#### ABSTRACTS

## LBORC-NUFA Poster Abstracts 2025: Students

Every year at the American Academy of Osteopathy Convocation, the Louisa Burns Osteopathic Research Committee (LBORC) and the National Undergraduate Fellows Association (NUFA) together host a research poster presentation session for residents and medical students. The 2025 poster abstracts for students are presented here. To enhance the readability of this special feature, abstracts have been edited for basic style only. The content has not been modified; the information provided reflects information that was submitted by the primary author, including professional degrees and affiliations.

#### **Case Study**

Catherine Arnold, OMS III; Katelyn Bercaw, OMS III; Angela Branda, DO

#### Utilizing Osteopathic Manipulative Medicine to Support Lifestyle Behavior Change: A Case Report

**Introduction:** Chronic diseases significantly contribute to mortality in the United States, many of which can be prevented or managed through lifestyle changes. Physical activity reduces chronic disease morbidity and mortality and improves quality of life. However, chronic musculoskeletal pain often serves as a barrier to physical activity. This case highlights osteopathic manipulative medicine (OMM) as a unique approach to managing chronic musculoskeletal pain and facilitating lifestyle changes for chronic disease management.

**Case:** A 71-year-old female presented with chronic left-sided rib pain. She described sharp, constant pain preventing full inhalation, attributed to a fall on outstretched hands 20 years prior. Imaging at the time showed no fractures. Four months of worsening pain had limited her ability to exercise and perform overhand movements. Her medical history included Hashimoto's disease, celiac disease, generalized anxiety disorder, h y p e r g l y c e m i a, h y p e r l i p i d e m i a, a n d methylenetetrahydrofolate reductase deficiency, with lifestyle management for hyperlipidemia and hyperglycemia. Physical exam revealed tenderness in the left anterior lower ribs and pain with inhalation and arm elevation. Osteopathic examination identified somatic dysfunctions of the left ribs, diaphragm, thoracic spine,

cervical spine, and pelvis. OMM treatment improved diaphragmatic motion and reduced pain significantly.

**Results:** At one-month follow-up, the patient reported a pain reduction from 9/10 to 3/10, resumed routine walking, pilates, and monthly OMM visits. By three months, she reported complete resolution of pain, daily walks, biweekly pilates, weekly yoga, improved bowel regularity, reduced anxiety, and fewer vasomotor symptoms from Hashimoto's disease. At one year, she maintained her exercise routine and controlled hyperglycemia and hyperlipidemia through lifestyle changes.

**Discussion:** This case demonstrates how OMM can alleviate pain, reduce barriers to exercise, and support lifestyle changes critical to chronic disease prevention and quality of life improvement.

#### Julia Bethea, OMS III; Holly Waters, DO, MS

#### Look What The Stork Brought; Osteopathic Manipulative Treatment for Postpartum Foot Drop: A Case Study

**Introduction:** Foot drop results from weakness of dorsiflexion muscles; restricting activities and increasing fall risk. Etiologies include lumbar radiculopathy and peroneal nerve injury or compression. Following childbirth, palsies affect less than 1% of postpartum patients [1], but significantly interfere with daily living. Cases of postpartum peroneal nerve palsies have been reported, however, there is limited research regarding osteopathic manipulative treatment (OMT) for foot drop in postpartum mothers.

Case: A 33-year old female presented on postpartum day 5 with right foot drop and dorsal foot numbness following an otherwise uncomplicated vaginal delivery. The patient first noted her symptoms following laboring in a birthing harness wrapped around her knees. Physical exam revealed decreased active dorsiflexion and sensation over the dorsum of the right foot consistent with peroneal nerve palsy. Straight leg raise test was negative and deep tendon reflexes were 2+. Bilateral sacral flexion, right anterior innominate rotation, and right posterior fibular head were found on osteopathic structural examination. OMT was performed including muscle energy and articulatory techniques to affected areas.

Results: Goniometric measurements of ankle dorsiflexion and sensory surface area mapping of the right foot were taken pre and post OMT. Immediately following treatment there was an increase of 16.4 degrees of active dorsiflexion in the right foot and approximately 50% decrease in impacted sensory surface area of right foot. Clinically, the patient displayed confidence and improvement in walking.

