Osteopathic Manipulative Medicine to support the Breastfeeding Dyad: A Scoping Review

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Background

Breastfeeding is Optimal Nutrition

- Health benefits of breastmilk for infants include reduced risk of otitis media, asthma, childhood leukemia, and obesity[1-4]
- Breastfeeding parent has a reduced risk of breast, endometrial, and thyroid cancers[5-7]
- American Academy of Pediatrics (AAP) recommends exclusive breastfeeding for the first 6 months of life and continued breastfeeding up to 2 years,[8] **however only 26% of infants exclusively breastfeed through 6 months[9]**

Challenges to Breastfeeding

- A newborn uses six of 12 cranial nerves; 22 bones connecting at 34 sutures; and 60 voluntary and involuntary muscles to suck, swallow, and breathe in a coordinated way to breastfeed[10]
- During labor and birth, the infant's skull is subjected to mechanical forces that may affect the function of the above nervous system and musculoskeletal structures[10]
- A common reason for discontinued breastfeeding is a painful latch,[11] which can also be impacted by asymmetry or dysfunction in the infants' musculoskeletal system, including their skulls, sublingual musculature, and cervical spine[12]
- In osteopathic literature, these structural restrictions are termed somatic dysfunction (SD), and patterns of SD have been documented in infants with feeding dysfunction, tongue tie, and colic[13-17] and in a breastfeeding parent with mastitis[18]
- OMT may also potentially benefit breastfeeding parents with concerns such as mastitis, "clogged ducts," and milk supply[19]

Potential Role of Osteopathic Manipulative Medicine (OMM)[20]

- OMM is a form of integrative medicine that emphasizes a nonpharmacologic, noninvasive, and health-oriented approach to patient care, addressing structure-function relationships in the body to support the body's ability to heal and maintain homeostasis.
- OMM involves a structural exam and precise application of manual techniques to address these somatic dysfunctions (SD). This intervention is called osteopathic manipulative treatment (OMT) in the US or osteopathic manipulative therapy (OMTh) internationally.

This scoping review seeks to systematically examine the current research landscape of OMT and how it may be utilized to address common concerns that impact the breastfeeding dyad and breastfeeding experience. This study also aims to identify any existing gaps in the knowledge for the design of future studies.

