

Collected Scientific Research Relating to the Use of Osteopathy with Lung capacity and function

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:
5

Clinically and statistically significant results

Number
of studies:
3

Randomised controlled trials

Number of studies: 1

González-Álvarez FJ, Valenza MC, Cabrera-Martos I, Torres-Sánchez I, Valenza-Demet G, 2015 **Effects of a diaphragm stretching technique on pulmonary function in healthy participants: A randomized-controlled trial** International Journal of Osteopathic Medicine Volume 18, Issue 1, March , Pages 5–12 <http://www.sciencedirect.com/science/article/pii/S1746068914000650>

"The aim of this study was to evaluate the effects of a diaphragm stretching on pulmonary function and respiratory pressures in healthy adults."

"Randomized placebo-controlled trial using a between-groups design."

"The data analysis revealed that all measures significantly ($p < 0.05$) improved from pre- to post-test in the experimental group."

"Diaphragm stretching is able to increase maximal respiratory pressures, forced vital capacity and forced expiratory volume in the first second."

Other controlled clinical trials

Number of studies: 1

Wheatley A, Gosling CM, Gibbons PF 2000 **Investigation of the Effects of Using a Rib Raising Technique on FEV1, and FVC Outcomes in People with Asthma: A Clinical Investigation** Journal of Osteopathic Medicine 3(2): 60-64

"The aim of this study was to identify whether a manual medicine technique could produce a measurable change in ventilatory function in asthma sufferers."

"Pre- and post-intervention FVC [forced vital capacity] and FEV [forced expiratory volume] measures were recorded for both groups. The rib-raising treatment produced a change in FEV1 of 15.8% for the asthma group and 3.8% for the control group, and a change in FVC of 17.5% and 5.7% respectively."

"These findings indicate that rib raising technique increased lung function in all subjects but showed a trend towards a significantly greater improvement in FEV1 and FVC in asthmatic subjects."

Case reports

Number of studies: 1

Goyal M, Goyal K, Narkeesh K, Samuel AJ, Arumugam N, Chatterjee S, Sharma S 2017 **Efficacy of Osteopathic Manipulative Treatment Approach in the Patient with Pulmonary Fibrosis in Critical Care Outpatient Department** Indian Journal of Critical Care Medicine Jul; 21(7): 469–472 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5538099/>

"The purpose of the present case study was to explore the efficacy of osteopathic manipulative treatment (OMT) in patient with pulmonary fibrosis (PF) in the critical care outpatient department. Here, we present a 48-year-old male case with breathlessness, increased frequency of defecation, and pain in and around the nape of neck with diagnosed pulmonary fibrosis. He scored 3 on a patient-reported modified Medical Research Council (mMRC) dyspnea scale. Osteopathic examination reveals multiple somatic findings across the chest and abdominal region and treated by OMT. Pre- and post-intervention changes were assessed by the 13-item shortness of breath with daily activities (13iSOBDA). 27.2, 22, 16.4, and 11.8 were noted at the end of 1st, 2nd, 3rd, and 4th week of intervention, respectively, on 13iSOBDA while mMRC decreased from 3 to 1. OMT may be a feasible option in decreasing the symptoms of the PPF in the critical care outpatient department."

Condition worsened

Number
of studies:
2

Noll DR, Johnson JC, Baer RW, Snider EJ 2009 **The immediate effect of individual manipulation techniques on pulmonary function measures in persons with chronic obstructive pulmonary disease.** *Osteopathic medicine and primary care* Oct 8;3:9 <http://www.ncbi.nlm.nih.gov/pubmed>

"BACKGROUND:

The use of manipulation has long been advocated in the treatment of chronic obstructive pulmonary disease (COPD), but few randomized controlled clinical trials have measured the effect of manipulation on pulmonary function. In addition, the effects of individual manipulative techniques on the pulmonary system are poorly understood. Therefore, the purpose of this study was to determine the immediate effects of four osteopathic techniques on pulmonary function measures in persons with COPD relative to a minimal-touch control protocol.

METHODS:

Persons with COPD aged 50 and over were recruited for the study. Subjects received five, single-technique treatment sessions: minimal-touch control, thoracic lymphatic pump (TLP) with activation, TLP without activation, rib raising, and myofascial release. There was a 4-week washout period between sessions. Protocols were given in random order until all five techniques had been administered. Pulmonary function measures were obtained at baseline and 30-minutes posttreatment. For the actual pulmonary function measures and percent predicted values, Wilcoxon signed rank tests were used to test within-technique changes from baseline. For the percent change from baseline, Friedman tests were used to test for between-technique differences.

RESULTS:

Twenty-five subjects were enrolled in the study. All four tested osteopathic techniques were associated with adverse posttreatment changes in pulmonary function measures; however, different techniques changed different measures. TLP with activation increased posttreatment residual volume compared to baseline, while TLP without activation did not. Side effects were mild, mostly posttreatment chest wall soreness. Surprisingly, the majority of subjects believed they could breathe better after receiving osteopathic manipulation.

CONCLUSION:

In persons with COPD, TLP with activation, TLP without activation, rib raising, and myofascial release mildly worsened pulmonary function measures immediately posttreatment relative to baseline measurements. The activation component of the TLP technique appears to increase posttreatment residual volume. Despite adverse changes in pulmonary function measures, persons with COPD subjectively reported they benefited from osteopathic manipulation."

