

# Collected Scientific Research Relating to the Use of Osteopathy with Pregnancy and child birth

## 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: 26

## Clinically and statistically significant results

Number of studies: 23

### Systematic reviews

Number of studies: 2

Lanaro D, Ruffini N, Manzotti A, Lista G 2017 **Osteopathic manipulative treatment showed reduction of length of stay and costs in preterm infants: A systematic review and meta-analysis.** *Medicine (Baltimore)* Mar;96(12):e6408 [http://journals.lww.com/md-journal/Fulltext/2017/03240/Osteopathic\\_manipulative\\_treatment\\_showed.43.aspx](http://journals.lww.com/md-journal/Fulltext/2017/03240/Osteopathic_manipulative_treatment_showed.43.aspx)

"Background: Osteopathic medicine is an emerging and complementary method used in neonatology.

Methods: Outcomes were the mean difference in length of stay (LOS) and costs between osteopathy and alternative treatment group. A comprehensive literature search of (quasi)-randomized controlled trials (RCTs), was conducted from journal inception to May, 2015. Eligible studies must have treated preterm infants directly in the crib or bed and Osteopathic Manipulative Treatment (OMT) must have been performed by osteopaths. A rigorous Cochrane-like method was used for study screening and selection, risk of bias assessment and data reporting. Fixed effect meta-analysis was performed to synthesize data.

Results: 5 trials enrolling 1306 infants met our inclusion criteria. Although the heterogeneity was moderate ( $I^2=61\%$ ,  $P=0.03$ ), meta-analysis of all five studies showed that preterm infants treated with OMT had a significant reduction of LOS by 2.71 days (95% CI  $-3.99$ ,  $-1.43$ ;  $P<0.001$ ). Considering costs, meta-analysis showed reduction in the OMT group ( $-1,545.66\text{€}$ ,  $-1,888.03\text{€}$ ,  $-1,203.29\text{€}$ ,  $P<0.0001$ ). All studies reported no adverse events associated to OMT. Subgroup analysis showed that the benefit of OMT is inversely associated to gestational age. Conclusions: The present systematic review showed the clinical effectiveness of OMT on the reduction of LOS and costs in a large population of preterm infants."

HelgeFranke H, Franke J, Belz S, GaryFryer G 2017 **Osteopathic manipulative treatment for low back and pelvic girdle pain during and after pregnancy: A systematic review and meta-analysis** *Journal of Bodywork and Movement Therapies* Volume 21, Issue 4, October, Pages 752-762 <https://www.sciencedirect.com/science/article/pii/S1360859217301146>

"Background

Low back pain (LBP) is a common complaint during pregnancy. This study examined the effectiveness of osteopathic manipulative treatment (OMT) for LBP in pregnant or postpartum women.

Methods

Randomized controlled trials unrestricted by language were reviewed. Outcomes were pain and functional status. Mean difference (MD) or standard mean difference (SMD) and overall effect size were calculated.

Results

Of 102 studies, 5 examined OMT for LBP in pregnancy and 3 for postpartum LBP. Moderate-quality evidence suggested OMT had a significant medium-sized effect on decreasing pain (MD,

-16.65) and increasing functional status (SMD, -0.50) in pregnant women with LBP. Low-quality evidence suggested OMT had a significant moderate-sized effect on decreasing pain (MD, -38.00) and increasing functional status (SMD, -2.12) in postpartum women with LBP.

#### Conclusions

This review suggests OMT produces clinically relevant benefits for pregnant or postpartum women with LBP. Further research may change estimates of effect, and larger, high-quality randomized controlled trials with robust comparison groups are recommended."

## Other reviews

Number of studies: 1

Lavelle JM 2012 **Osteopathic manipulative treatment in pregnant women.** J Am Osteopath Assoc Jun;112(6):343-6 <http://www.ncbi.nlm.nih.gov/pubmed/22707643>

"Pregnant women experience extensive physiologic and structural changes during pregnancy that affect their daily functioning. The addition of osteopathic manipulative treatment (OMT) to the standard care of pregnant women has been hypothesized to enhance homeostasis and improve quality of life as the body adapts to these changes. Specifically, it has been postulated that OMT can ease pain in pregnant women by eliminating somatic dysfunction and maintaining proper structure. Also, through the viscerosomatic connection, the hemodynamic changes of the maternal body can be controlled, the duration of labor reduced, and the complications of labor avoided. The author reviews the available literature on the use and effectiveness of OMT during pregnancy."

