

Current Research and Clinical Applications

Acupuncture for Fibromyalgia

Fibromyalgia (FM) is a musculoskeletal disorder characterised by widespread chronic pain. It affects over 2% of the population and predominantly presents in females. Comorbidities include sleep disturbance, fatigue, irritable bowel syndrome, headaches and mood disorders. The pathophysiology of FM is poorly understood, but is likely to involve dysfunction of the central nervous system.¹ Acupuncture has been frequently sought for this clinical condition. A 2007 systematic review of acupuncture for FM undertaken by Mayhew and Ernst examined five randomised clinical trials (RCT).²⁻⁷ Mayhew and Ernst found that the current evidence of the effect of acupuncture for FM is lacking.²

Martin et al.³ undertook an RCT single-blinded, placebo-controlled trial of 50 FM patients. The results were better in the electroacupuncture (EA) group than those in the control group ($P = 0.01$). The differences remained significant at one-month follow up. Acupuncture not only reduced pain, but also improved fatigue, anxiety and affective distress. The 7-point reduction in the Fibromyalgia Impact Questionnaire (FIQ) is similar to the effect of pharmacological intervention. At the seven-month follow up, the group differences were no longer significant ($P = 0.24$).

In the RCT by Assefi et al.,⁴ 100 FM patients were studied and there was no statistically significant difference between the real acupuncture and the pooled sham acupuncture groups.

The RCT by Guo and Jia⁵ was an open-label trial involving 66 FM patients. There was no statistical difference between the two EA groups. When compared to the pharmacological intervention group, however, patients in the EA groups were significantly better ($P = 0.01$).

Another RCT by Spratt⁶ involved 30 FM patients in a hospital setting. The number of tender points in the patients was reduced from 18.2 to 9.4 in the acupuncture group and from 16.3 to 11.5 in the placebo laser group. The intensity of pain was reduced in the acupuncture group immediately after therapy compared with the other groups. Two months later, the group differences were no longer significant.

An RCT by Deluze et al.⁷ had 70 FM patients receiving EA. Pain was reduced by 70% ($P = 0.0027$) in the real acupuncture group, in contrast to 4% reduction in the sham acupuncture group. Sleep also improved in the former but not in the latter group. The improvement of morning stiffness was not different between the two groups.

These five studies differed substantially in the treatment protocols, such as control interventions, acupoint selection, needle depth and stimulation. A summary of the treatment protocol is presented in Table 1. Overall, EA, but not manual acupuncture, was consistently superior to control interventions.

Clinically, the depth of needling and the amount of stimulation have been major

points of debate in our profession. Results from the five trials indicate that shallow needling used in sham acupuncture was as effective as traditional acupuncture for FM patients.

Two studies^{8,9} not included in the Mayhew and Ernst systematic review examined the impact of needle techniques in FM patients. One study⁸ examined the skin and muscle blood flow in healthy volunteers and FM patients. This study found that deep needling, but not shallow needling, in the healthy controls enhanced blood flow, whereas in the FM group both techniques induced similar results. The other study⁹ found that correct needle insertion, but not correct needle location or mode of stimulation, was crucial to acupuncture analgesia in FM.

In conclusion, to date we cannot say that there is overwhelmingly good evidence for the treatment of FM using acupuncture. Acupuncture induces strong analgesic effect in FM patients irrespective of the needle techniques, insertion depth, type of stimulation and point selection. The multiple signs and symptoms presented in FM could fit in with Chinese medicine's 'Bi-syndrome'. Chinese medicine's pattern differentiation (*bian zheng*) could be an important step to a better management of FM, however this will require further research.

CLINICAL RELEVANCE

A shallow needle technique may be a better choice in the clinical setting for FM patients. EA with 2 Hz can be used. If

