



# Reflexology and pain management

Carol Samuel, PhD, FFHT, discusses reflexology in the management of pain

As the medical community still struggles to treat pain, a growing evidence base for reflexology in pain management and more people taking control over their healthcare suggests this is an ideal time for reflexologists to support clients experiencing pain.

Pain is not a simple sensory experience; it can occur even in the absence of tissue damage. It involves emotional, social and cognitive beliefs. Pain management therefore entails a package of care comprising clinical assessment, psychological support and physiological change.

The four pillars of pain include the:

- peripheral nervous system, or the movement system;
- autonomic system, composing the

sympathetic, parasympathetic, hormonal and visceral systems;

- central nervous system; and
- psycho-emotional aspects, such as stress, anxiety, fear, social life, and memory of pain.

The techniques applied during reflexology for pain management can vary from a simple foot hold to the more advanced system of nerve reflex points.\*

## Reflexology and the pain response

It is not yet fully understood how reflexology helps manage pain, although current opinion suggests it works on the neurological system through the release of endogenous opioids.<sup>2-4</sup>

We know the stress response is influential in pain conditions and that pain modulation is vital to reduce natural killer cell activity in conditions such as cancer metastasis<sup>5</sup> and perhaps other immune-suppressing diseases.<sup>6</sup>

## Physiological and pathophysiological pain

Physiological pain acts as a warning of actual or potential tissue damage and is usually transient. It rarely involves tissue damage and often triggers a flexion reflex to rapidly withdraw from the offending stimulus. It is often, but not always, accompanied by an increase in autonomic functions such as heart rate, blood pressure and temperature.

Physiological pain of pathological origin results from tissue damage and often cell death. This pain is often experienced from post-operative surgery, arthritis or the growth of cancer cells where there may be nerve damage and inflammation.<sup>7</sup> The pain is diffuse and poorly localised.

Tissue damage causes the release of neurotransmitters into the bloodstream creating inflammation, which can produce redness, swelling and warmth, further enhancing the pain experience. The area may also become sensitised, stimulating further neurochemical output and resulting in an ongoing cycle of pain – referred to as chronic pain.

## Psychological aspects of pain

Pain affects millions of people worldwide with significant implications on quality of life and medical resources.<sup>8,9</sup> It is extremely personal and is defined by whatever the person experiencing it says they are feeling.<sup>9,10</sup> Ongoing pain can affect the immune system, sleep and behavioural patterns, and is often seen alongside depression.<sup>5,11,12</sup>

In 1975, McGill introduced the pain questionnaire, which made a patient's description of pain easier to understand through sensory, affective and evaluative terminology.<sup>13</sup> Our memory, emotions and expectations affect pain perception.<sup>14-16</sup> Pain is all-consuming – and logical reasoning abandons rational thought processes.

A person's preconceived expectations of a pain experience may be attributed to a previous encounter or to someone they have cared for who has experienced similar pain.<sup>15,17</sup> Negative expectations make pain control difficult to achieve, which creates a negative attitude.<sup>16</sup> It is extremely important to help your client to avoid negativity, and remove the focus from their pain by inducing relaxation and calm. Negativity, increased fear and anxiety, and helplessness over pain management increase the incidence of persistent, disabling pain.<sup>12,18</sup> Self-help measures using different coping strategies with a willingness to change and accept the condition help to decrease pain and any associated disabling qualities.<sup>19</sup>

## Skin receptors in the feet

### Detecting touch and pain

The feet are rich in receptors that respond to environmental and sensory stimuli. These mechanoreceptors are modified ends of sensory nerve endings distributed throughout the dermal layers and innervated by large Aβ nerve fibres. Free nerve endings between the epithelial cells are the only nerve endings exclusively able to detect pain in addition to touch, pressure and temperature. Free nerve endings are innervated by the smaller Aδ fibres. These two types of nerve fibres are important for touch and pain.

### How do receptors respond to reflexology?

Mechanoreceptors (Meissner and Pacinian corpuscles, Ruffini endings and Merkel discs) are either rapidly or slowly adapting, depending on the speed at which they respond to a stimulus before returning to their normal resting state. Rapidly adapting receptors produce a nerve impulse at the onset and offset of a stimulus, similar to the caterpillar walking method used during reflexology. Seventy per cent of the skin receptors found in the sole of the foot are rapidly adapting with the ability to sense contact pressures.<sup>1</sup> When pressure is increased on receptors, a nerve impulse in a sensory nerve is initiated and the nerve activation across the cell membrane activates afferent fibres to ascend the spinal cord to the brain, via the thalamus, and on to the primary somatosensory cortex where the signal is interpreted.

pain with a mix of conventional and complementary methods.<sup>34</sup> A growing body of evidence supports CAM therapies in pain management and clients want to take an active role.<sup>35</sup> Strong evidence reveals a person in control of their pain has a better chance of recovery.<sup>36,37</sup>

There are an increasing number of approaches to pain, with a growing number of pain clinics offering or providing services that enable patients to make informed choices about their care.<sup>9</sup> However; there is no consistency in pain management across the UK and many primary care facilities lack sufficient funding. Those that do are unable to keep up with the referrals<sup>9</sup> so this is an ideal time to offer support with reflexology.