## Randomised controlled trials

Number of studies: 8

Herzhaft-Le Roy J, Xhignesse M, Gaboury I. 2016 **Efficacy of an Osteopathic Treatment Coupled With Lactation Consultations for Infants' Biomechanical Sucking Difficulties.** J Hum Lact Dec 1:890334416679620 <https://www.ncbi.nlm.nih.gov/pubmed/28027445/>

#### "Abstract

##### BACKGROUND:

Despite well-known recommendations from national and international bodies including the World Health Organization, few mothers achieve the goal of breastfeeding exclusively for 6 months. Half of mothers stop breastfeeding due to biomechanical issues in the first month, despite increasing support from lactation consultants. Osteopaths worldwide work with these babies, but there is little empirical evidence for this type of treatment. Research aim: This study aimed to determine the efficacy of an osteopathic treatment coupled with usual lactation consultations on infants' ability to latch. Secondary objectives included assessment of nipple pain and mothers' perceptions of the effect of treatment.

##### METHODS:

We conducted a single blind, randomized controlled trial at a mother-to-mother support group between January and December 2015. Data were collected at four different times over a 10-day period (T0-T10) from 97 mother-infant dyads using the LATCH assessment tool, a visual analog scale (VAS) to document mothers' nipple pain, and a de novo questionnaire for breastfeeding management and potential treatment side effects.

##### RESULTS:

There were consistent statistical and clinical differences in the mean LATCH scores between the treatment and the control groups ( $p < .001$ ). However, no significant differences in the VAS scores were reported over time ( $p = .713$ ). Mothers reported no serious or unexpected side effects during the follow-up period.

##### CONCLUSION:

This study is one of the first to bring together lactation consultants and osteopaths to address infants with biomechanical sucking difficulties. Findings support the hypothesis that the addition of osteopathy to regular lactation consultations is beneficial and safe."

Schwerla F, Rother K, Rother D, Ruetz M, Resch KL 2015 **Osteopathic Manipulative Therapy**

15/7/2018

Collected by John Smartt (<http://smarttosteopath.com>)

"A pragmatic randomized controlled trial was conducted among a sample of women with a history of pregnancy-related LBP [low back pain] for at least 3 months after delivery. "

"During 8 weeks, OMTh [osteopathic manipulative therapy] applied 4 times led to clinically relevant positive changes in pain intensity and functional disability in women with post-partum LBP."

"At each visit, OMTh was applied only to those structures with relevant osteopathic findings. Standard OMTh techniques were applied, including direct (high-velocity, low-amplitude; muscle energy; and myo-fascial release), indirect (functional techniques and balanced ligamentous tension), visceral, and cranial techniques. No predefined, standardized OMTh protocol was implemented; each osteopath was free to decide which techniques to use. Participants were not allowed to receive any additional treatment (ie, medication, physical therapy, or other sources of pain relief) during the study period. Participants in the control group did not receive OMTh, nor were they evaluated for somatic dysfunctions during the 8-week study period. At the first visit, control participants were required to fill out the VAS and ODI. The osteopath then told them that they would be placed on a waiting list for OMTh to be scheduled 2 months later. At 2 months, the control participants filled out the VAS and ODI for the second time. During the study period, participants were not allowed to receive any additional treatment for pain relief (eg, medication, physical therapy, or other sources of pain relief). After study completion, they were offered 2 free appointments for OMTh."

