Literature Review - Fibromyalgia

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This literature review will look to summarise several studies and articles written about Fibromyalgia, its symptoms, current treatments, possible causes, and look at what has been found to be effective in the management or treatment of the condition. It will also look at possible strategies to manage associated symptoms and pain, specifically through the use of Yoga and Yoga Therapy.

Description of Fibromyalgia

Fibromyalgia Syndrome (FMS) is the name given to a group of symptoms characterised by widespread muscular pain and stiffness (Arthritis Australia, 2011). Other common symptoms are extreme fatigue impacting on day to day activities, difficulty sleeping, increased sensitivity to stimuli such as heat, cold and smell, memory and concentration problems (Arthritis Victoria, 2010). Depression and anxiety can also be symptoms although it is possible that these symptoms are as a result of the other symptoms.

“Fibromyalgia is a complex condition and psychological, social and lifestyle factors have all been found to play an important role in symptom experience” (Theadom et. al. 2009).

Causes of Fibromyalgia and Diagnosis

It is currently not known what causes Fibromyalgia. However, current studies and information suggests that “a hyperaroused nervous system is a probable underlying cause” (Hennard, 2011). There are no specific blood tests or x-rays that can diagnose Fibromyalgia. In 1990 The American College for Rheumatology developed the fibromyalgia classification criteria that “required tenderness on pressure (tender points) in at least 11 of 18 specified sites and the presence of widespread pain for diagnosis” (Wolfe, et al, 2010). Recent proposed changes to these diagnostic criteria has included the implementation of the widespread pain index (WPI) and the symptom severity (SS) index to supplement the previous ‘tender point’ criteria (Curtis, et al, 2011).

A health professional, usually a Rheumatologist, will eliminate other conditions first and then if Fibromyalgia is suspected, conduct the tender point, WPI and SS tests.

It is also thought that there is a causal impact of some symptoms on other symptoms. Research into sleep disturbances in fibromyalgia examined its relationship to pain, depression and overall physical functioning (Silvia et al, 2008). The study concluded that disturbed sleep increases pain, pain worsens physical functioning and worse physical functioning increases depression. This would indicate that
other relationships between symptoms could exist such as pain interfering with sleep, lack of sleep resulting in anxiety and increased pain and anxiety interfering with sleep (Hennard 2011).

**Current treatment**

There is currently no cure for fibromyalgia. Current treatment is varied and can include pharmacological and non-pharmacological methods (Curtis, et al, 2011). Pharmacological treatments attempt to treat the symptoms of pain, fatigue, anxiety, depression and sleeplessness and can include the use of low dose tricyclic antidepressants, Prozac, cortisone and pain relievers (Shiel, 2012). However there does not appear to be one medication or combination of medications that helps in all cases. Non-Pharmacological treatments are often encouraged by health professionals in managing the symptoms. Arthritis Victoria recommends sufferers take an active role in the management of their symptoms. Their ‘Living Well with Fibromyalgia’ booklet suggests that the benefits of medications can only be determined by a trial and error approach and that the following self management strategies could be of more benefit:

- Regular exercise, which could include Yoga,
- eating a healthy, balanced diet,
- meditation, and
- good sleep. When sufferers “…are sleep deprived [they] are likely to find it more difficult to cope with the pain, fatigue and stress of the condition.” (Arthritis Victoria, 2010).

Janet Hennard, in her Yoga Journal article ‘A Protocol and Pilot Study for Managing Fibromyalgia with Yoga and Meditation’, says that “because of the undesirable side effect [of medications], individuals with fibromyalgia often pursue complementary and alternative medicine (CAM)”’. She goes on to say that in a study of the use of CAM providers, fibromyalgia patients were 2.5 times more likely to use a CAM provider than non-fibromyalgia patients (Hennard, 2011).

**Recent Studies in the Use of Yoga and/or Meditation for Fibromyalgia**

There are several studies in the use of Yoga and/or Meditation in the treatment and management of fibromyalgia. This review will look at two.

**A Protocol and Pilot Study for Managing Fibromyalgia with Yoga and Meditation**
**By Janet Hennard (2011)**

Hennard’s article in the International Journal of Yoga Therapy gives an overview of the condition, its pathology and symptoms, an outline of a therapeutic Yoga program for managing fibromyalgia and an evaluation of the ‘Yoga for Managing Fibromyalgia Program’.
It is widely believed by scientists that “fibromyalgia is a result of abnormal pain processing in the central nervous system” (pg 110), where a stimulus that would not normally be painful creates a perception of pain. This has been confirmed in recent years by several studies using functional magnetic resonance imaging (fMRI) where fibromyalgia patients and a control group demonstrated perceived pain in similar regions of the brain. “However the fibromyalgia patients perceived greater pain intensity with significantly less pain pressure that the controls” (pg 110).

