of an experience. This processing, integration and creation of awareness primarily happens within the central nervous system. The mandala as a whole represents the circular nature of the pain experience; each aspect can interact with others. At the heart is you: you are you, with and without pain. The Eight Limbs of yoga surround the lotus to offer a depiction of how yoga philosophy and practices may aid in changing inputs and outputs that feed the pain experience. Yoga may also deepen the relationship you have with your inner self and potentially soften the impacts of pain. Note: Other inputs, dimensions and body systems than those noted here can contribute to pain.

often unreliable. This in itself can be very frustrating. Waking each day and expecting it to go in the same way as the last may not be helpful, even if yesterday was a 'good day'. Each evening we can recognise the difficulties and the celebrations of the day, then set both aside equally so the next day can start anew without a comparison or expectation of what will be or what has come before.

Santosha: Contentment

I asked my patient with an 18-year history of back pain whether he was OK. He answered that he wasn't. I reflected back to him:
 "Are you currently in an active state of dying?" "No."
 "Do you have shelter and food?" "Yes."
 "Do you have a wife who loves and supports you?" "Yes."
 "Are you OK?" "Yes."

It can be an important realisation that contentment is a state of mind that is truly a choice. Even when things are not exactly as we want them to be, we can still choose to acknowledge we are, indeed, OK – content. If we consider that pain is a means of protection, driven in part by our emotions, beliefs, and examination of threat, what might happen to the intensity of protection if we simply shift a belief from "I am not OK" to "I am OK"?

Tapas: Discipline, Self-will

To take on an active state of recovery from one of persistent pain we must first find the will to persevere. It can be stunning how some people continue to seek answers to their personal painful experience. On one level we might call it over-utilisation or 'doctor shopping' but on another they are persevering. While suffering, they are also continuing to search for someone who might have another perspective that provides a tangible way forwards. When pain has been associated with an activity for a period of time, movement adaptations and reactions to pain may begin to become part of our normal way of being. Think about an injury that has led to a pattern of limping. Sometimes the limp is outside the awareness of the person and becomes difficult to change, even if the injury has healed.

Another way to look at this is that it takes self-will, or *tapas*, to change ingrained training or patterns of thinking and even moving; these occur in our biological systems as a response to life and to pain. There are a number of biological processes involved in the multidimensional (initial and lasting) experience of pain. As you read on, you will see some of these in detail. You will also be exposed to evidence that shows us that it is possible to change these responses. It is our *tapas*, the internal fire, that will allow us to be uncomfortable and be OK, to fall and stand back up, to face the hard facts of what we learn as we study ourselves and our experiences of pain or otherwise.

Svadyaya: Self-reflection and Spiritual Studies

This practice of self-reflection could be the anchor pin for incorporating yoga into pain care. It is here that we get to ask ourselves the potentially challenging questions. For example: How do I respond to threats? Are they true or perceived? What are my mental and emotional reactions to being physically uncomfortable? Are my pain triggers purely physical or are there social and emotional triggers too? When I'm in pain, do my internal reactions act as a helpful way to engage and protect myself or do these reactions create a barrier, preventing me from true connection to others?

Isvarapranidaha: Surrender to a System of Faith or Higher Power

Yoga does not dictate the exact nature of this faith system, but rather encourages recognition that we as humans are not in full control of our lives; surrendering to something bigger than ourselves can be helpful in all aspects of human suffering. The 'who' we surrender to is an individual choice. As care providers, we can simply support and recognise the benefit of a faith system that others may have and that this may aid their pain care.

3. Asana

Meaning a position that is comfortable and steady, asanas are the physical postures of yoga. Originally, these postures were intended to be

performed before meditation to prepare the body to be comfortable for extended periods in a state of physical stillness and relaxation. Traditionally, meditation would be performed in a cross-legged seated position, and relaxation would take place in *savasana* (flat on the back, arms open to the side and palms facing upward). In Sanskrit, *sava* means corpse and *asana* means pose: therefore, *savasana* is corpse pose. When read in Sanskrit, posture names will finish with *-asana* at the end, and the prefix tends to describe the position. For example, *badaconasana* is bound angle pose.

