

Literature Review

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MINDBODY METHODS AND MASSAGE THERAPY FOR  
FIBROMYALGIA: A SYSTEMATIC REVIEW

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# MINDBODY METHODS AND MASSAGE THERAPY FOR FIBROMYALGIA: A SYSTEMATIC REVIEW

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## INTRODUCTION

Humans are social creatures. We are wired for social connection, and positive social interaction is one of the most effective buffers of stress (Woodward et al., 2018). People living with fibromyalgia often report becoming socially isolated. This is partially because the pain and fatigue of fibromyalgia can be disabling, and partially because of social judgement. The condition is rarely visibly apparent, symptoms fluctuate, and people living with fibromyalgia often need support. Social withdrawal is a common strategy to avoid the risk of being seen as unreliable or a burden (Arnold, et al., 2008). Given that stress is a contributing factor to fibromyalgia, this lack of social enjoyment can result in a vicious cycle. When individuals don't receive the relief of social interaction, negative feelings can intensify. This review investigates the use of mindbody methods in reducing stress and neural wind-up. Reducing neural wind-up should theoretically reduce the symptoms of fibromyalgia syndrome, helping individuals engage in fulfilling interaction and activities.

Fibromyalgia is a condition characterised by chronic, widespread pain and tenderness. Other symptoms include disrupted or unrefreshing sleep, exhaustion, and "brain fog" (Häuser et al., 2015a). In recent years a consensus has emerged that fibromyalgia syndrome is a manifestation of central nervous system sensitisation (Hawkins 2013; Van Houdenhove & Egle, 2004). Others have established neurogenic and fascial inflammation as components of the disorder (Littlejohn, 2015; Liptan, 2009). Pharmacological treatments only provide a modest reduction in symptoms, which is often not long-lasting (Häuser et al., 2015a). There is therefore a need to find efficacious non-pharmacological treatments.

Mindbody therapy shows promise for the management of fibromyalgia, firstly because it aims to reduce the level of nervous system wind-up; and secondly to relieve the somatic impact of trauma. Neurological wind-up is central to the development and maintenance of fibromyalgia (Hawkins, 2013). Trauma occurs when an experience is too overwhelming for an individual to deal with (for example, physical or mental abuse, neglect, or social shame). Dissociation from painful emotions becomes reflected in habitual patterns of neuromuscular tension and behavioural avoidance (Levine, 2010; van der Kolk, 2003). Trauma is a common aetiological factor for the development of fibromyalgia syndrome (Häuser et al., 2015b). The experience of early childhood trauma has been linked to the development of chronic pain and inflammatory illness later in life (Edwards et al., 2016; Danese et al., 2007).

## METHODOLOGY

This literature review outlines the positive evidence for using mindbody and massage therapy methods in treating fibromyalgia. This will inform the development of a clinical protocol for working with fibromyalgia clients. Primary search terms include fibromyalgia, sensitisation, sleep, diaphragmatic breathing, progressive muscle relaxation, mindfulness, Myofascial Release (also known as MFR), exercise, physiotherapy, occupational therapy, osteopathy.

Synonyms include wind up, insomnia, belly breathing, relaxation training, hakomi, focussing, mind-body, MFR and physical therapy.

Google scholar and PubMed were searched using a broad search strategy, which was limited to free access articles generated in the last 10 years. This retrieved 9,728 articles. Those which were most relevant to the proposed clinical methodology were selected, with priority being given to systematic reviews and randomised controlled trials, except when research findings were novel. Thirty-eight articles were selected. Of these, 12 were excluded on closer inspection due to concerns with article quality or where the findings of articles were double reported (for example, as a randomised controlled trial, but also in a review). After the initial summary, it was clear that additional research on the relationship of trigger point phenomena to fibromyalgia syndrome would be of use. An additional three articles were located accordingly bringing the total to 26. The findings of these 26 articles are summarised in the following section. Results relating to the nature of the condition, the use of bodywork, mindbody methods, and the overall management protocol are discussed below

## LITERATURE REVIEW

### The nature of the condition (aetiology and pathogenesis)

Fibromyalgia syndrome is commonly understood as a condition arising from central nervous system sensitisation (Häuser et al., 2015a; Hawkins, 2013). Increased sympathetic activation, and dysregulation of the hypothalamic-pituitary-adrenal axis are typically involved, suggesting that the condition is stress-related (van Houdenhove & Egle, 2004). Core symptoms include widespread pain, fatigue, sleep disturbance and cognitive difficulties (Häuser et al., 2015a; Hawkins, 2013). Hawkins (2013) notes that some people may have central nervous system sensitisation but may not meet the criteria for fibromyalgia syndrome. He proposes that these people may be considered to have sub-clinical fibromyalgia syndrome or be on the fibromyalgia syndrome spectrum.