"During 8 weeks, OMTh applied 4 times led to clinically relevant positive changes in pain intensity and functional disability in women with post-partum LBP. "

Pizzolorusso G, Cerritelli F, Accorsi A, Lucci C, Tubaldi L, Lancellotti J, Barlafante G, Renzetti C, D'Incecco C, Perri FP 2014 **The Effect of Optimally Timed Osteopathic Manipulative Treatment on Length of Hospital Stay in Moderate and Late Preterm Infants: Results from a RCT.** Journal of Evidence-Based Complementary & Alternative Medicine 2014:243539 <http://www.ncbi.nlm.nih.gov/pubmed/25506381>

"Little research has been conducted looking at the effects of osteopathic manipulative treatment (OMT) on preterm infants. Aim of the Study. This study hypothesized that osteopathic care is effective in reducing length of hospital stay and that early OMT produces the most pronounced benefit, compared to moderately early and late OMT. A secondary outcome was to estimate hospital cost savings by the use of OMT. Methods. 110 newborns ranging from 32- to 37-week gestation were randomized to receive either OMT or usual pediatric care. Early, moderately early, and late OMT were defined as <4, <9, and <14 days from birth, respectively. Result. Hospital stay was shorter in infants receiving late OMT (-2.03; 95% CI -3.15, -0.91; P < 0.01) than controls. Subgroup analysis of infants receiving early and moderately early OMT resulted in shorter LOS (early OMT: -4.16; -6.05, -2.27; P < 0.001; moderately early OMT: -3.12; -4.36, -1.89; P < 0.001). Costs analysis showed that OMT significantly produced a net saving of €740 (-1309.54, -170.33; P = 0.01) per newborn per LOS. Conclusions. This study shows evidence that the sooner OMT is provided, the shorter their hospital stay is. There is also a positive association of OMT with overall reduction in cost of care."

Licciardone JC, Aryal S 2013 **Prevention of progressive back-specific dysfunction during pregnancy: an assessment of osteopathic manual treatment based on Cochrane Back Review Group criteria.** J Am Osteopath Assoc Oct;113(10):728-36 <http://www.ncbi.nlm.nih.gov/pubmed/24084800>

"A randomized sham-controlled trial including 3 parallel treatment arms: usual obstetric care and OMT (UOBC+OMT), usual obstetric care and sham ultrasound therapy (UOBC+SUT), and usual obstetric care (UOBC)."

"A total of 144 patients were randomly assigned"

"Progressive back-specific dysfunction was defined as a 2-point or greater increase in the Roland-Morris Disability Questionnaire (RMDQ) score during the third trimester of pregnancy."

Risk ratios (RRs) and 95% confidence intervals (CIs) were used to compare progressive back-specific dysfunction in patients assigned to UOBC+OMT relative to patients assigned to UOBC+SUT or UOBC. Numbers needed to treat (NNTs) and 95% CIs were also used to assess UOBC+OMT vs each comparator. Subgroup analyses were performed using median splits of baseline scores on a numerical rating scale for back pain and the RMDQ."

"Overall, 68 patients (47%) experienced progressive back-specific dysfunction during the third trimester of pregnancy. Patients who received UOBC+OMT were significantly less likely to experience progressive back-specific dysfunction (RR, 0.6; 95% CI, 0.3-1.0; P=.046 vs UOBC+SUT; and RR, 0.4; 95% CI, 0.2-0.7; P<.0001 vs UOBC). The effect sizes for UOBC+OMT vs UOBC+SUT and for UOBC+OMT vs UOBC were classified as medium and large, respectively. The corresponding NNTs for UOBC+OMT were 5.1 (95% CI, 2.7-282.2) vs UOBC+SUT; and 2.5 (95% CI, 1.8-4.9) vs UOBC. There was no statistically significant interaction between subgroups in response to OMT."

"Osteopathic manual treatment has medium to large treatment effects in preventing progressive back-specific dysfunction during the third trimester of pregnancy. The findings are potentially important with respect to direct health care expenditures and indirect costs of work disability during pregnancy."

Licciardone JC, Buchanan S, Hensel KL, King HH, Fulda KG, Stoll ST, 2010 **Osteopathic manipulative treatment of back pain and related symptoms during pregnancy: a randomized controlled trial** American Journal of Obstetrics and Gynecology Volume 202, Issue 1, January , Pages 43.e1–43.e8 <http://www.sciencedirect.com/science/article/pii/S0002937809008436>

"A randomized, placebo-controlled trial was conducted to compare usual obstetric care and osteopathic manipulative treatment, usual obstetric care and sham ultrasound treatment, and usual obstetric care only. Outcomes included average pain levels and the Roland-Morris Disability Questionnaire to assess back-specific functioning."