In the context of yoga and pain care, we consider any exercise or body position as an *asana* if it is entered into with the right state of mind and connectivity to the breath. In yoga, through mindfulness and breath awareness, we attempt to view our body as a tool to find connection and awareness, be it the simple connection of the mind, body and breath, or the grander connection of all things. When we look at asanas as a therapeutic tool, the positions or movements might be an avenue to connect with our fears, conditioned reactions and movement patterns. The gained observations can begin to challenge, change and allow us to recognise helpful and unhelpful reactions and patterns: physical, psychological and emotional. Through observation and awareness, we use asanas to help us move beyond our areas of resistance and struggle.

4. Pranayama

Prana means life force and *ayama* means extension. *Pranayama*, simply stated, is a breath practice. It is used as a tool to promote connection between the body, mind and spirit. Focus on the breath can act as a vehicle for mindfulness. *Pranayama* can be a practice in itself or in combination with meditation or *asana*. Breathing or respiration is a physiological function that occurs automatically (under the control of the autonomic nervous system) but can also be consciously regulated (5*). Emotionally difficult

and physically painful scenarios can stimulate physiological responses that lead to a rapid heart rate and rapid, shallow breathing (5*,6). We may not be able to immediately or directly change the physical sensations involved nor directly slow our heart rate. We can, however, ease our breath and this, in turn, can alter the physiological responses and potentially soften the painful experience (6). A very simple example is someone who fears going to the doctor to get an injection. If this person practises slowing and deepening their breath, they may immediately feel comforted, and better able to endure the needle-prick. Our breath can be powerful in times of stress and pain; it can add to the negative or help us to shift back to a more balanced place. Pranayama practices are outlined in the book in Appendix 1: Meditation and Pranayama.

5. Pratyahara

This limb refers to dissociation of consciousness from the outside environment. *Pratya* means to withdraw or draw in, and *ahara* is taking in, referring to the things our senses continuously perceive, eg. sight, sound, touch. It is in this limb that yoga realises that all senses rely on the presence of the conscious mind. Our sense organs are responsible for picking up on elements but do not actually create the sensory experience as we know it. For example, our auditory receptors are responsible for receiving vibrations but it is our brain as a whole that makes sound into something that carries meaning for us. This is true even of pain. Through pratyahara we may also be able to identify with a true sense of interoception, the ability to feel and give meaning to what is going on inside the body. Yoga does not look at the dissociation of consciousness in this direct biological way, but through the practice of pratyahara we begin to recognise our senses for what they are: the perception of light, vibration, pressure, muscle tension, heart rate variability, etc. Instead of immediately attaching a meaning to them, we can

choose to just be aware.

Through meditation or focused attention, we can begin to practise focusing the mind on desired tasks without getting distracted by inputs from the outside world or being overly alert to physical inputs from the body. This attention can directly help us moderate our responses to physically unpleasant sensations and in turn change our relationship with pain. This practice allows us the realisation that we can choose our reactions regardless of what is happening in the external environment, and that we have the ability to focus and produce an internal environment that promotes less suffering and more contentment.

6. Dharana

Dha means holding or maintaining, and *ana* means other or something else. This is the ability to maintain focus, attention or concentration. Dharana and pratyahara are symbiotic. To gain full focused attention or concentration, one must withdraw from the senses that distract from the desired focus. Remember sitting for an exam in a room with an air-conditioning unit that is repetitively turning on and off? If you allowed your brain to let this sensory input be registered each time the unit switched on, your focus would have shifted far from the exam in front of you. This ability to dampen the senses occurs only with focused concentration – dharana. Pranayama, *mudras* (symbolic hand gestures) or external objects such as candles can be used to assist in narrowing the focal point. We offer some elements of dharana in the practice sections later in the book. These could be introduced simply as choosing a specific object, a gentle movement or a breath to bring your attention to, while simultaneously choosing to let other sensory, potentially even painful, experiences occur without shifting focus. This is not meant to suggest that we ignore or deny that pain may be present. We are instead actively choosing to place our focus on a different element. If you are making a conscious choice of focused concentration, then you are practising dharana.