### Benefits of reflexology in pain management

Pain is generally treated conservatively with medication and/or physical therapies including mobilisations and manipulation. Pain relief is an ongoing problem for the medical community<sup>20-22</sup> and research into reflexology in pain management has shown some interesting developments.<sup>23-27</sup>

Much anecdotal evidence shows the benefits of reflexology in pain management<sup>28,29</sup> and several pilot studies indicate successful treatment outcomes including pain reduction.<sup>30,31</sup>

Pain is a complex, subjective experience the medical community still struggles to treat successfully. Pain ranks highest in physical concerns for cancer sufferers and low back pain is the most costly medical condition in the UK.<sup>32</sup> An estimated 19 per cent of the adult population in Europe suffer from chronic pain, with 40 per cent reporting inadequate management.<sup>33</sup>

A 2004 UK audit revealed one in seven suffered from musculoskeletal conditions and more than half a million suffered from neuropathic pain.<sup>18</sup> Primary care management for chronic pain was estimated at 4.6 million medical appointments per annum with a total cost of £69 million because of ineffective treatments.

As the integration of CAM in the NHS gradually increases alongside a focus on patient choice, more people are turning to CAM therapies. Some are looking (erroneously) for an instant cure, while others are happy to manage their

### Case study: practical application

Mrs B is a 79-year-old female presenting with left-sided sciatic pain and lateral border numbness in the left foot, the dorsal section of the foot between metatarsal 1 and 2, together with intermittent left-sided buttock pain.

She experienced bouts of anxiety and has a sensitive and sluggish bowel with occasional headaches.

She has previously sought physiotherapy, acupuncture and herbal medicine and prefers to avoid regular pain medication. She currently takes nitrazepam, a hypnotic drug for insomnia, on four out of seven days, together with glucosamine, chondroitin and ginkgo biloba supplements. She also takes feverfew for headaches and periodically calcium, zinc and magnesium as/when prescribed by her medical herbalist.

As Mrs B's symptoms may be due to arthritis of the lumbar spine, treatment goals were pain management to support her during difficult times.

### Assessment

Range of movement was good but there was a slight foot drop on walking, suggesting possible irritation around the nerve roots of L5/S1.

A visual analogue scale (VAS, a 100mm line with markers 0 indicating no pain and 10 being worse pain ever) was used to measure Mrs B's pain perception.

### Treatment

#### Week one

VAS score for pain on first session: 8/10, indicating high discomfort.

The initial treatment used an investigative approach of conventional foot reflexology, with subsequent treatments combining this with specific nerve reflex points for sciatic pain and visceral congestion.

A standard reflexology session covered all main reflex points, while lymph drainage techniques addressed a sluggish gut and ankle oedema.

Feedback and examination indicated a very tight gut, immense emotional congestion with an inability to release, oedematous tissue around the pelvis and chest, and an automatic cough reflex when carrying out lymph drainage to the upper body.

#### Weeks two to four

Following the feedback from week one, I investigated further using the four pillars of pain clinical reasoning. The following treatment plan was devised using a combination of conventional foot reflexology (CFR) and nerve reflex points (NRP).

#### Peripheral nervous system

NRP: dorsal and ventral roots of T10-S5.  
NRP: muscles for psoas, quadratus lumborum and piriformis.  
NRP: lumbo-sacral plexus.





## Autonomic nervous system

### Sympathetic

NRP: tractus intermedio lateralis – sympathetic chain ganglia between C8-L3.

NRP: prevertebral ganglia for the visceral system.

NRP: hypogastric plexus including superior/inferior mesenteric and iliohypogastric nerves for the gut.

NRP: celiac ganglia for the gut.

### Parasympathetic

NRP: pudendal plexus, ischiadicus and pelvic ligaments.

CFR: for the psoas, buttocks and piriformis muscles.

NRP and CFR: pelvic organs.

### Hormonal system

CFR: for blood and lymph flow utilising slow rhythmic movements with especial attention to the gut, for sluggish digestion and anxiety.

### Psycho-emotional

CFR: pituitary, adrenal, thyroid axis with linking techniques.

## Central nervous system

NRP: vagus nerve for gut/brain connection.

NRP: pons, medulla and thalamus

because the hormonal system is regulated in the brainstem.

Lymph drainage (including gentle stroking/massage movements and a milking technique) to release oedema, alongside many relaxing movements, ankle rotations and stretching.

*Note: Adaptations were made according to the responses during treatment and different points were either added or deleted.*

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## Homecare

- Gentle massage to the buttocks and lower limbs, regular movement and flexion/extension exercises in and out of the water to assist blood/lymph flow, improving overall pain.
- Maintaining a good diet with plenty of fibre and water to help her sluggish bowel.
- Relaxation exercises and/or mindfulness based meditation to benefit anxiety.

## Outcome

Following treatment, Mrs B often experienced the urge to release her bowel.

She also reported improved sleep following the first two sessions and improved mobility.

By the end of session four, her VAS score for pain had dropped from 8/10 to 2/10 and she could walk a mile with the aid of a walking stick, stopping only once. She now undertakes gentle exercise in the water regularly and although she still experiences a flare-up in her pain symptoms, she is better able to manage her pain. She is eating small meals more regularly and increasing her fluid intake. When sitting, she regularly rotates and stretches her ankles and changes position frequently. Her reflexology sessions are now fortnightly and she is happy with the outcome.

She has taken up mindfulness-based meditation and is learning to let go of her emotions.

*\*Nerve reflex points are specific points found in the perist of the foot, which have a targeted and precise impact on the various parts of the nervous system.*

For more information, visit [www.mnt-nr.com/EN/fiche.asp?itemnr=146](http://www.mnt-nr.com/EN/fiche.asp?itemnr=146)



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