"During pregnancy, back pain decreased in the usual obstetric care and osteopathic manipulative treatment group, remained unchanged in the usual obstetric care and sham ultrasound treatment group, and increased in the usual obstetric care only group, although no between-group difference achieved statistical significance."

"Osteopathic manipulative treatment slows or halts the deterioration of back-specific functioning during the third trimester of pregnancy."

Cerritelli F, Pizzolorusso G, Ciardelli F, La Mola E, Cozzolino V, Renzetti C, D'Incecco C, Fusilli P, Sabatino G, Barlafante G 2013 **Effect of osteopathic manipulative treatment on length of stay in a population of preterm infants: a randomized controlled trial**. BMC Pediatr Apr 26;13:65 <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3648440/>

"The term osteopathic manipulative treatment (OMT) currently encompasses more than twenty types of osteopath-performed manual treatments. The OMT techniques of choice in treating preterm infants are myofascial release, balanced ligamentous/membranous tension, indirect fluidic and v-spread."

"In the present study, 8 osteopathic practitioners were involved and randomly divided in two groups: 4 osteopaths performing the evaluation (group A), and 4 osteopaths performing the evaluation and the treatment (group B). Osteopaths from group A and B entered to the NICU in different hours of the schedule days, to provide blinding and to avoid possible confounding. None of the osteopathic practitioners were involved in the study design, data entry or statistical analysis. In addition all practitioners, except for the treating osteopath, were unaware of patients allocation."

"Results showed a significant association between OMT [osteopathic manipulative therapy] and LOS [length of stay] reduction (mean difference between treated and control group: -5.906; 95% C.I. -7.944, -3.869; p<0.001). OMT was not associated to any change in daily weight gain."

"The present study suggests that OMT may have an important role in the management of preterm infants hospitalization."

Cerritelli F, Pizzolorusso G, Ciardelli F, Mola EL, Renzetti C, Cozzolino V, Barlafante G 2012  
15/7/2018

Collected by John Smartt (<http://smarttosteopath.com>)

**Neonatology-Osteopathy (Ne-O) Study: RCT on the Effect of Osteopathic Manipulative Treatment on Length of Stay** BMC Complement Altern Med 12(Suppl 1): O36 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3373670/>

**Background and Aims** The use of osteopathic manipulative treatment (OMT) in preterm infants has been documented and results from previous studies suggest the association between OMT and length of stay (LOS) reduction, as well as significant improvement in several clinical outcomes. The aim of the present study is to show the effect of OMT on LOS in a sample of premature infants.

**Methods** A double blinded randomized controlled trial was conducted on preterm newborns admitted in a single NICU between 2010–2011. N=51 subjects free of medical complications and with gestational age >28 and < 38 weeks were enrolled and randomized in two groups: study group (N=21) and control group (N=30). All subjects received routine pediatric care and OMT was performed to the study group for the entire period of hospitalization. Endpoints of the study included differences in LOS and daily weight gain.

**Results** Results showed a significant association between OMT and LOS reduction (mean difference between treated and control group: -1.787; 95% c.i. -3.555, -0.0015; p<0.05). OMT was not associated to any change in daily weight gain.

**Conclusions** The present study confirms that OMT could play an important role in the management of preterm infants hospitalization."

**Guthrie RA, Martin RH 1982 Effect of pressure applied to the upper thoracic (placebo) versus lumbar areas (osteopathic manipulative treatment) for inhibition of lumbar myalgia during labor** J Am Osteopath Assoc 82(4):247-251 <http://jaoa.org/article.aspx?articleid=2097814>

"In a study of five hundred women during labor, 352 experienced pain in the lumbar area during labor, an incidence of 70.4 percent. One of the most interesting findings of the study was the association of back pain during labor and abnormal fetal presentation. Application of pressure to the lumbar area to inhibit lumbar pain reduced the need for major narcotic pain medication and minor tranquilizing medication. The placebo treatment project was compared to lumbar treatment for pain relief of lumbar myalgia."

