

Collected Scientific Research Relating to the Use of Osteopathy with Temporomandibular joint (TMJ) (jaw) issues

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:
7

Clinically and statistically significant results

Number of studies:
6

Systematic reviews

Number of studies: 2

Morell GC. 2016 **Manual therapy improved signs and symptoms of temporomandibular disorders**. *Evid Based Dent Mar*;17(1):25-6 <https://www.ncbi.nlm.nih.gov/pubmed/27012575>

"DATA SOURCES:

Medline, Cochrane, Web of Science, SciELO and Embase databases from 1993-2014.

STUDY SELECTION:

Randomised Controlled Trials (RCTs) comparing a manual therapy physical therapy intervention to a reference group (placebo intervention, controlled comparison intervention, standard treatment or other treatment).

DATA EXTRACTION AND SYNTHESIS:

Two independent reviewers abstracted data and assessed quality and clinical relevance of each paper. In case of disagreement, a third reviewer was consulted. The PEDro (Physiotherapy Evidence-Based Database) scale was used to assess the methodological quality of the studies.

RESULTS:

Eight studies were included. The number of patients in the studies ranged from 30-93. Seven out of the eight studies presented high methodological quality. Treatment effect size was calculated for pain, maximum mouth opening (MMO) and pressurepain threshold (PPT). There was moderate and low evidence that myofascial release and massage techniques are more effective than placebo or no intervention for MMO and pain outcomes respectively. There was also moderate evidence that no significant difference exists between myofascial release and toxin botulinum for improvement on the same outcomes. There was low to high quality evidence that upper cervical spine thrust manipulation or mobilisation techniques are more effective than control, while thoracic manipulations are not. Overall there was moderate-to-high evidence that MT techniques protocols are effective. Methodological heterogeneity of the trial protocols frequently contributed to a decrease in the quality of evidence.

CONCLUSIONS:

There is widely varying evidence that MT improves pain, MMO and PPT in subjects with TMD signs and symptoms, depending on the technique. Further studies should consider using standardised evaluations and better study designs to strengthen clinical relevance."

Calixtre LB, Moreira RF, Franchini GH, Albuquerque-Sendín F, Oliveira AB. 2015 **Manual therapy for the management of pain and limited range of motion in subjects with signs and symptoms of temporomandibular disorder: a systematic review of randomised controlled trials**. *J Oral Rehabil Nov*;42(11):847-61 <https://www.ncbi.nlm.nih.gov/pubmed/26059857>

"There is a lack of knowledge about the effectiveness of manual therapy (MT) on subjects with temporomandibular disorders (TMD). The aim of this systematic review is to synthesise evidence regarding the isolated effect of MT in improving maximum mouth opening (MMO) and pain in subjects with signs and symptoms of TMD. MEDLINE(®) , Cochrane, Web of Science, SciELO and EMBASE(™) electronic databases were consulted, searching for randomised

controlled trials applying MT for TMD compared to other intervention, no intervention or placebo. Two authors independently extracted data, PEDro scale was used to assess risk of bias, and GRADE (Grading of Recommendations Assessment, Development and Evaluation) was applied to synthesise overall quality of the body of evidence. Treatment effect size was calculated for pain, MMO and pressure pain threshold (PPT). Eight trials were included, seven of high methodological quality. Myofascial release and massage techniques applied on the masticatory muscles are more effective than control (low to moderate evidence) but as effective as toxin botulinum injections (moderate evidence). Upper cervical spine thrust manipulation or mobilisation techniques are more effective than control (low to high evidence), while thoracic manipulations are not. There is moderate-to-high evidence that MT techniques protocols are effective. The methodological heterogeneity across trials protocols frequently contributed to decrease quality of evidence. In conclusion, there is widely varying evidence that MT improves pain, MMO and PPT in subjects with TMD signs and symptoms, depending on the technique. Further studies should consider using standardised evaluations and better study designs to strengthen clinical relevance."

Randomised controlled trials

Number of studies: 4

Gesslbauer C, Vavti N, Keilani M, Mickel M, Crevenna R 2016 **Effectiveness of osteopathic manipulative treatment versus osteopathy in the cranial field in temporomandibular disorders - a pilot study**. *Disabil Rehabil* Dec 28:1-6 <https://www.ncbi.nlm.nih.gov/pubmed/28029069>

"Both therapeutic modalities had similar clinical results. The findings of this pilot trial support the use of osteopathic manipulative treatment and osteopathy in the cranial field as an effective treatment modality in patients with temporomandibular disorders. The positive results in both treatment groups should encourage further research on osteopathic manipulative treatment and osteopathy in the cranial field and support the importance of an interdisciplinary collaboration in patients with temporomandibular disorders. Implications for rehabilitation Temporomandibular disorders are the second most prevalent musculoskeletal condition with a negative impact on physical and psychological factors. There are a variety of options to treat temporomandibular disorders. This pilot study demonstrates the reduction of pain, the improvement of temporomandibular joint dysfunction and the positive impact on quality of life after osteopathic manipulative treatment and osteopathy in the cranial field. Our findings support the use of osteopathic manipulative treatment and osteopathy in the cranial field and should encourage further research on osteopathic manipulative treatment and osteopathy in the cranial field in patients with temporomandibular disorders. Rehabilitation experts should consider osteopathic manipulative treatment and osteopathy in the cranial field as a beneficial treatment option for temporomandibular disorders."