Table 1. Pubmed Search Strategy

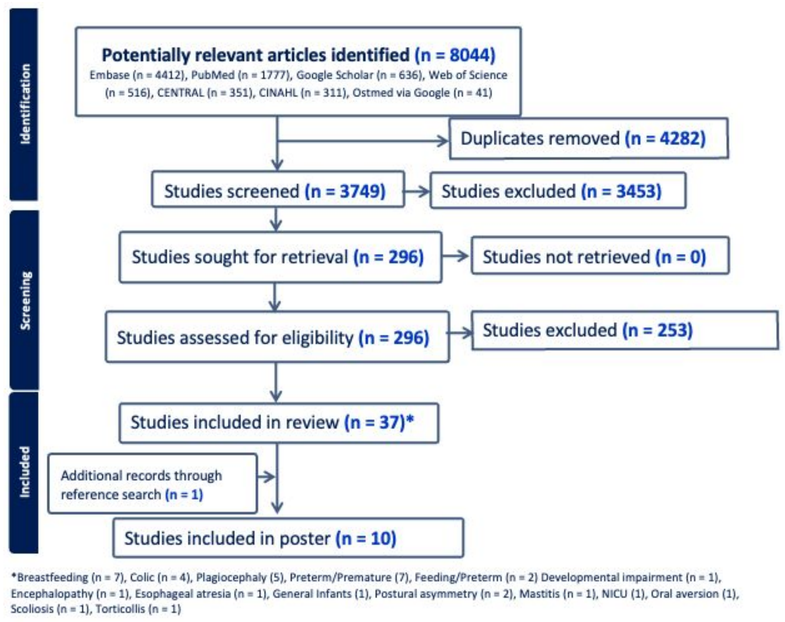
Population	Infant, Premature[mh] OR Infant, Newborn[MH] OR Infant [MH]	OR Mothers[Mesh] OR infant*[tiab] OR preterm[tiab]	OR mother*[tiab] OR premature[tiab] OR parent[tiab]
Procedure/ Concept	Manipulation, Osteopathic[Mesh] OR Osteopathic Manipulative Treatment[tiab] OR Osteopathic manipulation[tiab] OR Osteopathic manipulative therapy [tiab]	OR Osteopathic manipulative medicine [tiab] OR Osteopathic Manual Treatment [tiab] OR Osteopathic manual therapy [tiab] OR Osteopathic manual medicine [tiab] OR Osteopath*[tiab]	OR Manipulation[tiab] OR Manual Medicine[tiab] OR "osteopathic intervention"[tiab:~1] OR "osteopathic interventions"[tiab:~1] OR "manual therapy"[tiab:~1]
Context	"Infant Nutritional Physiological Phenomena"[Mesh] OR Nurs*[tiab] OR Latch*[tiab] OR feeding[tiab] OR breastfeeding[tiab] OR "Lactation Disorders"[Mesh] OR "Mastitis"[Mesh] OR Mastitis[tiab] OR sucking*[tiab] OR suckling*[tiab] OR "Torticollis"[Mesh] OR torticollis[tiab]	OR "Colic"[Mesh] OR colic[tiab] OR "Gastroesophageal Reflux"[Mesh] OR reflux[tiab] OR Musculoskeletal Abnormalities[Mesh] OR Plagiocephaly[Mesh] OR plagiocephaly[tiab] OR cranial asymmetr*[tiab] OR jaw tilt[tiab] OR weight[tiab] OR Posture[MeSH] OR posture asymmetry[tiab] OR postural asymmetry[tiab]	OR postural complaint* OR clogged milk duct*[tiab] OR postural strain[tiab] OR "De Quervain Disease"[Mesh] OR DeQuervain*[tiab] OR "De Quervain*" OR "Carpal Tunnel Syndrome"[Mesh] OR carpal tunnel syndrome[tiab] OR "milk, human"[MeSH Terms] OR breastmilk production[tiab] OR breast milk production[tiab] OR pain[tiab]

Methodology

- This scoping review protocol is published[21] and was adapted from the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) Protocol.[22]
- Searches were designed by an academic librarian (KH) in collaboration with osteopathic physician authors (AC, KW, EC). Searches were executed by the librarian.
- *Databases searched*: Pubmed, Embase, CINAHL Complete, Web of Science Core Collection, Cochrane Central, Google Scholar, Ostmed.dr.
- The Pubmed search strategy (Table 1) was validated with the 5 articles supplied by a subject expert to validate the search string.
- Systematic review tool *Covidence* was used to track search, coordinate, and perform title-abstract/full text screen, extract data.
- Article selection included any peer-reviewed journal articles discussing OMT or OMTh for breastfeeding/lactation or related issues that could impact the dyad. Infant age range searched was up to 24 months.
- Grey literature, articles not available in English, and interventions that were not OMT or OMTh were excluded.
- All screening and data extraction were completed by two independent reviewers, with disagreements resolved by a 3rd reviewer who was a board-certified osteopathic physician.
- This poster highlights search results focused on infants with feeding problems with all results detailing a feeding-related primary outcome measure.

Results

Figure 1. PRISMA flow diagram for complete search as detailed in published protocol[15]



*Breastfeeding (n = 7), Colic (n = 4), Plagiocephaly (5), Preterm/Premature (7), Feeding/Preterm (n = 2) Developmental impairment (n = 1), Encephalopathy (n = 1), Esophageal atresia (n = 1), General Infants (1), Postural asymmetry (n = 2), Mastitis (n = 1), NICU (1), Oral aversion (1), Scoliosis (n = 1), Torticollis (n = 1)

Table 2. Studies in which breastfeeding or feeding was a primary outcome.

