

Collected Scientific Research Relating to the Use of Osteopathy with Pneumonia

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.

More research is being done all of the time. I am not aware of any research which shows that osteopathic treatment, delivered by a qualified osteopath, is ineffective in relation to this area. If you are aware of any studies that show that, please bring them to my attention.

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: 8

Clinically and statistically significant results

Number of studies: 7

Other reviews

Number of studies: 2

Yao S, Hassani J, Gagne M, George G, Gilliar W. 2014 **Osteopathic manipulative treatment as a useful adjunctive tool for pneumonia.** *J Vis Exp* May 6;(87) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4173698/>

"Under the current Infectious Disease Society of America/American Thoracic Society guidelines, standard-of-care recommendations include the rapid administration of an appropriate antibiotic regiment, fluid replacement, and ventilation (if necessary). Non-standard therapies include the use of corticosteroids and statins; however, these therapies lack conclusive supporting evidence (4). (Figure 1) Osteopathic Manipulative Treatment (OMT) is a cost-effective adjunctive treatment of pneumonia that has been shown to reduce patients' length of hospital stay, duration of intravenous antibiotics, and incidence of respiratory failure or death when compared to subjects who received conventional care alone (5). The use of manual manipulation techniques for pneumonia was first recorded as early as the Spanish influenza pandemic of 1918, when patients treated with standard medical care had an estimated mortality rate of 33%, compared to a 10% mortality rate in patients treated by osteopathic physicians (6). When applied to the management of pneumonia, manual manipulation techniques bolster lymphatic flow, respiratory function, and immunological defense by targeting anatomical structures involved in these systems (7,8, 9, 10). The objective of this review video-article is three-fold: a) summarize the findings of randomized controlled studies on the efficacy of OMT in adult patients with diagnosed pneumonia, b) demonstrate established protocols utilized by osteopathic physicians treating pneumonia, c) elucidate the physiological mechanisms behind manual manipulation of the respiratory and lymphatic systems. Specifically, we will discuss and demonstrate four routine techniques that address autonomics, lymph drainage, and rib cage mobility: (1) Rib Raising, (2) Thoracic Pump, (3) Doming of the Thoracic Diaphragm, and (4) Muscle Energy for Rib 1."

Perez LL, A.Sneed J, Eland D, 2012 **Evidence-based osteopathic manipulative treatment for common conditions** *Osteopathic Family Physician* Volume 4, Issue 1, January–February, Pages 8-12 <https://www.sciencedirect.com/science/article/pii/S1877573X11002188>

"Osteopathic manipulative treatment (OMT) is a unique aspect of osteopathic medicine that has served as a useful adjunct to traditional surgical and pharmacological treatment of medical conditions for more than 100 years. Using an approach based on five basic body functions, as well as traditional modern medical and surgical therapeutics, OMT enhances the body's innate ability to fight inflammation and other systemic results of disease states. OMT has been shown to be a safe and cost-effective treatment for back pain, in particular for patients who have continued pain despite standard treatments and for those who are unable or unwilling to take pain relievers. For patients with pneumonia, OMT can reduce the need for potentially dangerous antibiotics and reduce the length of a patient's hospital stay. In addition, in children with otitis media, OMT can be used as an adjunct to antibiotic and surgical treatment to decrease

morbidity, reduce antibiotic usage, and decrease the discomfort associated with the symptoms of a middle ear infection."

Randomised controlled trials

Number of studies: 3

Noll DR, Degenhardt BF, Johnson JC 2016 **Multicenter Osteopathic Pneumonia Study in the Elderly: Subgroup Analysis on Hospital Length of Stay, Ventilator-Dependent Respiratory Failure Rate, and In-hospital Mortality Rate.** J Am Osteopath Assoc Sep 1;116(9):574-87 <http://jaoa.org/Issue.aspx#issueid=935682>

"Context: Osteopathic manipulative treatment (OMT) is a promising adjunctive treatment for older adults hospitalized for pneumonia.