While fibromyalgia is generally considered a condition of the nervous system, there is evidence that other systems are affected. Systemic inflammation and neuro-inflammation (Bäckryd, 2017; Littlejohn, 2015), myofascial trigger points (Shah & Heimur, 2012; Cakit et al., 2010), dissociation and somatoform disorders (Karas et al., 2017) are all associated with fibromyalgia. Shah and Heimur (2012) note that people with fibromyalgia are much more likely to have trigger points than the general population. While these trigger points may arise as a result of central nervous system sensitisation, alternatively, the trigger points could contribute to the development of fibromyalgia syndrome, as the presence of peripheral trigger points has been shown to contribute to central sensitisation (Shah & Heimur, 2012). Karas et al. (2017) found that people with fibromyalgia had a higher rate of childhood trauma, were more likely to dissociate and/or report somatoform disorders. These authors suggested that fibromyalgia clients may benefit from emotional processing techniques.

### The use of bodywork in the treatment of fibromyalgia

Literature investigating the use of massage therapy and other bodywork methods with fibromyalgia is still relatively sparse. Yuan, Matsutani and Marques (2015) conducted a review of Swedish massage, myofascial release, connective tissue massage and trigger point therapy. These authors concluded that Swedish massage had no significant effects on fibromyalgia syndrome, although this result was based on a single study that met their criteria. Yuan et al. (2015) found moderate evidence that myofascial release reduced pain. Significant pain reduction was observed up to a year after treatment, although pain reduction effects taper over time. They also found that myofascial release had a moderate effect on anxiety, fatigue, stiffness, anxiety and depression.

Several clinical reviews cite a paper by Hawkins (2013) who discovered long term effects from the use of *connective tissue massage* with fibromyalgia clients, concluding that massage is effective in this way. *Connective*

*tissue massage* is however quite different to *massage therapy* or *myofascial release*. The confusion arises because connective tissue is another name for fascia, making it easy for researchers to conflate *connective tissue massage* with *fascial release*.

Trigger point therapy is a modality with significant potential. Trigger points are much more common in people with fibromyalgia compared to the general population (Cakit et al., 2010). The pain from trigger points in people with fibromyalgia syndrome often adds to the pain of the underlying condition, and treatment of these trigger points leads to a reduction in pain and improvements in function (Giamberardino et al., 2011). Trigger points could also have an aetiological role in trigger point development, as the presence of trigger points has been shown to contribute to central sensitisation (Shah & Heimur, 2012). Several authors have found that the summation of active trigger point referral patterns either partially or fully reproduces the pain experienced by those who have fibromyalgia (Giamberardino et al., 2011).

### **The use of mindbody methods in the treatment of fibromyalgia: A sustainable approach**

Mindfulness, breath retraining, and relaxation therapies all show reasonable promise in the management of fibromyalgia.

- **Mindfulness**

The Mindfulness Based Stress Reduction (MBSR) programme, developed by John Kabat Zinn, involves weekly training in some of the core mindfulness interventions typically covered in a Buddhist Vipassana programme that is, meditation focussing on the breath and bodily sensations.

MBSR and other forms of contemporary mindfulness improve outcomes such as stress, quality of life, fatigue, pain, anxiety, depression, and insomnia (Adler-Neal & Zeidan, 2017; Cash et al., 2015; Lauche et al., 2013). It is likely that mindfulness leads to a reduction in the intensity of pain due to detachment from the affective response to pain (that is, aversion and stress) which underlies sensitisation (Adler-Neal & Zeidan, 2017).

Mindfulness interventions incorporating the principles of acceptance, non-attachment, and social engagement, in addition to non-judgmental awareness, appear to be most effective in improving fibromyalgia-related outcomes. These techniques are effective against depression, anxiety, anger, pain, and another fibromyalgia-related symptomology affect (Adler-Neal & Zeidan, 2017).