Study ID / Year	n / Characteristics of Participants / Age or Age Range	Main Outcomes
DanieloJouhier 2021[23]	128 / Healthy GA >38 wks with suboptimal breastfeeding behavior (2 IBFAT scores under 10 after 60 hrs of life, infants of mothers with cracked or painful nipples) / <11 days	No difference between groups in exclusive breastfeeding rates at 1, 3, or 6 mos.
Herzhaft-LeRoy 2017[24]	97 / Healthy term newborns with biomechanical breastfeeding dysfunction as defined by Genna[11] assessed by healthcare providers with breastfeeding training / <6 weeks, mean 15 days	**Improved LATCH score & improved maternal perception of latch in OMT group**; No difference in maternal pain between groups
Arcusio 2024[25]	51 / Healthy term neonates with ineffective suck: unable to perform at least 5 valid and continuous suckles per feed with persistent sleepiness and inadequate nutritional activity / <24 hours	**OMT+NF* group: Increased LATCH scores, higher rates of exclusive BF at discharge & 1 month, improved suck-swallow process.** No change in weight gain in either group. **NNT is 2.5.**
Greenwood 2023[26]	18 / Mother-infant dyad with breastfeeding difficulties seeking care at OMT clinic / <10 weeks	**Significant increase in BSES-SF. At discharge, all dyads were breastfeeding**
Parodi 2024[27]	48 / Healthy term newborns >37 weeks with intrinsic breastfeeding problem (impaired latch in 1st 48-60 hours of life with suction score <6; based on tongue posture (2), non-nutritive tongue movement (2), tongue cupping (2), jaw movement (2); normal score >6) / 1st 4 weeks of life	**Significant normalization of sucking scores in OMT and control groups, with greater increase in OMT group.** Osteopathic score reporting somatic dysfunction decreased in OMT group
Summers 2014[28]	1 / Limited suckling ability in infant with mild Pierre Robin Sequence / 15-day	**Improved weight gain; shorter feeding times; longer time to fatigue; stronger suck; stopped bottle feeding**
Vismara 2019[29]	70 / Premature infants between GA 28 to 33+6 with body weight <2000g / <14 days	**OMT group PO feeding 5 days sooner. Trend toward decreased LOS.** No effect on weight, HC, length
Lund 2011[30]	2 / Preterm infants with respiratory distress that became chronic lung disease, anemia, hyperbilirubinemia with trouble transitioning to oral feeds / 102 days	OMT started on DOL 102, **PO feeding fully by DOL 122,** deferred need for feeding tube
Fraval 1998[31]	6 / Healthy term infants of appropriate weight for GA, seen by LC for at least 2 weeks prior to study, LC had no further advice to offer, who were still having challenges with feeding / <6 mo	**5 infants with improvement in pre & post-feed fat estimations with OMT. All infants continued to breastfeed for at least 5 months**
Beveridge 2023[32]	1 / Oral aversion, Pediatric Feeding Disorder / 21 months	Weight increased from 3rd to 23rd percentile over 34 weeks of treatment, began eating foods after first OMT, diet improved in variety & quantity

Table 1 Key: BF = Breastfeeding; NF = Neuromotor facilitation technique; NNT = number needed to treat; LOS = Length of stay; DOL = day of life; OMT = Osteopathic Manipulative Treatment; IBFAT = Infant Breastfeeding Assessment Tool; BSES-SF = breastfeeding self-efficacy short form; GA = Gestational Age; LC = lactation consultant; HC = head circumference

Figure 2. Types of studies included in review

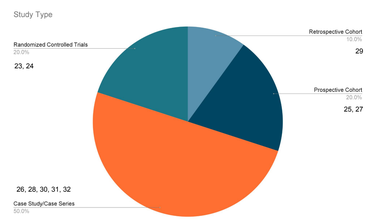
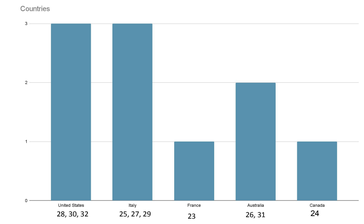


Figure 3. Countries in which studies were conducted



Results/Discussion

- No adverse events relating to OMT were reported in these studies.
- There is variable methodology in identifying and evaluating infants with suckling/feeding dysfunction, which is a challenge across breastfeeding medicine research
- All 10 studies identified somatic dysfunction and applied a unique osteopathic treatment for study participants based on physical exam findings

Conclusions

- OMT/OMTh performed by appropriately-trained providers is safe in newborns and infants.
- OMT is a low-risk procedure with potential benefit for improving latch and sucking dysfunction. More robust and high-quality research is needed to test this hypothesis.

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