"Concerning back pressure, the technique had no significant effect on length of labor. However, the subjective evaluation of the technique by the patient noted its effectiveness at an average of 81 percent. Also subjectively, 88 percent of those women who used back pressure for back pain during labor stated that they needed less pain medication than anticipated during labor because they were given the back pressure technique. Objectively, there was a marked decrease in pain medication given to women with back pain during labor who were given the back pressure technique. Less than one-half of the minor tranquilizing medication (Vistaril) and almost one-third less major narcotic pain medication was used when back pain during labor was treated with back pressure in the lumbar area."

Hastings V, McCallister AM, Curtis SA, Valant RJ, Yao S. 2016 **Efficacy of Osteopathic Manipulative Treatment for Management of Postpartum Pain.** J Am Osteopath Assoc Aug 1;116(8):502-9 <https://www.ncbi.nlm.nih.gov/pubmed/27455099>

"Pain is one of the most common postpartum complaints by women in the United States, and the pain varies in its location. Research on intervention strategies for postpartum pain has focused primarily on the lower back, but pain management for other types of postpartum pain remains unclear.

**OBJECTIVE:**

To investigate the effects of osteopathic manipulative treatment (OMT) on postpartum pain; the location, quality, and timing of pain; and the difference in pain between vaginal and cesarean delivery.

**METHODS:**

Postpartum patients who reported having pain were recruited at St Barnabas Hospital in Bronx, New York. The short-form McGill Pain Questionnaire was administered along with a screening questionnaire. Second- or third-year residents in neuromusculoskeletal medicine and osteopathic manipulative medicine examined patients and then diagnosed and managed somatic dysfunction with OMT for approximately 25 minutes. The short-form McGill Pain Questionnaire was again administered after OMT. Paired t tests and McNemar tests were used to analyze changes before and after OMT for continuous and categorical variables, respectively. Differences in visual analog scale (VAS) pain scores between patients who had vaginal vs cesarean delivery were tested using analysis of variance, and group differences in pain location were tested using a Pearson  $\chi^2$  test.

**RESULTS:**

A total of 59 patients were included in the study. The mean VAS score for pain was 5.0 before OMT and 2.9 after OMT ( $P < .001$ ). The VAS scores before OMT significantly differed between patients who had a vaginal delivery and those who had a cesarean delivery ( $P < .001$ ), but the mean decrease in VAS score was similar in both groups. Decreases in low back pain (34 [57.6%] before and 16 [27.1%] after OMT), abdominal pain (32 [54.2%] before and 22 [37.3%] after OMT), and vaginal pain (11 [18.6%] before and 5 [8.5%] after OMT) were reported after OMT ( $P < .05$ ).

**CONCLUSION:**

Preliminary results demonstrate that OMT is efficacious for postpartum pain management. The lack of a control group precludes the ability to make causal claims. Future studies are needed to solidify OMT efficacy and generalizability."

Pizzolorusso G, Turi P, Barlafante G, Cerritelli F, Renzetti C, Cozzolino V, D'Orazio M, Fusilli P, Carcini F, D'Incecco C 2011 **Effect of osteopathic manipulative treatment on gastrointestinal function and length of stay of preterm infants: an exploratory study** Chiropractic and Manual Therapies 19:15 <https://www.ncbi.nlm.nih.gov/pubmed/21711535>

"Osteopaths performing OMT [osteopathic manipulative treatment] were trained to use only indirect and fluidic techniques which included: indirect myofascial, sutural spread, balanced membranous tension and balanced ligamentous tension (according to teachings of William Garner Sutherland, DO, and others)."

"The study suggests that osteopathic treatment may reduce a high occurrence of gastrointestinal symptoms and the rates of long-term stays."

Norén L, Ostgaard S, Nielsen TF, Ostgaard HC 1997 **Reduction of sick leave for lumbar back and posterior pelvic pain in pregnancy** Spine 22(18):2157-2160 <http://www.ncbi.nlm.nih.gov/pubmed/9322326>

"In this prospective, consecutive, controlled cohort study, the authors analyzed the impact of a differentiated, individual-based treatment program on sick leave during pregnancy for women

experiencing lumbar back or posterior pelvic pain during pregnancy."

