

# Collected Scientific Research Relating to the Use of Osteopathy with Wound healing

## Important:

1) Osteopathy involves helping people's own self-healing abilities to work better, rather than focussing primarily on particular conditions.

2) Each person is different, and osteopathy treats them differently.

Therefore people respond to osteopathic treatment in different ways. Treatments that work for one person cannot be guaranteed to work for another person in the same way. The fact that there is scientific research supporting a treatment in a group of people does not mean that it will always work in the same way (which is probably true of all research).

A number of things make research into osteopathy challenging. These include the two aspects of osteopathy mentioned above, and also the lack of major commercial interests to provide funding in expectation of financial returns. At the same time, there is an emerging body of research demonstrating the usefulness of osteopathic treatment.

Please note: there is room for debate about the classifications used for these studies. Please let John Smartt know if you believe that any of these classifications are incorrect.

# These studies are from peer-reviewed journals

Number  
of studies:  
6

## Clinically and statistically significant results

Number  
of studies:  
6

## Systematic reviews

Number of studies: 2

Nelson EA, Mani R, Thomas K, Vowden K 2014 **Intermittent pneumatic compression for treating venous leg ulcers (Cochrane review)** Cochrane Database of Systematic Reviews May 12 [http://www.cochrane.org/CD001899/WOUNDS\\_intermittent-pneumatic-compression-for-treating-venous-leg-ulcers](http://www.cochrane.org/CD001899/WOUNDS_intermittent-pneumatic-compression-for-treating-venous-leg-ulcers).

**BACKGROUND:** Intermittent pneumatic compression (IPC) is a mechanical method of delivering compression to swollen limbs that can be used to treat venous leg ulcers and limb swelling due to lymphoedema. **OBJECTIVES:** To determine whether IPC increases the healing of venous leg ulcers. To determine the effects of IPC on health related quality of life of venous leg ulcer patients. **SEARCH STRATEGY:** For this update we searched the Cochrane Wounds Group Specialised Register (searched 10 December 2010); the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library 2010, Issue 4); Ovid MEDLINE (2007 to November Week 3 2010); Ovid MEDLINE (In-Process and Other Non-Indexed Citations December 09, 2010); Ovid EMBASE (2007 to 2010 Week 48); and EBSCO CINAHL (2007 to 3 December 2010). **SELECTION CRITERIA:** We included randomised controlled trials (RCTs) that compared the effects of IPC with control (sham IPC or no IPC) or made comparisons between IPC treatment regimens, in venous ulcer management. **DATA COLLECTION AND ANALYSIS:** Both review authors reviewed titles and abstracts and agreed on full studies to be retrieved. One review author extracted data and assessed studies for risk of bias and this was checked by a second review author. **MAIN RESULTS:** We identified seven randomised controlled trials (including 367 people in total). Only one trial was at low risk of bias having reported adequate randomisation, allocation concealment and blinded outcome assessment. In one trial (80 people) more ulcers healed with IPC than with dressings (62% versus 28%;  $p=0.002$ ). Four trials compared IPC plus compression with compression alone. The first of these trials (45 people) found increased ulcer healing with IPC plus compression than with compression alone (risk ratio for healing 11.4, 95% Confidence Interval 1.6 to 82). The remaining three trials (122 people) found no evidence of a benefit for IPC plus compression compared with compression alone. One small trial (16 people) found no difference between IPC (without additional compression) and compression bandages alone. One trial (104 people) compared different ways of delivering IPC and found that rapid IPC healed more ulcers than slow IPC (86% versus 61%). **AUTHORS' CONCLUSIONS:** IPC may increase healing compared with no compression, but it is not clear whether it increases healing when added to treatment with bandages, or if it can be used instead of compression bandages. Rapid IPC was better than slow IPC in one trial. Further trials are required to determine whether IPC increases the healing of venous leg ulcers when used in modern practice where compression therapy is widely used.

Vairo GL, Miller SJ, McBrier NM, Buckley WE. 2009 **Systematic review of efficacy for manual lymphatic drainage techniques in sports medicine and rehabilitation: an evidence-based practice approach.** J Man Manip Ther 17(3):e80-9. <http://www.ncbi.nlm.nih>.

"When combined with concomitant musculoskeletal therapy, pilot and case studies demonstrate MLDT [manual lymphatic drainage technique]'s effectiveness. The best evidence suggests that efficacy of MLDT in sports medicine and rehabilitation is specific to resolution of enzyme serum levels associated with acute skeletal muscle cell damage as well as reduction of edema following acute ankle joint sprain and radial wrist fracture. "

## Other reviews

Number of studies: 1

Anglund DC, Channell MK. 2011 **Contribution of osteopathic medicine to care of patients with chronic wounds**. J Am Osteopath Assoc Sep;111(9):538-42. <https://www.ncbi.nlm.nih.gov/pubmed/21955533>

"Since its inception, osteopathic medicine has been concerned with the lymphatic system." "Many of the functions provided by the lymphatic system and augmented by OMT are necessary for proper wound healing. The authors highlight the unique contribution of the lymphatics to wound healing, as well as the unique contribution of OMT to lymphatic-directed treatment of patients with chronic wounds."