Objective: To report subgroup analyses from the Multicenter Osteopathic Pneumonia Study in the Elderly (MOPSE) relating to hospital length of stay (LOS), ventilator-dependent respiratory failure rate, and in-hospital mortality rate.

Design: Multicenter randomized controlled trial. Setting: Seven community hospitals.

Participants: Three hundred eighty-seven patients aged 50 years or older who met specific criteria for pneumonia on hospital admission.

Interventions: Participants were randomly assigned to 1 of 3 groups that received an adjunctive OMT protocol (n=130), a light touch (LT) protocol (n=124), or conventional care only (CCO) (n=133).

Main Outcome Measures: Outcomes for subgroup analyses were LOS, ventilator-dependent respiratory failure rate, and in-hospital mortality rate. Subgroups were age (50-74 years or ≥75 years), Pneumonia Severity Index (PSI) class (I-II, III, IV, or V), and type of pneumonia (community-acquired or nursing-home acquired). Data were analyzed by intention-to-treat and per-protocol analyses using stratified Cox proportional hazards models and Cochran-Mantel-Haenszel tests for general association. Results: By per-protocol analysis of the younger age subgroup, LOS was shorter for the OMT group (median, 2.9 days; n=43) than the LT (median, 3.7 days; n=45) and CCO (median, 4.0 days; n=65) groups (P=.006). By intention-to-treat analysis of the older age subgroup, in-hospital mortality rates were lower for the OMT (1 of 66 [2%]) and LT (2 of 68 [3%]) groups than the CCO group (9 of 67 [13%]) (P=.005). By per-protocol analysis of the PSI class IV subgroup, the OMT group had a shorter LOS than the CCO group (median, 3.8 days [n=40] vs 5.0 days [n=50]; P=.01) and a lower ventilator-dependent respiratory failure rate than the CCO group (0 of 40 [0%] vs 5 of 50 [10%]; P=.05). By intention-to-treat analysis, in-hospital mortality rates in the PSI class V subgroup were lower (P=.05) for the OMT group (1 of 22 [5%]) than the CCO group (6 of 19 [32%]) but not the LT group (2 of 15 [13%]).

Conclusion: Subgroup analyses suggested adjunctive OMT for pneumonia reduced LOS in adults aged 50 to 74 years and lowered in-hospital mortality rates in adults aged 75 years or older. Adjunctive OMT may also reduce LOS and in-hospital mortality rates in older adults with more severe pneumonia. Interestingly, LT also reduced in-hospital mortality rates in adults aged 75 years or older relative to CCO. (ClinicalTrials.gov number NCT00258661)"

Noll DR, Degenhardt BF, Morley TF, Blais FX, Hortos KA, Hensel K, Johnson JC, Pasta DJ, Stoll ST. 2010 **Efficacy of osteopathic manipulation as an adjunctive treatment for hospitalized patients with pneumonia: a randomized controlled trial.** Osteopathic medicine and primary care Mar 19;4:2 <http://www.ncbi.nlm.nih.gov/pubmed/20302619>

"The Multicenter Osteopathic Pneumonia Study in the Elderly (MOPSE) is a registered, double-blinded, randomized, controlled trial designed to assess the efficacy of osteopathic manipulative treatment (OMT) as an adjunctive treatment in elderly patients with pneumonia."

"406 subjects aged ≥ 50 years hospitalized with pneumonia at 7 community hospitals were randomized using concealed allocation to conventional care only (CCO), light-touch treatment (LT), or OMT groups. All subjects received conventional treatment for pneumonia. OMT and LT groups received group-specific protocols for 15 minutes, twice daily until discharge, cessation of antibiotics, respiratory failure, death, or withdrawal from the study. The primary outcomes were

hospital length of stay (LOS), time to clinical stability, and a symptomatic and functional recovery score."