7. Dhyana

This limb represents meditation, which can be thought of as an exercise of mindfulness. Mindfulness is the ability to be in the present moment in our daily life: not thinking about this ability or congratulating ourselves for it, but actually being in it. This state of presence doesn't happen easily without practice. So, meditation is a specific time in which we practise. It can be thought of as a silencing of self-resistance, pausing the tendency to ruminate about the past or grasp at the future. It is the practice of intentional focus or concentration, *dharana*, that allows us to achieve a meditative state and the ability to be mindful in our daily lives.

Have you ever notice how distracted we tend to be in life – how continuous the thought stream is? And how often it contains some sort of judgment, opinion or comparison? "I should/I'm not as good/I will never/ Why, why, why...?" This tendency creates a disconnection from ourselves and may facilitate an unhelpful state of vigilance. A constant stream of thoughts is normal for all of us. We can engage in those thoughts and turn them into full-blown stories that feel like realities. We can allow them to distract us and shift our awareness away from the present moment and what is really here. Or, we can choose to let the thoughts be present without giving them attention: this is mindfulness or a meditative state.

Meditation ultimately is time with yourself, to intentionally practise being mindful, with a promise to leave all self-judgments, stories and questions behind. During this time there is a goal to let go of the lens of society and stop the comparative and judgmental natures of our minds. Meditation is not a space of emptiness, void of all thoughts. Naturally and consistently, our thoughts come without choice or permission. No thought stands independent of another thought. This leaves us without space for true observation. What we add to a thought creates perspective, and perspective may lead to emotions or physical responses. These perspectives and emotions begin to carve our reality – our stories. When you have thoughts

and intentionally choose not to add or engage in a 'conversation' or analysis with the thoughts, you are in a state of meditation.

Meditation tools and techniques are introduced in Chapters 4–9 in the book. When first attempting these practices, it can be helpful to acknowledge that a meditative state or a state of mindfulness does not occur through the act of doing; it is the culmination of what happens as a result of the foundation of focus or intention. Mindfulness is not the act, it is the result; meditation is the practice. If you are sitting and thinking, "I am meditating, I am meditating, I am meditating" well, you aren't actually meditating; you are thinking about it. The state of mindfulness happens when you stop actively thinking and are able to be fully present with your chosen focus. Learning to sit without ruminating on our painful experiences ("Why me/Why has this happened?/ If only/What does this mean for my future?"), we may naturally begin to let go of all that content and chatter and then true emotions (eg. grief) around the experience can be felt.

When we have the ability to acknowledge and feel our genuine emotions, we gain the ability to move past them. We may then be able to identify and separate the emotional experience from the physically painful experience. We can then learn to address each for what it is and take actions to move ourselves into a more productive future. Without taking this purposeful pause, it can be difficult to even notice how much this brain chatter has been clouding our ability to recover – physically, emotionally and psychologically. The act of being aware or in a state of mindfulness is not something easily understood from reading alone; it takes experiential practice, and lots of it, to fully grasp.

8. Samadhi

Samadhi represents identification with pure consciousness, and this limb is broadly thought of as reaching a final stage of bliss or enlightenment. Using the other seven limbs to realign the relationships we have with our inner and outer environments, we have the potential of reaching this arena of

realisation. This is not about floating away on a cloud of joyful bliss. The Sanskrit roots tell us *sama* means same or equal, and *dhi* means to see. Therefore, this state of consciousness is reached when we can see equally the reality in front of us. A reality that releases the conditioning of judgment or patterned habits of comparison, likes and dislikes, good versus bad and the ability to release the need to attach to any specific aspect. This state of being becomes bliss or joy that is present regardless of what else is also here. In regard to pain, it might be the path of life beyond suffering.