Discussion: This case demonstrated prompt improvement in acute peroneal nerve palsy for a postpartum patient with a single session of OMT. OMT offers a non-invasive whole-body approach to treating delivery complications in postpartum patients. Further studies are needed to illustrate the benefits of OMT for various acute postpartum nerve palsies.

#### References

1. Jacobsen L, Dengler J, & Moore AM. Nerve Entrapments. Clin Plast Surg. 2020;47(2):267-278. doi.org/10.1016/j.cps.2019.12.006

#### David Brancale, OMS III; Danielle Cooley, DO, FACOFP

#### The use of OMT in Myalgic Encephalomyelitis/ **Chronic Fatigue Syndrome**

Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) is a complex, multi system disease affecting 1.3% of the U.S. population according to the CDC. The hallmark symptom is post-exertional malaise (PEM), an inability to recover energy after exertion leading to extreme fatigue and pain, and there are currently no treatments for it. A proposed mechanism of action discovered for ME/CFS in 2021 suggests that OMT could be an excellent therapy. Our patient is a 30 year old female with ME/CFS whose PEM symptoms we successfully treated with muscle energy and MFR to the thoracic and lumbar spine, as well as lymphatic drainage.

No other treatment option this patient had followed had previously helped with her PEM symptoms. This case demonstrates that OMT can be a viable treatment for these painful and exhausting episodes that drain quality of life based on subjective patient feedback since objective measures to show improvement of ME/CFS symptoms do not exist, and recommends the use of OMT in the clinic for patients suffering from ME/CFS.

Elaine S. Chung, OMS III; Adrienne Kania, DO, FAAO

#### Visceral Manipulation as a Non-Surgical Approach to **Resolving Small Bowel Obstruction: A Case Report** of a 77-Year-Old Male

Introduction/Background: Small bowel obstruction (SBO) is a significant cause of morbidity in elderly patients, often necessitating surgical intervention. Osteopathic manipulative treatment (OMT) offers a non-invasive alternative, promoting homeostasis. Literature on the use of OMT for SBO patients remains scarce. This case demonstrates the successful application of OMT as an adjunctive therapy in a patient with SBO.

Case: A 77-year-old Caucasian male with a history of pulmonary embolism on anticoagulant therapy, chronic obstructive pulmonary disease, and recurrent diverticulitis presented with 48 hours of colicky abdominal pain, nausea, and vomiting. Physical examination revealed right lower quadrant tenderness and mild abdominal distention without guarding. Imaging confirmed SBO at the terminal ileum with colonic air-fluid levels. Initial conservative management and current standard of care included NPO status, IV fluids, NG decompression, antibiotics, and a trial of gastrograffin. Imaging studies indicated progression to high-grade SBO. OMT was initiated on hospital day 4, targeting the cecum and sigmoid colon with abdominal lifts and visceral techniques. After two OMT sessions, the patient passed a large bowel movement, experienced significant pain relief, and resolution of obstruction on imaging. The NG tube was removed, and the patient transitioned to a regular diet before discharge.

Results: OMT resulted in rapid clinical improvement, allowing the patient to avoid surgical intervention. Post-treatment imaging confirmed obstruction resolution. The patient was discharged in stable condition.

Discussion: This case highlights the potential role of OMT in managing SBO in patients with high surgical

simultaneously addressed. These results underscore the risks. By addressing mechanical dysfunction and promoting motility, OMT offers a safe, low-risk adjunct value of combined therapy and encourage further to traditional treatment. Further research is needed to research. validate its efficacy and establish standardized protocols Alexa Finkelstein, BS, OMS III; Gianna Petrillo, for SBO management.