Noll DR, Degenhardt BF, Johnson JC, Burt SA 2008 **Immediate effects of osteopathic manipulative treatment in elderly patients with chronic obstructive pulmonary disease.** *J Am Osteopath Assoc* May;108(5):251-9 <http://www.ncbi.nlm.nih.gov/pubmed/18519835>

"CONTEXT:

Osteopathic manipulative treatment (OMT) has long been advocated for patients with respiratory disorders, but little definitive evidence exists to support its use in this population.

OBJECTIVE:

To investigate the immediate effect of OMT on pulmonary function parameters in elderly subjects with chronic obstructive pulmonary disease.

METHODS:

Subjects aged 65 years or older with a forced expiratory volume in 1 second to forced vital capacity ratio of less than 70% were recruited and randomly assigned to receive either OMT or sham therapy. The OMT protocol consisted of seven standardized osteopathic manipulative techniques, while the sham therapy protocol comprised light touch applied to the same anatomic regions and for the same duration (20 min). All subjects received baseline and posttreatment pulmonary function testing. A telephone survey was conducted 1 day after the intervention to collect subjective feedback and assess the success of blinding protocols.

RESULTS:

Of the 35 study participants, 18 were randomly assigned to the OMT group and 17 to the sham group. Compared with the sham group, the OMT group showed a statistically significant decrease in the forced expiratory flow at 25% and 50% of vital capacity and at the midexpiratory phase; the expiratory reserve volume; and airway resistance. The OMT group also had a statistically significant increase in the residual volume, total lung capacity, and the ratio of those values compared with the sham group. Most subjects (82%, OMT group; 65%, sham group) reported breathing better after receiving their treatment. Only 53% of subjects in the OMT group and 41% in the sham group correctly guessed their group assignment.

CONCLUSION:

Results suggest an overall worsening of air trapping during the 30 minutes immediately following one multitechnique OMT session relative to the sham group."

It is unclear whether the following journals are peer-reviewed

Number of studies: 2

Clinically and statistically significant results

Number of studies: 2

Randomised controlled trials

Number of studies: 1

Williams K, Gosling C 2008 **An investigation of the lasting effects of thoracic manipulation and rib raising on spirometric measurements of asymptomatic participants** Victoria University Research Repository 04 Sep 2008 23:13 <http://vuir.vu.edu.au/933/>

"Although research has been undertaken into the effects of manual intervention on common respiratory conditions, very little research has been undertaken into whether manual therapy can produce a significant improvement in the respiratory function of asymptomatic volunteers one week after the manual intervention. To test whether a relationship exists between the effects of thoracic HVLA and rib raising (RR) on the pulmonary function of asymptomatic volunteers one week after the manual intervention, 38 participants (males = 25, females = 13) were randomly assigned to either a HVLA (n=11), RR (n=14) or a HVLA + RR group (n=13). Statistically significant increases were observed in both FVC ($p=0.005$) and FEV1 ($p=0.002$) within each of the three groups over time (pre-test, post-test, 1 week). However, no significant increases were found neither in the chest diameter values within the three treatment groups with respect to time nor between the three groups at any of the three time periods. The greatest increases in percentage change occurred in FEV1 and FVC values at the 1 week time period, particularly for the HVLA + RR and the RR group in which respective FEV1 increases of 10.5% and 7.41% occurred. The results of this study suggest that HVLA and rib raising ought to be equally effective in improving the pulmonary function of asymptomatic individuals, given that no statistically significant difference was found between the mean FEV1 and FVC values within the 3 groups over time. Since previous research shows that rib raising produces within subject increases in both FEV1 and FVC over time that are statistically significant in asthmatics, it may be possible to infer that HVLA may be as useful an adjunct as rib raising in the long-term management of stable asthma. This minor thesis was written by a post-graduate student as part of the requirements of the Master of Health Science (Osteopathy) program."

Albones E, Gosling C, Cornall D 2005 **The Short and Intermediate Term Effect of Rib Raising on Lung Function on a Child with Asthma: A Comparison Case Study** Osteopathic Medicine, School of Health Sciences, Victoria University, Melbourne (unpublished thesis) http://vuir.vu.edu.au/740/1/Albones_et.al_2005.pdf

This was a very limited study with only two subjects. At the same time, it did include a control (one of the subjects). It is not published in a peer-reviewed journal.

"Objective: The aim of this study was to determine whether the use of a specific manual therapy technique, rib raising, could produce short and intermediate term improvements in the lung function in children with chronic asthma.

Clinical Features: A comparative single case study was carried out between two asthmatic children aged 16-17, both with a long history of mild asthma requiring the use of ventolin up to five times a week.

Intervention: One received the rib raising technique and the other a sham technique. Pre and post treatment FEV1 and FVC were recorded for both participants over the short and intermediate term.

Outcomes: The rib raising participant showed, in the short term (20 minutes post treatment), up to a 13.81% increase in FVC and up to an 18.37% increase in FEV1 compared to the sham technique of 3.48% and 8.28%, respectively. In the intermediate term (one week post treatment) the rib raising improved FVC by 10.49% and FEV1 by 24.90%, while the sham yielded FVC improvements of 0.87% and FEV1 of 5.73%. Overall FEV1/FVC increased by 8% in the rib raising compared to only 3% in the sham technique.

Conclusions: These results demonstrate that rib raising produce an increase in the lung function of an asthmatic child in the short and intermediate term.