The forms of mindfulness-based therapy that have emerged in the psychological healthcare space are worthwhile mentioning here, even though they were not reflected in the literature review. The original work of Gendlin, Kurtz and Levine (1981) and many others provide mindbody methods for accessing, processing and integrating traumatic experiences. The relationship between childhood trauma and fibromyalgia provides moderately strong evidence for their use.

Cash and colleagues (2015) found that there was a strong correlation between the amount of home practice and the alleviation of pain and other fibromyalgia syndrome symptoms, while Merkes (2010) found that MBSR had a high rate of compliance.

- **Breath retraining**

Two studies which used breathing in the treatment of fibromyalgia were reviewed and include Tomás-Carú and colleagues (2018) who studied the use of a highly structured 30-minute programme of specific breathing exercises, which clients completed once a day for 12 weeks. The programme, which focussed on strengthening and lengthening the thorax and abdominal muscles, led to a significant reduction in pain thresholds. Schmidt and colleagues (2012) investigated the use of deep relaxed diaphragmatic breathing at the rate of six breaths per minute in their pilot study. This was done for ten minutes, three times a day for two weeks. This led to less

sympathetic activation, greater ability to regulate autonomic tone, and a significant increase in pain tolerance, but no significant difference in pain sensitivity. Fatigue and anxiety were improved, but there was no improvement in depression.

- **Relaxation therapies**

Relaxation and movement therapies reduce pain in people with fibromyalgia (Adler-Neal & Zeidan, 2017; Theadom et al., 2015). Relaxation therapies improve physical functioning (Theadom et al., 2015). There is moderate evidence for the use of heated pools (for example, spas) in the management of fibromyalgia (Rahman, Underwood & Carnes, 2014).

### **The use of exercise in the treatment of fibromyalgia**

There is strong evidence for the use of cardiovascular and strengthening exercises to reduce pain, and improve function for fibromyalgia syndrome clients (Bidonde et al., 2019; Chiaramonte, Bonfiglio & Chisan, 2019; MacFarlane et al., 2017; Sosa-Reina et al., 2017; Ambrose & Golightly, 2015; Busch et al., 2011). Regular exercise has a similar effect on pain levels as the use of pain killers (Ambrose & Golightly, 2015). Multi-modal (aerobic, strengthening and flexibility) exercise produces the greatest effects (Ambrose & Golightly, 2015). Cardiovascular is the most effective type of exercise for decreasing tiredness and increasing ability to engage with activities of daily living (Bidonde et al., 2019; Tomás-Carú et al., 2018). Engagement with any form of exercise reduces insomnia (Ambrose & Golightly, 2015). Movement reduces inflammation (Ambrose & Golightly, 2015). Exercise lifts mood, with combined exercise programmes having the greatest effect (Sosa-Reina et al., 2017; Ambrose & Golightly, 2015).

While the evidence for exercise is robust, the type of exercise is important. The intensity of the exercise must be matched with the client's presentation. For the exercise to be beneficial, the intensity must not be too low, but higher intensity exercise can produce pain flare-ups which lead to non-compliance. It is recommended to start with low intensity exercises and gradually increase the intensity over time (Busch et al., 2011). Smaller more regular exercise sessions are more effective than a smaller number of longer sessions (Ambrose & Golightly, 2015). If flare-ups occur, exercise intensity should be reduced by 10 per cent until there have been no flare-ups for two weeks (Busch et al., 2011).

Mindful exercise groups (for example, yoga, tai chi) show promise as they combine movement, mindfulness and socialisation (Adler-Neal & Zeidan, 2017). These forms of exercise are typically lower-intensity and are therefore suitable for clients with lower levels of functioning (Ambrose & Golightly, 2015; Häuser et al., 2015a). Preliminary results suggest that movement therapies reduce pain and may improve insomnia (Zou et al., 2017; Theadom et al., 2015). The mindful attention to balance which is often part of these programmes may also help reduce falls in patients who are at risk (Chiaramonte et al., 2019).

### **The overall management process for fibromyalgia**

Clients who have been diagnosed with fibromyalgia do not often have a clear understanding of their condition and their prognosis. This means that spending some time clarifying this is important. Ensuring the client knows that their condition is not life threatening reduces anxiety (Hawkins, 2013). Discussing the pathophysiology of the condition and the dynamics of sensitisation can provide reassurance that it is not all in their heads, which is important for some clients (Häuser et al., 2015a; Hawkins, 2013).