In addition to an impaired ability to process pain, research has also shown that “fibromyalgia patients have abnormally high levels of neurotransmitters involved in ... the chemical process that makes us aware of pain” (pg 111). They also have a lack of neurochemicals that assist to dampen pain. So their nervous system not only processes innocuous information as painful, but it also fails to modulate the pain.

Hennard’s program comprises specific practices to address each of the major symptoms.

A Yoga program that aims to work with fibromyalgia sufferers requires an awareness of the specific symptoms of fibromyalgia as well as an understanding of their causal overlapping relationships to each other.

Anxiety has been observed in one third of fibromyalgia patients. With rapid shallow breathing common, Hennard recommends each class should “begin with at least 5 minutes of centring and calming breaths” (pg 111) and to encourage students to use the same breath throughout the practice. Energising breathing such as kapalabhati should be avoided in favour of more balancing, calming practices such as nadi shodhana or, if student continues to show signs of anxiety, left nostril breathing (in through left nostril and out through right nostril only) could be encouraged to stimulate the parasympathetic nervous system’s relaxation response.

A large percentage or fibromyalgia patients have experienced depression in their lifetime. Here Hennard suggests gentle back bending postures may help to open the chest and to encourage feelings of acceptance, courage and openness. She suggests gentle asanas such as setu bandhasana, marjariasana and supported restorative poses such as supta baddha konasana. The mindfulness –based stress reduction program (MBSR) developed by Jon Kabat-Zinn’s and the Stress Reduction Clinic has been the subject of many studies that show a “marked improvement in depression and anxiety” (pg 113). One study cited by Hennard revealed that mindfulness meditation “significantly relieved depressive symptoms in fibromyalgia patients compared to a control group” (pg 113).

Pain is the consistent and primary symptom of fibromyalgia, and it is crucial that the Yoga practice does not make this pain worse. Exercise is generally encouraged for fibromyalgia sufferers, but can sometimes induce pain. “To avoid the likelihood that the student will abandon the Yoga practice altogether when over-striving increases pain, it is important to begin slowly and gently.” (pg 113)
Here Hennard suggests a slower paced vinyasa practice. Mindfulness meditation is also another effective strategy to use in pain reduction. In one study Jon Kabat-Zinn reported “72% of patients with chronic pain achieved at least a 33% reduction on the McGill-Melzack Pain Rating Index, and 61% achieved at least a 50% reduction” (pg 113).

Sleep disturbance is common with fibromyalgia sufferers with a longitudinal study finding that about 95% of fibromyalgia sufferers fell within the range of problem sleepers. It is also believed that the higher levels of the neurochemical discussed earlier as being a possible cause of poor pain processing could also influence sleep and mood. Here Hennard recommends restorative postures that reduce the sympathetic nervous system response and increases the parasympathetic nervous system response. Suggested postures are supta baddha konasana, viparita karani, balasana, savasana and ending the practice with yoga nidra.

The results of the study evaluating the Yoga for Managing Fibromyalgia Program were positive. Based on the practices given above an 8 week program involving 25 people was developed. Each class was for 75 minutes duration and comprised of 10 minutes of centring breaths, 15 minutes of learning and sharing, 35 minutes of asana and 15 minutes of savasana and meditation. 15 people stayed with the program for its duration.

The participants completed the Fibromyalgia Impact Questionnaire (FIQ) prior to the first session and immediately after the last session. See table 1 for details on the FIQ scoring method.

<table>
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<tr>
<th>Item</th>
<th>Measurement</th>
<th>Score Range</th>
<th>Normalization</th>
<th>Score Range After Normalization</th>
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<tr>
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<td>Days felt good (scored inversely)</td>
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<td>Score X 1.43</td>
<td>0–10</td>
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<td>Days missed work</td>
<td>0–7</td>
<td>Score X 1.43</td>
<td>0–10</td>
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<td>Pain interfered with work</td>
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<td>How bad pain</td>
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<td>How tired</td>
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<td>How felt in the AM</td>
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<td>How nervous, anxious</td>
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<td>10</td>
<td>How depressed</td>
<td>0–10</td>
<td>None</td>
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Table 1. Scoring method for the FIQ used in the study. (Hennard, 2011)
“The findings of this study demonstrated that a short program in yoga and meditation has a positive effect on the overall health status of fibromyalgia sufferers and on specific fibromyalgia symptoms” (pg 118). There were significant improvements in the participants perception of how good they felt and how often they missed work due to their condition. Significant improvements were also reported in general body stiffness, fatigue, depression and anxiety, and in the overall health status of each participant. However the improvement in pain was deemed to be not significant.