## Randomised controlled trials

Number of studies: 1

Joseph LH, Paungmali A, Dixon J, Holey L, Naicker AS, Htwe O 2016 **Therapeutic effects of connective tissue manipulation on wound healing and bacterial colonization count among patients with diabetic foot ulcer**. Journal of Bodywork and Movement Therapies Jul;20(3):650-6 [http://www.bodyworkmovementtherapies.com/article/S1360-8592\(16\)00011-5/abstract](http://www.bodyworkmovementtherapies.com/article/S1360-8592(16)00011-5/abstract)

"This study investigated the therapeutic effects of connective tissue manipulation (CTM) in diabetic foot ulcer (DFU). A total of 20 participants (10 in CTM group and 10 in conventional treatment group (CG)) with DFU underwent the conventional DFU treatment. In addition, the CTM group received CTM twice per week for 6 weeks. The percentage wound area reduction (PWAR) and bacterial colonization count (BCC) in log<sub>10</sub> colony-forming units (CFU) per ml wound fluid was evaluated at baseline and six weeks. Results showed a significant change in PWAR in CTM ( $p < 0.05$ ,  $t = 3.82$ ,  $Df = 9$ ,  $CI L = 0.98$   $U = 3.81$ ) and CG ( $p < 0.05$ ,  $t = 2.97$ ,  $Df = 9$ ,  $CI L = 0.26$   $U = 1.98$ ). Mean reduction of BCC showed a significant reduction ( $p < 0.05$ ), with percentage of BCC reduction higher in CTM group (6.45%) than CG (3.55%). The findings suggest CTM as an effective adjunct therapy for DFU to enhance conventional treatments."

Zein-Hammoud M, Standley PR. 2015 **Modeled Osteopathic Manipulative Treatments: A Review of Their in Vitro Effects on Fibroblast Tissue Preparations.** J Am Osteopath Assoc Aug 1;115(8):490-502 <https://jaoa.org/article.aspx?articleid=2422100>

"Although modeled RMS [repetitive motion strain] produced a delayed inflammatory response and reduction in cellular proliferation, both modeled CS [counter strain] and MFR [myofascial release] reversed those effects."

"Herein, we have shown proof of concept that both clinical CS and clinical MFR may equivalently reverse RMS injury in patients in manners that affect cytokine and NO signaling as well as cellular proliferation."

"Further, these findings suggest that dose-dependent and prophylactic MFR may potentially regulate inflammation and wound healing responses in patients."

"If clinically translatable, our results suggest that although RMS would clinically reduce the ability to regenerate and repair muscles, MFR would enhance these effects. "

Cao TV, Hicks MR, Zein-Hammoud M, Standley PR 2015 **Duration and magnitude of myofascial release in 3-dimensional bioengineered tendons: effects on wound healing.** J Am Osteopath Assoc Feb;115(2):72-82 <https://www.ncbi.nlm.nih.gov/pubmed/25637613>

**CONTEXT:**

Myofascial release (MFR) is one of the most commonly used manual manipulative treatments for patients with soft tissue injury. However, a paucity of basic science evidence has been published to support any particular mechanism that may contribute to reported clinical efficacies of MFR.

**OBJECTIVE:**

To investigate the effects of duration and magnitude of MFR strain on wound healing in bioengineered tendons (BETs) in vitro.

**METHODS:**

The BETs were cultured on a deformable matrix and then wounded with a steel cutting tip. Using vacuum pressure, they were then strained with a modeled MFR paradigm. The duration of MFR dose consisted of a slow-loading strain that stretched the BETs 6% beyond their resting length, held them for 0, 1, 2, 3, 4, or 5 minutes, and then slowly released them back to baseline. To assess the effects of MFR magnitude, the BETs were stretched to 0%, 3%, 6%, 9%, or 12% beyond resting length, held for 90 seconds, and then released back to baseline. Repeated measures of BET width and the wound's area, shape, and major and minor axes were quantified using microscopy over a 48-hour period.

**RESULTS:**

An 11% and 12% reduction in BET width were observed in groups with a 9% (0.961 mm;  $P < .01$ ) and 12% (0.952 mm;  $P < .05$ ) strain, respectively. Reduction of the minor axis of the wound was unrelated to changes in BET width. In the 3% strain group, a statistically significant decrease (-40%;  $P < .05$ ) in wound size was observed at 24 hours compared with 48 hours in the nonstrain, 6% strain, and 9% strain groups. Longer duration of MFR resulted in rapid decreases in wound size, which were observed as early as 3 hours after strain.

**CONCLUSION:**

Wound healing is highly dependent on the duration and magnitude of MFR strain, with a lower magnitude and longer duration leading to the most improvement. The rapid change in wound area observed 3 hours after strain suggests that this phenomenon is likely a result of the modification of the existing matrix protein architecture. These data suggest that MFR's effect on the extracellular matrix can potentially promote wound healing."