#### Anthony Enniss, OMS IV; Katie Neuer, DO; Zachary Whitaker, DO; Eren Ural, DO

## Hand & Helmet: A Crown-to-Coccyx Approach for

Introduction: Myalgic Encephalitis/Chronic fatigue **Positional Plagiocephaly** syndrome (ME/CFS) is a multisystem syndrome Introduction: Positional Plagiocephaly (PP) affects up characterized by severe fatigue and cognitive to 47% of newborns and infants, characterized by dysfunction, impairing daily activities. Proposed asymmetric occipital flattening due to external forces, mechanisms suggest that infection or toxin exposure typically manifesting within the first few months of life. triggers a buildup of toxins in the cerebrospinal fluid Conservative management includes caregiver education, (CSF) due to impaired drainage through lymphatic repositioning, physical therapy, and helmet therapy ducts. Delayed diagnosis and treatment exacerbate (HT) for severe cases. While research supports individual outcomes. Current treatment lacks conclusive efficacy, use of osteopathic manual therapy (OMT) and HT, however osteopathic manipulative medicine (OMT), specifically The Perrin Technique, shows promise. The there is a paucity of data on their adjunctive use. This case examines the efficacy of combined OMT and HT in Perrin Technique has previously demonstrated a reduction of approximately 50% in fatigue-related severe PP. symptoms in patients with Long-COVID. It employs Case: A 4-month-old male presented with concerning spinal mobilization and lymphatic massage to facilitate head shape. History revealed persistent supine the drainage of toxins into the lymphatic system, aiding positioning, preferential right-sided feeding, inability to in restoration of nervous system function.

tolerate tummy-time or meet motor milestones, and in utero breech presentation. Physical exam and Case: A 25-year-old male presented with fatigue, brain anthropometric measurements revealed severe fog, and back pain, secondary to chronic Lyme disease, following a tick bite in 2014. Despite antibiotics and right-sided positional plagiocephaly. Osteopathic exam identified somatic dysfunctions (SD's) in cranial, other pharmacotherapies, symptoms persisted, leading to withdrawal from college. Somatic dysfunctions were cervical, and thoracolumbar regions. Persistent noted in the cranium, thoracic cage, and celiac ganglia, craniocervical and thoracolumbar junction SD's were addressed at multiple visits. OMT aimed to address SD's with swollen lymph nodes on physical exam. The Perrin Technique was performed over six visits, with instruction limiting active motion and tolerance to tummy time, normalize cranial bone motion, balance dural tension, given for home self-massage. and improve CSF flow.

**Results:** The patient reported significant improvement, including reduced fatigue, back pain, and jaw pain. He Results: After 7 OMT sessions over 2.25 months with 1.4 months of HT, Cranial Vault Asymmetry Index resumed daily exercise for the first time in 10 years and (CVAI) decreased from 12.9% (severe) to 6.16% (mild) plans to re-enroll in college. Improvements were noted in and Argenta classification improved from type 5 to type cranial somatic dysfunctions and axillary and cervical 2. The infant also increased tummy-time tolerance (from lymph nodes were decreased in size. 5-10 minutes to over 30 minutes), met all CDC Conclusion: The patient's return to daily routines 6-month motor milestones, and required HT for < 2underscores the clinical utility of OMT in ME/CFS months.

patients. By facilitating the drainage of toxins from the Discussion: This case highlights the successful use of CSF into the lymphatic system and supporting proper OMT and HT in severe PP. Viewing the infant through neurological function, this approach appears to reduce an osteopathic lens allowed for the contributing factors symptoms. Further research is warranted to establish of environment, birth history, and crown-to-coccyx standardized therapeutic protocols in ME/CFS patients. somatic dysfunctions to be appreciated and

## BS, OMS IV; Jordan Keys, DO

#### From Fatigue to Function: A Case Report of The Use of OMT in Chronic Fatigue Syndrome

#### Osteopathic Manipulative Treatment (OMT) in the Management of a Young Male with Lewy Body Dementia (LBD): A Case Study

**Introduction:** Lewy Body Dementia (LBD) is a progressive neurodegenerative disorder characterized by alpha-synuclein accumulation in the brain, causing cognitive decline and motor impairment, including rigidity and bradykinesia. Most cases occur after age 65, making this case in a 30-year-old rare. Osteopathic Manipulative Treatment (OMT) shows promise in improving motor symptoms by addressing autonomic balance and somatic dysfunctions. This case highlights OMTs potential in managing LBD in this rare, early-onset presentation.

**Case:** A 30-year-old male presents with increased stiffness and rigidity secondary to LBD diagnosed in 2021. Main complaints included challenges with gait and coordination of movement. Key somatic dysfunctions were noted in the cranium, spine, and lower extremities. Lower extremity range of motion (ROM), timed up and go (TUG), and tibialis anterior muscle parameter measurements were taken before and after treatment each visit. OMT was applied for 3 visits with key techniques including lower extremity MET, cranial techniques, and balance ligamentous tension.