A Pilot Randomised Controlled Trial of the Yoga of Awareness Program in the Management of Fibromyalgia


This 2010 study was a randomised controlled trial (RCT) of 53 women, 25 of which participated in the Yoga of Awareness program and 28 received standard care as the control group.

The Yoga of Awareness program consisted of 8 classes of 120 minutes, once per week and was a “comprehensive yoga program which for this study was tailored to address pain, fatigue, sleep disturbance, and emotional distress in FM” (pg 7).

Each Yoga of Awareness class consisted of 40 minutes of asana, 25 minutes of mindfulness meditation, 10 minutes of breathing techniques, 20 minutes of yogic principles and 25 minutes of group discussion.

“The yoga poses consisted of a single sequence that offered versions that could be done either in a chair or out of a chair. The sequence included self-massage, warm-ups, table, mountain, mountain with sun arms, breath of joy, warrior 1 flow, chair, downward-facing dog on chair, sphinx, modified locust, child’s pose, supine core strengthening, supine pigeon, supine thoracic twist flow, bridge, knees to chest, and corpse. Students were also introduced to a restorative version of legs in a chair with pelvis support and a twist over a bolster.” (pg 8)

High emphasis was placed not only on practicing yoga safely, but also on the yogic principles of awareness, acceptance and a willingness to learn from pain and stressful situations. Participants were taught to be present and to discover the “wave like pattern of all types of experiences (arising, cresting, subsiding) as a way to maintain poise amidst the tumult of stressful circumstances” (pg 8). They were also encouraged to distinguish between actual events and their mind’s tendency to create “stories” about these events. Practicing kindness and patience with oneself and others was another tool offered to the participants.

Participants were encouraged to practice at home for 20-40 minutes per day for 5-7 days per week. They were also required to keep a daily record of their time spent practicing and how they felt.
The assessment for the Yoga of Awareness program trial was a revised version of the FIQ use in Hennard’s trail (see table 1 above), physical tests of symptoms and functional deficit (tender points, strength, balance), pain coping and daily diaries. The Patient Global Impression of Change (PGIC) outcome measurement was also used to assess the overall improvement in fibromyalgia symptoms.

The results of this study found there were significant improvements favouring the yoga group over the control group. The FIQR total score improvement was significant as were the individual FIQR scores for symptoms and impact. Interestingly, like Hennard’s trail, the tender point score showed little improvement, however the pain coping score showed significant results. Average daily home practice rates were also assessed and were shown to significantly correlate with the scores of several outcomes, to the extent that more practice was associated with a higher overall improvement in symptoms.

“Our findings provide preliminary evidence, based on various types of measures ... that the intervention may be helpful for improving a wide range of FM symptoms and functional deficits ... Moreover, a majority of the improvements seen in this study qualified as clinically significant changes.” (pg 21)

“The findings of this pilot study provide promising preliminary support for the beneficial effects of yoga in patients with FM.” (Carson et al, 2010, pg 25)

Conclusion

Both the above studies show significant improvements in the symptoms of fibromyalgia and coping strategies for sufferers who participated in Yoga based activities specifically designed for their condition. However both studies stress the importance of gentle asana coupled with other, deeper aspects of Yoga such as mindfulness, meditation and acceptance. Although the participants’ pain was not significantly changed, their relationship with pain and level of well being and was greatly improved.

The individual nature of fibromyalgia lends itself well to a Yoga therapy setting. From a Yoga therapy perspective, it may be possible to successfully manage the debilitating symptoms or fibromyalgia providing the sufferer with a greatly improved quality of life.

These are exciting result for those suffering from fibromyalgia, giving them an opportunity to take control of their condition.
Reference List

Arthritis Australia, *Fibromyalgia*,
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Arthritis Victoria, *Living Well with Fibromyalgia*,


Shiel, W. C., *What are medications and other forms of treatment for fibromyalgia?*,