It is also important to ensure the client is aware that the goal of the client-therapist alliance is to reduce symptoms rather than cure the condition (Hawkins, 2013). Promoting the self-efficacy of the client by providing them with self-management strategies, and encouragement of health promoting activities (nutrition, exercise, socialisation) should be recommended for all clients (Häuser et al., 2015a).

## DISCUSSION

This review has been used to inform the development of a clinical protocol for use with clients who suffer from fibromyalgia. The protocol could also be used with clients who present with sensitisation (that is, any chronic pain) but do not meet the diagnostic criteria for fibromyalgia. According to Hawkins (2013), these clients can be on the “fibromyalgia spectrum.”

A clinical protocol based on the findings of the literature has been developed. This protocol involves four main elements – client induction, foundations, myofascial release and somatic unwinding. The whole process is designed to take place over ten face-to-face sessions in a clinical environment.

### Client Induction

Clients will complete three online forms before their first appointment – an SF36, stress measurement, and a wellness self-assessment form. The SF36 is a holistic health survey which is widely used within the New Zealand health system and medical research. The SF36 and stress measurement forms will provide functional measurements of progress throughout the process. The wellness self-assessment process gathers information about the client’s diet, exercise and social engagement which is used in the programme to support lifestyle coaching elements.

In the first two appointments, the philosophy and structure of the programme will be discussed and clarified. This will include information about the nature of fibromyalgia and sensitisation (Hawkins, 2013; Häuser et al., 2015a). In an attempt to establish an environment which feels safe for participants, there will also be a discussion of informed consent, confidentiality and safety procedures. Establishing an environment where the client feels safe is one of the most important factors for mindfulness-based psychotherapeutic work (Kurtz, 2007).

### Foundations

The foundations stage involves training in basic mindfulness methods, the establishment of anchors and the establishment of a home programme. This takes place over two sessions.

Basic mindfulness practices such as the *5 senses exercise* (Smith, 2018) and the use of diaphragmatic breathing provide clients with methods, they can use to manage their stress response. Deeper relaxation practices build on the foundation provided by diaphragmatic breathing. Progressive muscle relaxation is taught at this point. Breathing pattern is assessed using the hi-lo test. There is strong support in the literature for the use of diaphragmatic breathing, progressive muscle relaxation and mindfulness methods in the management of fibromyalgia (Adler-Neal & Zeidan, 2017; Theadom et al., 2015; Lauche et al., 2013; Schmidt et al., 2012).

Anchors have long been used in psychotherapy to provide clients respite from facing their difficult feelings. When clients become overwhelmed, directing their attention to something more pleasant can reduce their level of activation (Rothschild, 2000). The kinds of anchors that we use in this protocol are memories of attachment figures who have understood us and have had our back, and memories of places which were sanctuaries for us as children. Metta meditation is introduced at this stage. Metta, or loving kindness meditation, is the practice of developing compassion for yourself and for others. In the opinion of the author, the capacity for self-love is the best anchor of all once we have developed this.

It is increasingly recognised that many of the chronic degenerative diseases which are becoming endemic in western countries are diseases of lifestyle (Kopp, 2019). In the foundation stage, data from the wellness self-assessment is compared to public health guidelines for nutrition and exercise, and a metric for social engagement which was developed for this research programme. This comparison becomes the basis of a conversation about whether the client wishes to make any lifestyle changes.

The research on diet and fibromyalgia is more relevant to dietary specialists rather than wellness promotion generalists. Two recent reviews of dietary interventions for fibromyalgia syndrome investigated several studies which looked at the use of specialised diets or nutritional supplements. They found no studies investigating whether the improvement of a poor diet is efficacious (Lowry et al., 2020; Bjørklund et al., 2018). Given, however, that healthy eating leads to a dramatic reduction in the lifetime risk of all chronic disease (Katz & Meller, 2014), bringing nutrition up to public health guidelines is likely to be beneficial.