"Analysis found significant reductions in LOS [length of stay], duration of intravenous antibiotics, and respiratory failure or death when OMT was compared to CCO [conventional care only]. "

Noll DR, Shores JH, Gamber RG, Herron KM, Swift J Jr. 2000 **Benefits of osteopathic manipulative treatment for hospitalized elderly patients with pneumonia.** J Am Osteopath Assoc Dec;100(12):776-82 <http://www.ncbi.nlm.nih.gov/pubmed/11213665>

"While osteopathic manipulative treatment (OMT) is thought to be beneficial for patients with pneumonia, there have been few clinical trials--especially in the elderly. The authors' pilot study suggested that duration of intravenous antibiotic use and length of hospital stay were promising measures of outcome. Therefore, a larger randomized controlled study was conducted. Elderly patients hospitalized with acute pneumonia were recruited and randomly placed into two groups: 28 in the treatment group and 30 in the control group. The treatment group received a standardized OMT protocol, while the control group received a light touch protocol. There was no statistical difference between groups for age, sex, or simplified acute physiology scores. The treatment group had a significantly shorter duration of intravenous antibiotic treatment and a shorter hospital stay."

Non-human studies

Number of studies: 2

Hodge LM, Creasy C, Carter K, Orlowski A, Schander A, King HH, 2015 **Lymphatic Pump Treatment as an Adjunct to Antibiotics for Pneumonia in a Rat Model** J Am Osteopath Assoc May Vol. 115, 306-316 <http://jaoa.org/article.aspx?articleID=2291219>

"Rats were infected intranasally with 5×10^7 colony-forming units (CFU) of *Streptococcus pneumoniae*. At 24, 48, and 72 hours after infection, the rats received no therapy (control), 4 minutes of sham therapy, or 4 minutes of LPT, followed by subcutaneous injection of 40 mg/kg of levofloxacin or sterile phosphate-buffered saline. At 48, 72, and 96 hours after infection, the spleens and lungs were collected, and *S pneumoniae* CFU were enumerated. Blood was analyzed for a complete blood cell count and leukocyte differential count."

"The combination of sham therapy and levofloxacin decreased bacterial load at 72 and 96 hours after infection, and LPT and levofloxacin significantly reduced CFU compared with sham therapy and levofloxacin at both time points ($P < .05$)."

"The results suggest that 3 applications of LPT induces an additional protective mechanism when combined with levofloxacin and support its use as an adjunctive therapy for the management of pneumonia; however, the mechanism responsible for this protection is unclear."

Creasy C, Schander A, Orlowski A, Hodge LM. 2013 **Thoracic and abdominal lymphatic pump techniques inhibit the growth of *S. pneumoniae* bacteria in the lungs of rats.** Lymphat Res Biol Sep;11(3):183-6 <http://www.ncbi.nlm.nih.gov/pubmed/24024572>

"Our data demonstrate that LPT [lymphatic pump technique] may protect against pneumonia by inhibiting bacterial growth in the lung; however, the mechanism of protection is unclear. Once these mechanisms are understood, LPT can be optimally applied to patients with pneumonia, which may substantially reduce morbidity, mortality, and frequency of hospitalization."

Mixed results (significant for some outcomes, not others)

Number of studies: 1

Noll DR, Shores J, Bryman PN, Masterson EV. 1999 **Adjunctive osteopathic manipulative treatment in the elderly hospitalized with pneumonia: a pilot study.** J Am Osteopath Assoc Mar;99(3):143-6, 151-2 <http://www.ncbi.nlm.nih.gov/pubmed/10217908>

"To evaluate the benefit of osteopathic manipulative treatment in the elderly with pneumonia, the authors recruited 21 individuals older than 60 years who were hospitalized with acute pneumonia. Eleven patients were randomly assigned to the treatment group and ten to the control group. The treatment group received specific osteopathic manipulative treatment for somatic dysfunction and a standardized treatment protocol. Both groups received conventional therapy, and the attending physician was blind to group assignments. No significant difference existed between groups for age, sex, or severity of illness. Although the mean duration of leukocytosis, intravenous antibiotic treatment, and length of stay were shorter for the treatment group, these measures did not reach statistical significance. However, the mean duration of oral antibiotic use did reach statistical significance at 3.1 days for the treatment group and 0.8 day for the control group. Osteopathic manipulative treatment may reduce antibiotic use and length of stay; however, a larger study is needed to clarify this outcome."