Tuncer AB, Ergun N, Tuncer AH, Karahan S 2013 **Effectiveness of manual therapy and home physical therapy in patients with temporomandibular disorders: A randomized controlled trial** *Journal of Bodywork and Movement Therapies* Volume 17, Issue 3, July , Pages 302–308 <http://www.sciencedirect.com/science/article/pii/S1360859212002276>

"The purpose of this study was to compare the short-term effectiveness of home physical therapy (HPT) alone with that of manual therapy (MT) in conjunction with home physical therapy (MT–HPT) performed for four weeks in patients with temporomandibular disorders (TMD). "

"Pain intensity was evaluated at rest and with stress using a visual analogue scale (VAS). Pain-free maximum mouth opening (MMO) was also evaluated. Mean change score (MCS) in VAS and the smallest detectable difference (SDD) in pain-free MMO were measured over time. The results were analysed by MANOVA to evaluate the effects of treatment over time. "

"Within each group, VAS with stress decreased ($p < 0.001$) and pain-free MMO increased ($p < 0.001$) over time. Between groups, both time*treatment effect and treatment effect were significant for VAS with stress ($p < 0.001$); however, only time*treatment effect was significant for pain-free MMO ($p = 0.009$). In the MT–HPT group, MCS for VAS with stress was 91.3% and SDD for pain-free MMO was 10 mm. Our results suggest that a four-week period of MT–HPT

has a clinically significant effect on both pain and pain-free maximum mouth opening in patients with TMD."

Kalamir A, Bonello R, Graham P, Vitiello AL, Pollard H 2012 **Intraoral myofascial therapy for chronic myogenous temporomandibular disorder: a randomized controlled trial** Journal of Manipulative and Physiological Therapeutics 35(1):26-37 <http://jaoa.org/article.aspx?articleid=2094255>

"Studies investigating the efficacy of intraoral myofascial therapies (IMTs) for chronic temporomandibular disorder (TMD) are rare. The present study was an expansion of a previously published pilot study that investigated whether chiropractic IMT and the addition of education and self-care were superior to no-treatment or IMT alone for 5 outcome measures- interincisal opening range, jaw pain at rest, jaw pain upon opening, jaw pain upon clenching, and global reporting of change-over the course of 1 year.

METHODS:

Ninety-three participants with myogenous TMD between the ages of 18 and 50 years experiencing chronic jaw pain of longer than 3 months in duration were recruited for the study. Successful applicants were randomized into 1 of 3 groups: (1) IMT consisting of 2 treatment interventions per week for 5 weeks, (2) IMT plus education and "self-care" exercises (IMTESC), and (3) wait-list control. The main outcome measures were used. Range of motion findings were measured by vernier callipers in millimeters, and pain scores were quantified using an 11-point self-reported graded chronic pain scale. Global reporting of change was a 7-point self-reported scale, balanced positively and negatively around a zero midpoint.

RESULTS:

There were statistically significant differences in resting, opening and clenching pain, opening scores, and global reporting of change ($P < .05$) in both treatment groups compared with the controls at 6 months and 1 year. There were also significant differences between the 2 treatment groups at 1 year."

Monaco A, Cozzolino V, Cattaneo R, Cutilli T, Spadaro A 2008 **Osteopathic manipulative treatment (OMT) effects on mandibular kinetics: kinesiographic study.** Eur J Paediatr Dent Mar;9(1):37-42 <http://www.ncbi.nlm.nih.gov/pubmed/18380529>

"The study was conducted on 28 children with non-specific TMD [temporo-mandibular dysfunction] symptoms, limited mouth opening, history of trauma (delivery trauma, accident trauma). Patients were randomly divided into two groups: an OMT group (study group) and a no-intervention group (control group). All subjects underwent a first kinesiographic recording to evaluate the amplitude and velocity of maximal opening-closing movements. Study group patients underwent a second kinesiographic recording 2 months after OMT. Control group patients were submitted to a control kinesiographic recording six months after the first one. Kinesiographic tracings were acquired using the K7I system."

"The kinesiographic data of the study group showed a moderate statistically significant difference ($p < .07$) of maximal mouth opening (MO) parameter and a high statistically significant difference ($p < .03$) of maximal mouth opening velocity (MOV) parameter. No statistically significant difference (null hypothesis confirmed) of kinesiographic parameters in the control group was observed."

"The results of this study suggest that OMT can induce changes in the stomatognathic dynamics, offering a valid support in the clinical approach to TMD."

Mixed results (significant for some outcomes, not others)

Number
of studies:
1

Cuccia AM, Caradonna C, Annunziata V, Caradonna D 2010 **Osteopathic manual therapy versus conventional conservative therapy in the treatment of temporomandibular disorders: A randomized controlled trial** Journal of Bodywork and Movement Therapies Vol 14 (2) pages 179-184 <http://www.sciencedirect.com/science/article/pii/S1360859209001156>

"We performed a randomized, controlled trial that involved adult patients who had TMD [temporomandibular disorders]."

"Patients were randomly divided into two groups: an OMT group (25 patients, 12 males and 13 females, age 40.6 ± 11.03) and a conventional conservative therapy (CCT) group (25 patients, 10 males and 15 females, age 38.4 ± 15.33)"

"Patients in both groups improved during the six months. The OMT group required significantly less medication (non-steroidal medication and muscle relaxants) ($P < 0.001$)"