




# Fanning *the fires:* Yoga for inflammation



**Our resident yogi EMMA PALMER shares her personal journey on and off the mat in an inspiring and research-backed tale of injury, inflammation and despair. Read on to see why yoga's not just great for the mind and soul, but for your body and treating serious injury and illness too.**

It's September 1998 and I'm following my dreams of travelling around this beautiful country I now call home. For some crazy reason, my chosen mode of transport is a coach from Melbourne to Brisbane and then on to Surfers Paradise. I'm in Australia to find myself, with much resistance, fear, trepidation and blind faith. It's just me and my oversized backpack, and the two of us find ourselves sitting on Surfers Paradise beach contemplating the meaning of life, my path and exactly what I'm here for. Little did I know the next few days would change my path forever.

In the morning, I'm due to continue my travels to Sydney. I awaken completely paralysed down the right side of my lower spine and leg, coupled with the feeling of an electric rod sending shockwaves into my spine and completely unable to move. I have never known pain like it, it was excruciating. How was I meant to get out of bed, let alone on a coach to Sydney, and more importantly, what was happening to me?

### The clinical diagnosis

An MRI confirmed that I had a prolapsed disc between L5 and S1 in my lumbar/sacrum spine, disc degeneration and peripheral neuropathy accompanied by acute sciatica. Most of the pain and inflammation I felt was associated with pressure from the prolapsed disc causing spinal nerve inflammation and swelling. This meant I was unable sit, stand, walk, lie down or move unaided, let alone work. I was bed-bound and heavily sedated. I could no longer feel the temperature change on my feet and my right foot was beginning to lose the sense of touch. My digestive system was beginning to slow down due to the consistent four-hourly doses of codeine-filled painkillers and I realised, glaringly, that I needed a plan. This was going to be something I would need to learn how to manage for the rest of my life, because with all the will in the world, it wasn't going away.

And so my journey began on finding a path of healing from the inside out. I waved the white flag and asked what my injury was here to teach me, why now, and why in this way? I tried everything you could imagine until the day I found

a yoga mat and started moving. A daily practice of postures, breathing practices and meditation created a space for healing that went beyond my body into something that has opened my world and my life in ways I had never imagined.

### My saving grace

Yoga philosophy has always been an aspect of the practice I felt naturally drawn to. However, when my journey with asana began, and I started to move my painful body, for the first time in a long time I started to feel a real sense of relief. My gripping, aching and tired muscles started to release. The gentle stretching created space in my sacrum and lumbar spine and helped relieve sharp, electrifying, sciatic nerve pressure. I was finally able to sleep unaided by codeine, my energy levels returned and the heat of inflammation began to retreat. My digestion started to show signs of improvement despite the high consumption of prescribed pain medication and anti-spasmodics. Lightness within my whole being started to show and I began to feel happier within myself. I finally no longer felt consumed by such excruciating pain. I was intrigued as to why my mind and body was responding in this way, and despite advice to avoid yoga, I, in actuality, found yoga was the only thing that gave me relief. How was this ancient practice so powerfully impacting my journey back to movement and healing?

### Yoga reduces inflammation

Only recently has science discovered the biological measures of exactly how yoga reduces inflammation. In 2014, the *Journal of Clinical Oncology* released pioneering research on the largest randomised, controlled trial using biological measures for the effects of yoga practices on inflammatory pathways. Yoga practices included restorative yoga postures, breathing practices and relaxation techniques. Blood tests were taken before and after the trial in order to measure three blood plasma proteins, which are specific markers for inflammation. The results showed that after three months of a holistic yoga practice, these inflammatory markers had decreased by up to 15 per cent.



### Chronic stress and inflammation

Acute and chronic pain without relief is extremely stressful. A 2014 study also discovered how yoga practices significantly reduced the stress hormone cortisol, which increases significantly with chronic pain. Throughout the course of chronic stress, the body prepares itself for potential infection, thereby impacting genetic activity of immune cells, even when there isn't an infection or trauma to fight off. As a result, inflammation increases, as does the potential for autoimmune disorders to develop. Studies have confirmed that regular yoga practitioners have lower inflammatory responses to the stress hormone cortisol than those who were new to the practice. This reinforces that consistency has the greatest potential to support overall health and wellbeing.

### Chronic pain and depression

Being in pain for a long period of time is emotionally and psychologically debilitating. According to the *Medical Journal of Australia*, chronic pain and major depression tend to occur together, impacting all areas of a person's life. Chronic pain stimulates parts of the brain connected with anxiety, depression and how we process pain. A 2015 study proved of the ability to counteract pain. Using brain imaging, it appeared that brain structures changed in the presence of chronic pain. As yoga practices have the capacity to boost parts of the brain associated with managing pain, this means that chronic pain can be prevented or reversed by reducing the brain's perception of pain.

### Lifestyle factors and inflammation

The problem is, being in chronic pain coupled with strong sedation doesn't exactly make you want to move. However, once a gentle yoga practice has been established, the benefits of moving become immensely apparent. Long periods of time sitting and not moving eventually start to take their toll on postural alignment and structural integrity. A 2001 study confirmed that over-sitting creates postural and joint misalignment, exacerbating joint friction, thereby increasing inflammation. Due to this misalignment, pain and tissue damage increases and inflammation quickly follows. Movement in yoga not only increases mobility, it also supports prostaglandin synthesis in the walls of blood vessels by regulating the contraction and relaxation of smooth muscle tissue throughout the body. Prostaglandins, of which



there are many types, play a key role in regulating inflammation.

### Fatigue fuels inflammation

Pain and inflammation is mentally and physically exhausting and in almost all studies where inflammation is present, so are symptoms of fatigue and depression. Acute and chronic inflammation is the most common link between fatigue and pain. Yoga practices have been shown to rebalance the production of the hormone melatonin. Melatonin is a hormone derived from the amino acid tryptophan and regulates circadian rhythms and sleep/wake cycles that are significantly impacted in the presence of inflammation. Biological measures within a 2014 study confirmed that yoga improved the quality of sleep, a key component in managing and reducing inflammation. Levels of fatigue were reduced by half and energy levels significantly increased. Analysis of the findings highlighted that a consistent yoga practice was essential in reducing fatigue as well as symptoms of depression caused by pain and inflammation.

### Meditate to medicate

Daily meditation and visualisation helped me to connect to something greater than myself and supported me in not defining myself by my injury. Meditation helped me to manage the pain more easily and at times, reduced the pain completely. A randomised study of the effects of meditation on inflammation was

published in *Biological Psychiatry* in January 2016. The research tested meditation techniques on highly stressed individuals who provided blood samples before the study and four months after the study was completed. Research showed significant changes in brain neurology that manages pain as well as reduced levels of interleukin-6. Interleukin-6 has been linked to inflammatory-related diseases such as cancer, Alzheimer's and a variety of autoimmune disorders. A previous study published in the March 2013 *Journal of Psychoneuroendocrinology* reiterated similar findings. The research showed a potential reversal of pro-inflammatory proteins impacting the immune system and significantly even greater in number in those who experience acute stress.

### In summing up...

Managing the pain from my injuries continues to be something I have to be conscious of every single day. Has yoga completely cured me? No. However, it has given me the tools to be empowered to manage my injury and slow down the deterioration process. My injury reminds me of when I am overtired, when I am not looking after myself, and it has proven to be a formidable teacher. As a yoga teacher it has given me valuable insight into the real experience of having a debilitating injury. I understand pain in a way that theory could never explain and more importantly, it has provided me the opportunity to give hope to others diagnosed with the same. **ANH**