There was strong support in the literature for the use of cardiovascular exercise and exercise in general for fibromyalgia (Bidonde et al., 2019; Chiamonte et al., 2019; MacFarlane et al., 2017; Sosa-Reina et al., 2017; Ambrose & Golightly, 2015). Too much exercise can however be counter-productive (Busch et al., 2011). These findings provide support for a staged programme encouraging clients to increase their level of physical activity up to public health guidelines (or whatever level is suitable for the client). Given the potential for low-intensity exercise classes (for example, restorative yoga, tai chi, aqua-aerobics) in this space (Adler-Neal & Zeidan, 2017; Ambrose & Golightly, 2015; Häuser et al., 2015a; Busch et al., 2011), it would be wise to have some information available for clients about locally available options.

The author was unable to locate any studies investigating the effect of social engagement on fibromyalgia, however studies investigating chronic pain have indicated that social engagement is negatively correlated with chronic pain (Gebhardt et al., 2021). Fibromyalgia sufferers often describe becoming socially isolated because of their condition, which presumably causes a negative feedback cycle.

One of the more common characteristics of fibromyalgia syndrome is sleep disturbance. This is generally not thought to be an initiating factor, however poor sleep is correlated with an increase of symptoms (Moldofsky et al., 1975). While many of the elements of the proposed mindbody protocol have a positive impact on insomnia (relaxation training, bodywork, exercise), it would make sense to also include some basic information about sleep hygiene and sleep hygiene services.

This protocol is designed for a therapist who is both a mindbody practitioner and a massage therapist, not a specialist in nutrition, exercise or interpersonal relationships. For this reason, any analysis and recommendations are based on a comparison of the client's lifestyle with public health guidelines. Pacing is important with healthcare programme design. It is extremely important to avoid overloading someone with fibromyalgia. It is best to start with only a few programme elements and easily achievable goals. Once the client has some early successes, elements can be added and goals can be extended (McAuley et al., 2011). The therapist should however take care to stay within the client's ability to succeed. Celebrating clients' successes, highlighting symptom reduction, and providing verbal encouragement are advisable, as this all-support client motivation (Ambrose & Golightly, 2015).

Once the foundations phase (1-2) is complete, the remaining sessions (3-10) are split between either myofascial bodywork or mindbody unwinding.

### **Mindbody Unwinding**

The relationship between trauma and the development of fibromyalgia has already been discussed in this review. The potential this relationship implies for mindbody methods has also been discussed.

Mindbody unwinding is a method of accessing, processing and integrating somatically held trauma that has been developed by the author. This involves helping the client to get in touch with painful emotions that have in the past been avoided through dissociation, developing tolerance and acceptance of those emotions, then integrating new ways of being in the world which are uninhibited by historical fear-based avoidance responses. This is aligned with the suggestion of Karas and colleagues (2017) that fibromyalgia sufferers may benefit from

emotional processing techniques. Mindbody unwinding is influenced by the work of Gendlin (1981), Kurtz (2007) and Levine (2010) among others.

During the programme, clients are taught and guided in the use of these methods. The initial process involves the use of an emotional processing strategy which is strongly influenced by Gendlin's Focussing (1981). As the client progresses through the programme, their awareness of bodily sensations is developed through methods which are like vipassana-style body scans. In both phases, there is a strong focus on not going too deep too fast, and on integration of the experience.

### **Myofascial Release**

Although there were not many studies investigating the use of bodywork methods with fibromyalgia syndrome, the studies that have been done support the use of myofascial release as the main bodywork method over traditional Swedish massage (Yuan et al., 2015). The review also found support for the use of trigger point therapy (Giamberardino et al., 2011; Cakit et al., 2010). The protocol therefore involves the identification and treatment of trigger points.

Postural analysis will be undertaken before any bodywork occurs based on the understanding that habitual emotional holding will be reflected in habitual neuro-muscular patterns (Heller & Henkin, 2004).

### **CONCLUSION**

Although more research needs to be done in almost all areas, this review provides good support for the proposed mindbody protocol. This support is also reflected in the author's clinical experience. The protocol has had some moderate success in its early days. After some refinement of the model, a more formal study will be undertaken.

Reduction of fibromyalgia symptoms should theoretically improve the ability of people to engage with activities of daily living (Arnold et al., 2008). This is expected to reduce social isolation and therefore improve fibromyalgia symptoms in a positive feedback cycle. Indeed "No (wo)man is an island entire of itself."

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