**Results:** Single visit measurements for lower extremity joint ROM improved 19% overall immediately post-treatment (p=0.036), with the greatest change in bilateral hip flexion (43%), knee flexion (9%), plantarflexion (12%), and dorsiflexion (140%). Tibialis anterior measurement post-OMT showed decreased stiffness (11%) and increased relaxation (18%). Over the course of three visits, TUG decreased 13% with times improving from 23 to 13 seconds. The patient's parents also reported he was able to use the bathroom by himself, and had more successful gym sessions with his trainer following OMT.

**Discussion:** This case highlights the use of OMT in improving mobility, ROM, muscle qualities, and TUG scores, as well as increasing independence in daily activities. Further research is warranted to explore OMT's broader application in neurodegenerative conditions. Rebekah Johnson, OMS III; Eleanor White, OMS II; Xiaoxuan Yu, OMS II; Allison Aldridge, OMS III; Allison Bardowell, DO, MS

## Management of Chemotherapy Induced Strains in a Breast Cancer Survivor with OMT

**Introduction:** Chemotherapy and radiation often lead to post-treatment complications, including myalgia, arthralgia, and peripheral neuropathies. Conventional treatments for this frequently fail to provide symptom relief. This case examines the use of Osteopathic Manipulative Treatment (OMT) as an adjunct therapy in post-chemotherapy inflammatory conditions.

**Case Description**: A 54-year-old female with a history of breast cancer and brain metastases underwent mastectomy with chemotherapy and radiation for 6 months, as well as left pteronial craniotomy and exploratory temporal lobe resection with long-term chemotherapy. She presented to the ONMM clinic for low back pain, bilateral elbow pain, and shoulder pain. Imaging review showed left temporal encephalomalacia, mild disc bulge in the lumbar spine, and neuroforaminal stenosis in the cervical spine. Previous treatments resulted in no relief.

**Results:** Osteopathic structural examination revealed cranial, craniocervical, and craniosacral syndrome. This was secondary to post-surgical scar strains, chemo-induced arthropathy of bilateral hips and elbows as well as radiation strains to the thorax and lungs. OMT techniques used were osteopathy in the cranial field, balanced ligamentous tension, and ligamentous articular strain. She had a tremendous response to treatment with resolution maintenance of the strains above.

Over subsequent appointments, she discontinued her gabapentin and has been well-maintained with OMT and perineural subcutaneous injections. The recurrence of her somatic dysfunctions was related to chemotherapy night-time dosing with hyper-flexed postural sleeping. Dosing adjustments and positional changes were made with resolution of her chemotherapy-induced arthropathy and peripheral neuropathies.

**Discussion:** OMT optimized her healing. Integration of OMT with lifestyle modifications could offer a viable, non-pharmacologic option for managing persistent chronic pain in cancer survivors.

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Dong Won Lee, OMS III; Julie Katyal, OMS III; Rogerio Faillace, MD

## Turning the Tie: The Impact of OMT on infant torticollis and tongue tie

Introduction/Background: Infant torticollis, characterized by the abnormal tilt and rotation of the Introduction/Background: Adjacent to dysautonomia head due to muscle contracture in the neck, often affects syndromes, long-COVID impacts autonomic functions the sternocleidomastoid muscle, leading to restricted within the body, presenting in patients as fatigue, cervical motion and facial asymmetry. Approximately 1 digestive issues, tachycardia, and brain fog. Osteopathic in 250 infants are affected, with untreated cases manipulative treatment can impact the autonomic potentially delaying motor milestones. Ankyloglossia nervous system, and therefore is a reasonable approach to (tongue tie) complicates some cases by affecting cranial relieving dysautonomic symptoms associated with and cervical muscle balance, often through increased long-COVID. digastric muscle tension. Osteopathic Manipulative Case: This is a 25 year-old runner presenting with Treatment (OMT) has been explored as a conservative persisting symptoms of tachycardia, fatigue, method to alleviate muscle tension and improve range of gastrointestinal issues and exercise intolerance 15 months motion. following COVID infection.