Conclusion

Ultimately, yoga is the opportunity to study yourself – the true self. Yoga offers tools such as the Eight Limbs to facilitate this study and the practice of self-regulation. Through the practice of yoga, we can gain the ability to recognise that we have a body to inhabit and use to physically interact with the external environment. We have a mind that we use to learn, process and retain knowledge and experience. We have emotions that we can acknowledge and feel in order to connect with ourselves and others. But, these are not the limit of who we are. We are not solely our bodies, or our minds or our emotions. The better we know the constant state of self that runs beneath these superficial entities, the more resilient we can be when one or more of these areas begins to feel threatened.

You certainly don't have to learn or be able to pronounce the names of the Eight Limbs to understand or practise the concepts they hold. We hope that you can already see the holistic container yoga supplies for pain care and the bridge that it may offer to get back to a full life. These practices are as important for us as clinicians and teachers as they are for those suffering from pain. The more willing we are to go deep into cleaning out our own cobwebs of struggle – physical, emotional or psychological – the more available we will be in facilitating the journey of others beyond pain.

References

1. Robinson H. Dualism. *Stanford Encyclopedia of Philosophy* 2020. Open access <https://stanford.io/3tsdKH1>
2. Saraswati SS. Asana pranayama mudra bandha. *Yoga Publications Trust* 2013. ISBN 978-9386383600 Buy from Amazon (Print £9.00 Kindle £6.47) <https://amzn.to/3ttCZZS>
3. Iyengar BKS. Light on Yoga: The Definitive Guide to Yoga Practice. *Thorsons* 2015. ISBN 978-0007107001 Buy from Amazon (£14.31) <https://amzn.to/2VqMe03>
4. Gard T, Noggle JJ, Park CL et al. Potential self-regulatory mechanisms of yoga for psychological health. *Frontiers in Human Neuroscience* 2014;8:770. Open access <https://bit.ly/3jXgdVWV>
5. Zaccaro A, Piarulli A, Laurino M et al. How breath-control can change your life: a systematic review on psycho-physiological correlates of slow breathing. *Frontiers in Human Neuroscience* 2018;12:353. Open access <https://bit.ly/3yXOY2A>
6. Jafari H, Courtois I, Van den Bergh O et al. Pain and respiration: a systematic review. *Pain* 2017;158(6):995–1006.

KEY POINTS

- Yoga is not a fixed series of exercises for flexibility.
- At its fundamental level, yoga is a way of connecting the body, mind and spirit.
- Yoga is the study of the 'true self' and when we connect with this deeper layer of self we find greater contentment.
- The Eight Limbs of yoga are Yamas (abstinences), Niyamas (observances), Asana (yoga postures), Pranayama (breath control), Pratyahara (withdrawal of the senses), Dharana (concentration), Dhyana (meditation), and Samadhi (absorption).
- Each of the Eight Limbs can be seen as a window for observation with curiosity of the various features of ourselves.
- In addition to practising the concepts of the Eight Limbs towards others, we also need to learn to practise these behaviours towards ourselves.
- The complete practice of yoga lets us discover that we are not solely our bodies, or our minds or emotions.
- The practice of yoga will allow patients to live with pain, but not to be defined by it.

RELATED CONTENT

- Yoga and Biomechanics: A New View of Stretching Part 1 [Article] <https://bit.ly/3qEnUS8>
- Yoga and Biomechanics: A New View of Stretching Part 2 [Article] <https://bit.ly/3bDHPWu>
- Yoga as therapy [Article] <https://bit.ly/3k1D1ol>

DISCUSSIONS

- How aware were you of the various 'Limbs' of yoga before reading this article?
- Think of a current patient with chronic pain. You will already be helping them physically, now create a plan to use the relevant concepts from the Eight Limbs of yoga to help them psychologically, based on their character and needs.
- Are there any aspects of the Eight Limbs of yoga that you would like to learn more about and apply to your own life, and if so which?