TABLE 1 Acupuncture treatment protocols for fibromyalgia

		Martin et al. ³	Assefi et al. ⁴	Guo & Jia ⁵	Spratt ⁶	Deluze et al. ⁷	
Treatment regime	Treatment number	6	24	40	6	6	
	Treatment frequency	2–4 days, over 2–3 weeks	2 per week	1 per day, break 4 days after 20	2 per week	2 per week	
Needling details	Points used	1st 3 sessions: LI4, ST36, LR2, SP6, PC6, HT7, Proximal BL11, BL12, BL13, BL14. 2nd 3 sessions: LI4, ST36, LR2, SP6, HT7, Proximal BL23, BL25, BL26, BL28.	Alternating, between LI11, SP9, CV12, ST25, KI7, TE5, Ex-HN3, and BL43, BL44, BL17, BL18, BL20, BL22.	[Full-text article unavailable to reviewing author.]	SP2, SP3, GV20, LI4, ST36, KI3, KI7, LI11, SI3, LR2. LR3, GB34 plus extra points (not stated).	LI4, ST36 plus up to 5 other points (not stated).	
	Bilateral	Bilateral	Not stated		Not stated	Bilateral	
	Depth of needle	Not clear	'Standard'		Not stated	10–25 mm	
	Deqi elicited	No	Not stated		Not stated	Muscle twitch	
	Needle stimulation	1st 3 sessions: EA, (2 Hz), LI4, ST36; 10 Hz neck pts. 2nd 3 sessions: EA (2 Hz), LI4, ST36; 10 Hz back pts.	Not stated		Dermal electrical stimulation and EA	Not stated	EA (frequency not given)
	Needle retention	20 min	30 min		Not stated	Not stated	
	Needle gauge	Not stated	34–40 gauge		Not stated	0.3 × 25 mm	

Notes: EA = electroacupuncture

utilising formula acupuncture, acupoint selection should include LI4 *Hegu* and ST36 *Zusanli*, as these two are the most commonly used acupoints in the RCTs. A course of three sessions of treatment per week appears to be the best treatment dose, but the length of overall treatment time is not clear. Chinese medicine differentiation could be important.

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Acupuncture for Osteoarthritis

Witt et al.¹ have recently investigated acupuncture for osteoarthritis of the knee. This is one of five large German studies undertaken by researchers in Berlin and Munich known as the ART studies (Acupuncture Randomized Trials). This positive study evaluated the effect of acupuncture on osteoarthritis of the knee, while the other four studies involved migraine,² low back pain,³ neck pain⁴ and tension-type headache.⁵

The study involved 300 subjects randomised to receive either verum acupuncture ($n = 150$), minimal acupuncture (superficial needling at non-acupoint sites; $n = 76$) and waiting list ($n = 74$). The acupuncture treatment was administered by 28 German physicians who were trained (at least 140 hours) and experienced in administering acupuncture. The trial was conducted at 28 outpatient clinics across Germany. Subjects (50–75 years of age) were included in the study if they had documented radiological alterations in the knee joint of grade 2 or more according to Kellgren-Lawrence criteria, and had a documented pain intensity score of 40 or more on a 100 mm visual analogue scale in the seven days before baseline assessment. The main outcome measure was the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC).

Acupuncture treatment was semi-standardised and the researchers were free to choose from a list of both local and distal acupoints (see Box 1). The acupoints selected were based on their function according to the principles of traditional Chinese medicine. In addition, the acupuncture physicians were also allowed to use trigger points

and auricular acupuncture. The physician acupuncturists were allowed to treat unilaterally or bilaterally depending on the presentation of the patient, but only the data for the worst knee was included in the analysis. The elicitation of Deqi was sought in the verum group but not for the minimal acupuncture subjects.

At the completion of the treatment at eight weeks, the patients who received the verum acupuncture had significantly less pain and better function than the patients who received either minimal acupuncture or who were in the wait group. At 26 and 52 weeks, the difference between the verum and the minimal acupuncture was no longer significant.

BOX 1 Acupoints for osteoarthritis

Local acupoints (at least six):
ST34, ST35, ST36, SP9, SP10,
BL40, KI10, GB33, GB34, LR8,
Ex-LE2, Ex-LE5.

Distal acupoints (at least two):
SP4, SP5, SP6, ST6, BL20, BL57,
BL58, BL60, BL62, KI3.

CLINICAL RELEVANCE

Acupuncture is beneficial for both pain and function in patients with osteoarthritis of the knee. This study confirms the previous Berman clinical trial,⁶ which also found significant improvement at the completion of treatment at eight weeks. However, while the Berman study found a significant difference between the minimal and verum groups at 26 weeks, the Witt study did not. Patients should be informed that acupuncture may have to be repeated within six months (26 weeks) to maintain its therapeutic value.

Treatment should be directed towards local and distal acupoints and selection of acupoints should be based on Chinese acupuncture theory. In addition, Deqi should be elicited at the acupoints.

CONCLUSION

Acupuncture is an effective short-term treatment for osteoarthritis of the knee. A repeated course of treatment (12 sessions within 8 weeks) every six months is suggested for patients with ongoing knee pain or for those waiting for knee replacement surgery.

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