**Case:** An otherwise healthy 2-week-old male presented with right-sided head tilt and left neck rotation restriction. His parents, familiar with torticollis from a previous child, noticed early signs of abnormal posture. The osteopathic exam revealed limited cervical rotation, hypertonicity in the sternocleidomastoid and digastric muscles, and a restrictive tongue tie. These factors contributed to muscle strain, worsening the torticollis.

The patient underwent treatments focused on balancing contributed to muscle strain, worsening the torticollis. autonomics through osteopathic cranial manipulative Results: The infant underwent five OMT sessions over medicine and sacral balanced ligamentous tension; several weeks, including indirect myofascial release, treating thoracic cage fascia and thoracoabdominal cranial techniques, and balanced ligamentous tension. diaphragm through myofascial release; and treating rib Oral-motor exercises were also introduced to improve and thoracic somatic dysfunction through balanced tongue mobility. After treatment, the infant showed ligamentous tension. improved neck range of motion, reduced head tilt, and Results: Following sessions, the patient reported better midline head control per physical exam and symptomatic improvement in ribs, thoracic cage and parental report. Daily home stretches and side-lying holds were advised to maintain post-OMT diaphragm, greater ease of participation in respiratory physical therapy exercises and less fatigue. They also improvement. reported their lowest heart rate recording since initial **Discussion:** This case highlights the importance of early COVID infection.

diagnosis and OMT for torticollis, particularly in infants Discussion: Our patient's symptoms and location of with ankyloglossia. Parental awareness enabled early somatic dysfunction were related to possible autonomic intervention, improving outcomes. It also underscores impacts from long-COVID. The proximity of the how ankyloglossia can exacerbate muscular asymmetry. Limitations include the small sample size and reliance on sympathetic chain within the thoracic cage provided anatomical rationale for addressing autonomic parental reports of improvement. Further studies are needed to explore the role of ankyloglossia in torticollis symptoms with techniques directed to the thoracic fascia and articular dysfunction, and for using osteopathic and compare OMT with surgical options like frenotomy. cranial manipulative medicine to address autonomic

Ellese Lupori, OMS III; Samantha Bowen, OMS III; Bachtuyet Le, DO

#### Osteopathic Manipulative Treatment in a Case of a Runner with Long-COVID and Autonomic Dysregulation

imbalances. Symptomatic improvement in fatigue and improved ability to participate in physical therapy demonstrates the utility of using osteopathic manipulative treatment to decrease allostatic load in a patient's recovery. Future research on OMT in long-COVID could focus on techniques that balance autonomics.

#### Sebastian J. Machado Douaihi, OMS III; Holly Waters, DO

#### Clavicular Dysfunctions: An Osteopathic Approach to Neck, Shoulder, and Chest Pain

Introduction: The clavicle provides a key link between the axial skeleton and the arm, making it reasonable to suspect that a dysfunction of the sternoclavicular (SC) joint may cause manifestations in surrounding parts of the body. Research has shown that cervical and thoracic manipulations can lead to improvement in shoulder pain, but research studying the link between clavicular dysfunctions and neck, chest, and shoulder pain is limited.

Case: A 59-year-old female, presented with chronic left-sided neck and shoulder pain and one month of worsening, severe chest pain localized to the left SC joint. The patient also presented with dizziness when lying on her left side. Physical exam on initial encounter revealed a very prominent and tender left SC joint, and on Osteopathic exam a severely horizontally extended and moderately adducted left clavicle as well as hypertonic cervical musculature were found.

Results: Following initial OMT treatment with direct and indirect techniques, the patient returned for follow-up three months later and denied experiencing chest or shoulder pain since, however, she was still experiencing left-sided neck pain. Repeat evaluation showed continued cervical muscular hypertonicity but a much-improved prominence of the clavicle, an almost resolved tenderness of the SC joint, as well as only a mildly horizontally extended and an almost-resolved adducted left clavicle.

Discussion: Addressing clavicular dysfunctions almost completely resolved the patient's chest and shoulder pain, and upon both OMT treatments, O.V. reported immediate relief to her symptoms and an overall improved quality of life. A limitation to this study is the lack of generalizability to the general population. Further research is needed to find a link between using OMT to treat clavicular dysfunctions and relieving chest, shoulder, and neck pain.