"All pregnant women who attended a specific antenatal clinic and experienced lumbar back or posterior pelvic pain were included in an intervention group, and results were compared with women in a control group from another antenatal clinic."

"The intervention group comprised 54 women, compared with 81 women in the control group. Thirty-three women were on sick leave for an average of 30 days in the intervention group versus 45 women for an average of 54 days in the control group ( $P < 0.001$ ). The reduction in sick leave reduced insurance costs by approximately \$53,000 U.S."

"Sick leave for lumbar back and posterior pelvic pain in the intervention group was significantly reduced with the program, and the program was cost effective."

## Cohort studies

Number of studies: 3

King HH, Tettambel MA, Lockwood MD, Johnson KH, Arsenault DA, Quist R 2003 **Osteopathic manipulative treatment in prenatal care: a retrospective case control design study** J Am Osteopath Assoc 103(12):577-582 <http://www.ncbi.nlm.nih.gov/pubmed/14740980>

"The use of osteopathic manipulative treatment (OMT) during pregnancy has a long tradition in osteopathic medicine. A retrospective study was designed to compare a group of women who received prenatal OMT with a matched group that did not receive prenatal OMT. The medical records of 160 women from four cities who received prenatal OMT were reviewed for the occurrence of meconium-stained amniotic fluid, preterm delivery, use of forceps, and cesarean delivery. The randomly selected records of 161 women who were from the same cities, but who did not receive prenatal OMT, were reviewed for the same outcomes. The results of a logistic regression analysis were statistically reliable,  $\chi^2(4, N = 321) = 26.55$ ;  $P < .001$ , indicating that the labor and delivery outcomes, as a set, were associated with whether OMT was administered during pregnancy."

"The case control study found evidence of improved outcomes in labor and delivery for women who received prenatal OMT, compared with women who did not. A prospective study is proposed as the next step in evaluating the effects of prenatal OMT."

Diakow PR, Gadsby TA, Gadsby JB, Gleddie JG, Leprich DJ, Scales AM 1991 **Back pain during pregnancy and labor** Journal of Manipulative and Physiological Therapeutics 14(2):116-118 <http://www.ncbi.nlm.nih.gov/pubmed/1826921>

"A retrospective study of 400 pregnancies and deliveries was undertaken by interview of 170 consecutive female patients presenting to five chiropractic offices in the Niagara Peninsula. Back pain was reported during 42.5% (170) of the pregnancies and 44.7% (179) of the deliveries. There was a statistically significant association between back pain during the two events ( $p$  less than .001). Of the 170 pregnancies with reported back pain, 72% (122) also reported back labor. A subsample of 170 painful pregnancies was divided into those that had received manual manipulation and those that had not. The treated group experienced less pain during labor ( $p$  less than .001)."

Harrison RE, Page JS 2011 **Multipractitioner Upledger CranioSacral Therapy: descriptive outcome study 2007-2008**. The Journal of Alternative and Complementary Medicine Jan;17(1):13-7 <http://www.ncbi.nlm.nih.gov/pubmed/21214395>

"Outcome by diagnostic groups suggested that UCST [Upledger craniosacral therapy] is particularly effective for patients with headaches and migraine, neck and back pain, anxiety and depression, and unsettled babies. Seventy percent (70%) of patients on medication decreased or discontinued it, and patients' average general practitioner consultation rate fell by 60% in the 6 months following treatment."

"Patients' ages ranged from neonates to 68 years. Seventy-four percent (74%) of patients reported a valuable improvement in their presenting problem. Sixty-seven percent (67%) also reported a valuable improvement in their general well-being and/or a second health problem."

Outcome by diagnostic groups suggested that UCST is particularly effective for patients with headaches and migraine, neck and back pain, anxiety and depression, and unsettled babies."

## Case series

Number of studies: 3

Gitlin RS, Wolf DL 1992 **Uterine contractions following osteopathic cranial manipulation—a pilot study** J Am Osteopath Assoc 92(9):1183

Hart LM 1918 **Obstetrical practice** J Am Osteopath Assoc 609-614

Fraval M 1998 **A pilot study: Osteopathic treatment of infants with a sucking dysfunction** Journal of the American Academy of Osteopathy [http://www.osteopathic-research.com/index.php?option=com\\_jresearch&view=publication&task=show&id=12345&lang=en](http://www.osteopathic-research.com/index.php?option=com_jresearch&view=publication&task=show&id=12345&lang=en)

**This was a time-series study without indepent controls**

"A pilot study of six infants".