THE AUTHORS



Niamh Moloney PhD, MManipTh, BPhysio, SMISCP is a specialist musculoskeletal physiotherapist, yoga teacher and pain researcher. She practises in Guernsey, in the Channel Islands, but also holds an Honorary Fellow position with Macquarie University, Sydney, where she was previously a Senior Lecturer. A passionate advocate of evidence-based practice, she has over 50 peer-reviewed publications from her pain-related research. Her increasing appreciation of how yoga philosophy and practices can help address some of the complex aspects of pain and its care has led her to integrate yoga into her clinical practice and has ultimately inspired the writing of this book. She runs pain education and yoga courses for people with persistent pain, and teaches widely to healthcare professionals.

Email: info@thrive-physio.co.uk

Twitter: <https://twitter.com/drnihammoloney?lang=en>

LinkedIn: <https://gg.linkedin.com/in/niamh-moloney-778103a>

Website: <https://www.thrive-physio.co.uk/meet-thrive>

Facebook: <https://www.facebook.com/Thrive-physiocouk-186323278062551/>



Marnie Hartman DPT, CSCS, RYT is a doctor of physical therapy, a certified strength and conditioning specialist and registered yoga teacher. Her drive for compassionate, authentic interactions and connection to the good in all humans and the wild led her to a simple life and challenging practice in the bush community of Haines, Alaska. It was here that she first developed an interest in learning how to care for those in persistent pain. She quickly realised the supportive container that yoga held for people engaging in pain care. She has incorporated pain science education and yoga as part of her clinical care and teaching for nearly a decade. Marnie owns and operates a private physical therapy and yoga practice, and has been an instructor for the International Spine and Pain Institute, and an Education Contributor for Yoga Medicine.

Email: bodyiqpt@gmail.com

LinkedIn: <https://www.linkedin.com/in/marnie-hartman-80311411/>

Website: www.bodyiqpt.com

Facebook: <https://www.facebook.com/Body-IQ-Physical-Therapy-and-Yoga-502648043201076>



Pain Science – Yoga – Life

Niamh Moloney and Marnie Hartman

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Buy it from Handspring <https://www.handspringpublishing.com/product/pain-science-yoga-life>

Pain Science – Yoga – Life combines the neuroscience of pain with yoga philosophy and practice for pain care. Rooted in evidence-based practice, this book is a unique blend of the science of pain, the art and science of yoga and its practical application. It aims to bridge the gap that exists between a person in pain and their ability to move beyond suffering and back to life.

Part One sets the foundation for pain science fundamentals, the Eight Limbs of Yoga, as well as mindfulness practices to aid in shifting perspectives and enhance interventions for those struggling with persistent pain.

Part Two delves into key dimensions of pain and its care such as, perception, emotions, physical contributions, exercise, and sleep. Each chapter has three sections:

1. Headspace: presents a review of pain neuroscience and yoga research related to each dimension.
2. Out of the Head and onto the Mat: translates information from 'Headspace' into an experiential practice on the yoga mat.
3. Off the Mat and into Life: demonstrates how to extend knowledge and practice into daily living.

Pain Science – Yoga – Life is a valuable resource for healthcare and yoga professionals, and is designed to deepen pain science knowledge and skills in the use of yoga for pain care. The combination of scientific information along with practice sections will enable professionals to directly apply the information in the clinic or studio. This book will also engage anyone who has an interest in deepening their understanding of pain and the use of yoga to gain resilience in the face of pain.

CONTENTS

Introduction

Part One

- Chapter 1:** How pain works: Deepening roots of pain science knowledge
- Chapter 2:** Yoga: Roots of yoga and how it pertains to pain
- Chapter 3:** And this too: Shifting perspectives through mindfulness practices

Part Two

- Case Study:** Meeting Phillip
- Chapter 4:** Thoughts, beliefs and pain
- Chapter 5:** Emotions and pain
- Chapter 6:** Physical aspects and pain
- Chapter 7:** Perception and pain
- Chapter 8:** Exercise and pain
- Chapter 9:** Sleep and pain

Conclusion

Appendix 1: Meditation and pranayama

Appendix 2: Asana

Glossary of scientific terms

Glossary of brain areas and spinal cord

Glossary of yoga terms