#### Marquis Mayberry, MS, MA, OMS IV; Eren Ural. DO

#### "I Feel Stuck:" A Case Presentation on the Application of OMM to a Patient with Chronic **Atypical Chest Pain After Pulmonary** Coccidioidomycosis

Introduction: Pulmonary coccidioidomycosis is a lung infection common in the southwestern region of the United States. Though most infections are asymptomatic or mild, it may become chronic with rare recurrence or dissemination. Treatment for long symptoms following infection from coccidioidomycosis is limited and thus the following application of osteopathic manipulative treatment (OMT) is an innovative approach.

Case: D.K., a 44-year-old female, presented to the Midwestern University Multispecialty clinic with a chief complaint of brain fog, fatigue, and constant chest pain rated on a Numerical Rating Scale (NRS) of 7/10. Two years prior to her visit, she was diagnosed with coccidioidomycosis but was still unable to return to baseline. This case presentation will highlight her initial 5 visits.

**Results:** Common osteopathic structural exam findings revealed several somatic dysfunctions of the upper thoracic and suboccipital regions. Differential diagnosis included obstructive pulmonary disease or long-post pneumonia symptoms. Pulmonary function tests were within normal range. NRS decreased from 7/10 to 5/10 in 4 visits, with symptom regression and an increase in length between visits. The COPD Assessment Tool was utilized to monitor symptoms and showed a slight decrease from 23 to 20 at visit five.

Discussion: OMT consisted of an abbreviated protocol modeled after the one presented in the Multicenter Osteopathic Pneumonia Study in the Elderly (MOPSE) - a protocol that emphasizes thoracic mobility, increased lymphatic flow, and balancing of the autonomic nervous system. D.K. presented with symptoms similar to long-COVID following pulmonary coccidioidomycosis.

Conclusion: Because treatment of long-pneumonia symptoms from coccidioidomycosis is not well described, the authors addressed D.K.'s symptoms using the MOPSE protocol as a treatment foundation. Application of OMT in patients experiencing long-pneumonia symptoms following coccidioidomycosis infection will require further research.

#### Tara McKenna, MS, OMS III; Kylie Pfeifer, OMS III; Jill Wallace-Ross, DO, MS, MS

#### A Viscerosomatic Discovery: Unveiling a Case of Gastroparesis Disguised as Shoulder Pain

Introduction/Background: Gastroparesis, characterized Arthrodesis: A Case Report by delayed gastric emptying due to iatrogenic, immune, or idiopathic causes, commonly presents with nausea, Introduction: Unstable Lisfranc injuries can lead to vomiting, decreased appetite, postprandial fullness, significant disability and are difficult to manage. bloating, and weight loss. Although rare, shoulder pain Treatment commonly involves open reduction and has been associated with gastroparesis, with limited internal fixation (ORIF) or primary arthrodesis (PA). literature on viscerosomatic findings in non-diabetic Common complications after surgery are diminished cases. This case describes shoulder pain caused by joint mobility, soft tissue trauma, and early development viscerosomatic reflexes linked to underlying of arthritis within the foot, prompting persistent pain gastroparesis. and physical activity limitations. Osteopathic manipulative treatment (OMT) is a positive adjunct to Case: A 39-year-old female with iatrogenic gastroparesis quicken recovery.

standard postoperative management to improve pain and secondary to gastric sleeve surgery one year prior presented to the osteopathic treatment center with persistent nausea and daily vomiting for three months Objective: To demonstrate the utility of OMT as a despite dietary modifications and medication adherence. successful adjunctive treatment to standard postoperative She also reported constant left-sided, "achy" shoulder management. pain that worsened after work and following vomiting. **Case:** Description: A 37-year-old male with an unstable She underwent two osteopathic manipulative treatment Lisfranc fracture, s/p ORIF in 2015 with hardware (OMT) sessions, reducing her shoulder pain from an removal in 2016, maintained moderate pain levels with 8/10 to a 3/10, before being referred to her original GI sharp exacerbations to prolonged walking and running. specialist for revision surgery due to continued emesis. He received corticosteroid injections (CSI) in the second Post-surgery, her gastric symptoms resolved, but and third metatarsals (MT) every 6 months with 6 weeks shoulder pain persisted. Physical exam revealed of pain reduction to mild levels. In 2018, he underwent hypertonic trapezius and scalenes, taut rhomboids, left PA without further relief. bicep and subscapularis tenderpoints, left exhaled ribs 3 and 4, and T3-T6 NRLSR. OMT included OA **Outcomes:** The patient received 5 OMT treatments over decompression, muscle energy, ligamentous articular the course of 4 months from 2023 to 2024. Techniques strain (LAS), counterstrain, and high-velocity used were balanced ligamentous/membranous tension, ligamentous articulatory strain, and osteopathy in the low-amplitude (HVLA) techniques. cranial field. He had successful pain resolution and Results: Eight weeks after revision surgery and two maintenance with prolonged walking and running.