"At the time of first measurement, the difference between pre- and post fed fat estimations of breast milk was small in infants with a dysfunctional suck. Following osteopathic treatment, the difference between pre- and post fed fat estimations were comparable with the fat estimations from the breast milk of infants who were feeding normally."

## Case reports

Number of studies: 3

Smallwood CR, Borgerding CJ, Cox MS, Berkowitz MR, 2013 **Osteopathic manipulative treatment (OMT) during labor facilitates a natural, drug-free childbirth for a primigravida patient: A case report** International Journal of Osteopathic Medicine Vol 16 (3) pages 170-177 <http://www.sciencedirect.com/science/article/pii/S1746068912001010>

"This paper reports the use of osteopathic manipulative treatment (OMT) as an aid to labor and delivery in a woman desiring a natural childbirth."

"The patient was able to undergo labor and delivery completely without the use of medication via any route for pain or labor augmentation as the patient desired. Stage two of labor for a primiparous female was on the quicker end of the spectrum. OMT for the laboring woman should be considered as a treatment modality to facilitate a natural childbirth."

Jones AL, Lockwood MD 2008 **Osteopathic Manipulative Treatment in Pregnancy and Augmentation of Labor: A Case Report** AAO Journal Vol 18 Number 1 March

"In this case study, the use of OMT provided a significant reduction in the patient's initial complaint of back pain. The patient was also a candidate to receive empiric osteopathic manipulative techniques aimed at augmentation of her early stage of labor associated with minimally effective, unorganized contractions. The patient experienced acceleration in contractions and an advancement in labor following OMT. "

Lund GC, Edwards G, Medlin B, Keller D, Beck B, Carreiro JE. 2011 **Osteopathic manipulative treatment for the treatment of hospitalized premature infants with nipple feeding dysfunction.** J Am Osteopath Assoc Jan;111(1):44-8 <http://www.ncbi.nlm.nih>

"Premature newborns and infants are usually required to successfully transition from gavage to nipple feeding using breast or bottle before discharge from the hospital. This transition is frequently the last discharge skill attained. Delayed acquisition of this skill may substantially prolong hospital length of stay. The authors describe a case of hospitalized premature twins who had considerable delays in attaining nipple-feeding skills. Because of their inability to take all feedings by nipple, preparation for surgical placement of gastrostomy tubes was initiated. Before the surgeries were scheduled, the inpatient osteopathic manipulative medicine service was consulted, and the twins received a series of evaluations and osteopathic manipulative treatment (OMT) sessions. During the OMT course, the twins' nipple feeding skills progressed to full oral feeding, which allowed them to be discharged to home without placement of gastrostomy tubes. The authors also review the literature and discuss the development of nipple feeding in premature newborns and infants and the use of OMT in the management of nipple feeding dysfunction."

## **Mixed results (significant for some outcomes, not others)**

Number  
of studies:  
3

Ruffini N, D'Alessandro G, Cardinali L, Frondaroli F, Cerritelli F, 2016 **Osteopathic manipulative treatment in gynecology and obstetrics: A systematic review** *Complementary Therapies in Medicine* Volume 26, June, Pages 72-78 <https://www.sciencedirect.com/science/article/pii/S0965229916300309>

## "Objective

The aim of the review was to evaluate the effects of the osteopathic manipulative treatment (OMT) on women with gynaecological and obstetric disorders.

## Materials and methods

An extensive search from inception to April 2014 was conducted on MEDLINE, Embase, the Cochrane library using MeSH and free terms. Clinical studies investigating the effect of OMT in gynaecologic and obstetric conditions were included as well as unpublished works. Reviews and personal contributions were excluded. Studies were screened for population, outcome, results and adverse effects by two independent reviewers using an ad-hoc data extraction form. The high heterogeneity of the studies led to a narrative review.