OMT sessions, pain reduced from constant to intermittent, with complete resolution reported days

Discussion: Post-traumatic arthritis and post-surgical after of the final OMT session compensatory changes of the ankle and foot will develop over time after initial Lisfranc ORIF. OMT is a powerful Discussion: This case highlights a unique instance of modality to restore motion and function allowing return shoulder pain caused by viscerosomatic reflexes to pain-free normal activities. OMT would be more associated with gastroparesis. This case underscores the effective at increasing patient satisfaction scores and importance of recognizing viscerosomatic changes in relieving the undue burden of additional medical costs common gastrointestinal conditions and calls for further when performed within the first postoperative year. research on these reflexes associated in the context of Further cases treated within the first year of surgery will prolonged emesis. Limitations of the case include demonstrate the full utility of OMT with post-surgical recovery-related dysfunctions resulting from prolonged changes in variable presentations. immobility.

Bridget M. Moe, OMS III; Alison F. Aldridge, OMS III; Ethan D. Rich, OMS IV; Allison Bardowell, DO, MS

### **Osteopathic Manipulative Treatment For Postoperative Arthritis Following Midfoot**

Tanaya Nandedkar OMS III; Sidney Brown, OMS III; Rosalyn Schneider, DO; Carissa Rosten, DO

#### **Comparing Measurements of the Carpal Tunnel and** the Median Nerve Before and After Applying **Osteopathic Manipulative Treatment: An Ultrasound-Guided Case Study**

Introduction: Carpal Tunnel Syndrome (CTS) is a common compressive neuropathy, with symptoms ranging from mild tingling in the fingertips to severe paresthesia and discomfort in the hand. Osteopathic Manipulative Medicine (OMM) has been shown to manage this condition; however, treatment validation using musculoskeletal ultrasound remains unexplored.

Case: A 24-year-old female presented with a one-week history of left neck and shoulder tightness radiating to the jaw and hand, accompanied by a one-month history of numbness, tingling, and weakness in the left arm. Physical exam findings included a superior right first rib, left atlanto-occipital (OA) compression, decreased left temporal bone motion, and left jaw deviation. Ultrasound of the left wrist revealed median nerve adhesion with fluid accumulation. Pre-treatment ultrasound measurements of the carpal tunnel and median nerve were obtained. She was treated with rib muscle energy, Sibson's fascia release, OA Still technique, temporal bone balanced membranous tension, and jaw balanced ligamentous tension. Additionally, interosseous membrane release, carpal tunnel myofascial release, and petrissage was performed on her left arm.

Results: Post-treatment repeat ultrasound showed a reduction in fluid, increased carpal tunnel cross-sectional area (CSA), decreased median nerve CSA and increased motion. Patient also reported decreased symptoms and reduced shoulder tightness.

Discussion: This case presents a patient with shoulder tightness accompanied by paresthesia in her left arm. It also demonstrates the immediate impact of OMM on increasing the carpal tunnel area and contributes to existing literature by incorporating ultrasound during the visit, as opposed to relying on MRI and CT like pre-existing studies. Future work would include studying a larger, more diverse cohort of patients, including those at high-risk of developing CTS due to their occupations, pregnancy, or other health conditions.

#### Brooke Nixon, OMS III; Holly Waters, DO, MS

#### When it's not about Ankyloglossia: A case of Osteopathic Manipulative Treatment for Newborn Breastfeeding Difficulties in the Absence of **Restricted Labial or Lingual Frenula**

Introduction: Breastfeeding difficulties in newborns can significantly affect both the infant and the mother by leading to ineffective latch and milk transfer. While restricted labial frenulum and ankyloglossia are frequently considered factors associated with breastfeeding difficulties, cranial and musculoskeletal dysfunctions may also contribute. Osteopathic manipulative therapy (OMT) has been proposed as an effective treatment for addressing these issues by improving structural alignment and offers a non-invasive treatment to address these challenges.