## Results

24 studies were included (total sample = 1840), addressing back pain and low back functioning in pregnancy, pain and drug use during labor and delivery, infertility and subfertility, dysmenorrhea, symptoms of (peri)menopause and pelvic pain. Overall, OMT can be considered effective on pregnancy related back pain but uncertain in all other gynaecological and obstetrical conditions. Only three studies (12.5%) mentioned adverse events after OMT.

## Conclusions

Although positive effects were found, the heterogeneity of study designs, the low number of studies and the high risk of bias of included trials prevented any indication on the effect of osteopathic care. Further investigation with more pragmatic methodology, better and detailed description of interventions and systematic reporting of adverse events are recommended in order to obtain solid and generalizable results."

Hensel KL, Buchanan S, Brown SK, Rodriguez M, Cruser dA 2015 **Pregnancy Research on Osteopathic Manipulation Optimizing Treatment Effects: the PROMOTE study** American Journal of Obstetrics and Gynecology Volume 212, Issue 1, January , Pages 108.e1–108.e9 <http://www.sciencedirect.com/science/article/pii/S0002937814007923>

"Pregnancy research on osteopathic manipulation optimizing treatment effects was a randomized, placebo-controlled trial of 400 women in their third trimester. Women were assigned randomly to usual care only (UCO), usual care plus OMT [osteopathic manipulative therapy], or usual care plus placebo ultrasound treatment (PUT). The study included 7 treatments over 9 weeks. The OMT protocol included specific techniques that were administered by board-certified OMT specialists. Outcomes were assessed with the use of self-report measures for pain and back-related functioning and medical records for delivery outcomes."

"OMT was effective for mitigating pain and functional deterioration compared with UCO; however, OMT did not differ significantly from PUT. This may be attributed to PUT being a more active treatment than intended. There was no higher likelihood of conversion to high-risk status based on treatment group. Therefore, OMT is a safe, effective adjunctive modality to improve pain and functioning during the third trimester."

Hensel KL, Pacchia CF, Smith ML, 2013 **Acute improvement in hemodynamic control after osteopathic manipulative treatment in the third trimester of pregnancy** Complementary Therapies in Medicine Volume 21, Issue 6, December , Pages 618–626 <http://www.sciencedirect.com/science/article/pii/S0965229913001301>

## "Summary

### Objectives

The physiological changes that occur during pregnancy, including increased blood volume and cardiac output, can affect hemodynamic control, most profoundly with positional changes that affect venous return to the heart. By using Osteopathic Manipulative Treatment (OMT), a body-based modality theorized to affect somatic structures related to nervous and circulatory systems, we hypothesized that OMT acutely improves both autonomic and hemodynamic control during head-up tilt and heel raise in women at 30 weeks gestation.

### Design

One hundred subjects were recruited at 30 weeks gestation.

### Setting

The obstetric clinics of UNTHHealth in Fort Worth, TX.

### Intervention

Subjects were randomized into one of three treatment groups: OMT, placebo ultrasound, or time control. Ninety subjects had complete data (N = 25, 31 and 34 in each group respectively).

### Main outcome measures

Blood pressure and heart rate were recorded during 5 min of head-up tilt followed by 4 min of intermittent heel raising.

### Results

No significant differences in blood pressure, heart rate or heart rate variability were observed between groups with tilt before or after treatment ( $p > 0.36$ ), and heart rate variability was not different between treatment groups ( $p > 0.55$ ). However, blood pressure increased significantly ( $p = 0.02$ ) and heart rate decreased ( $p < 0.01$ ) during heel raise after OMT compared to placebo or time control.

### Conclusions

These data suggest that OMT can acutely improve hemodynamic control during engagement of the skeletal muscle pump and this was most likely due to improvement of structural restrictions to venous return."

# It is unclear whether the following journals are peer-reviewed

Number  
of studies:  
1

## Clinically and statistically significant results

Number  
of studies:  
1

### Case series

Number of studies: 1

Burns L 1907 **The experimental demonstration of the osteopathic centers: the pelvic viscera** Studies in the Osteopathic Sciences: Basic Principles Vol 1: 256-257 <http://www.mcmillinmedia.com/eamt/files/burns1/bur1ch29.html>