Case: A 5-day-old otherwise healthy newborn presented with breastfeeding difficulties characterized by a painful latch reported as 7/10 in severity by the mother. The infant was born at 39 weeks gestation after 33 hours of labor and an uncomplicated delivery. Physical examination demonstrated a shallow latch and recessed mandible with full tongue range of motion. Osteopathic structural exam revealed hypertonic lateral pterygoid muscles, overriding coronal suture, internally rotated right parietal bone, and multiple axial spine somatic dysfunctions. OMT using direct and indirect techniques addressed the various structural findings.

Results: Following two OMT treatments, the pain associated with the infant's latch reduced to 3/10 severity. Physical exam showed improvements such as increased bottom lip and jaw protrusion during breastfeeding, a reduction in mandible recession, improved weight gain and correction of the overriding coronal suture.

Discussion: Targeting specific cranial and musculoskeletal dysfunctions with OMT significantly improved mandibular dynamics and latch. This case highlights the role of OMT when treating breastfeeding difficulties in the absence of typical structural issues like labial frenulum restriction or ankyloglossia. Limitations of this study include lack of generalizability and absence of control group. This case supports the integration of OMT by offering a noninvasive alternative for managing newborn breastfeeding difficulties.

#### Gianna Petrillo, BS, OMS IV; Jordan Keys, DO

#### Finding his Voice: A Case Report of the Utility of **OMT** in a Child with Global Delay

OMT shows great promise in pediatric patients with communication disorders, sensory difficulties, and life. repetitive behaviors. In fact, OMT has been effective in improving posture, communication, and relaxation for Case Description: A 34-year-old female presented to children with autism spectrum disorder (ASD). In the urgent care with an acute exacerbation of chronic case of a child with apraxia, OMT to the head, neck, and left-sided migraine with aura, vomiting, and diarrhea, jaw was beneficial for regaining control over planning seeking her routine injection-based therapy. Osteopathic and articulating sounds and words. evaluation revealed significant cranial and viscerosomatic strain patterns involving the eyes. This case presents a 22-month-old patient with a myriad

of symptoms including motor and verbal delays, severe Results: The patient underwent a brief OMT session, including Osteopathy in the Cranial Field (OCF), ligamentous articular strain (LAS), and balanced membranous and ligamentous tension (BMT/BLT) in a seated position. Her symptoms resolved entirely without pharmacologic intervention. She was referred to an Osteopathic Neuromusculoskeletal Medicine (ONMM) clinic for continued care. Further evaluation identified a history of concussions, motor vehicle collisions, root canals, and a presumed right short leg. Serial OMT sessions achieved increasing migraine-free intervals (3-5 months). Imaging revealed a 15mm left short leg, complicated by compensatory patterns from a prior right proximal lateral tibia fracture. Targeted OMT, scar infiltration, and perineural injections addressed intraosseous and myofascial dysfunctions, resolving a right-sided clinical leg length discrepancy. Two months later, the patient developed a cervicogenic migraine and a left clinical leg length discrepancy. OMT normalized leg lengths, sustaining migraine resolution.

food sensitivities, stimming, and repetitive behaviors. This patient presented with cranial movement restrictions, highlighted by a grossly retracted jaw with an extension strain pattern. He also was extremely sensitive to left temporal bone palpation. Although not formally diagnosed with ASD, this patient exhibited motor and verbal delays. He was raised in a multilingual household, so it is unclear whether the verbal delays arose as part of a global delay or if they were akin to the language delay that some children in multilingual households anecdotally experience. Initially, the patient did not tolerate treatment, specifically of his left temporal bone. However, after the initial visit his sensitivity decreased, and he tolerated cranial OMT. He also displayed less stimming and repetitive behaviors during treatment. Over nine months of biweekly to monthly treatments, the patient advanced in speaking and motor skills and improved tolerance of regular foods.

In the context of previous research, our results support the potential of OMT to reduce sensitivity and foster **Discussion:** This case demonstrates OMT's effectiveness in chronic migraine management, reducing verbal development for pediatric patients with pharmacologic reliance and emergency care. OMT sensitivities and various delays. Future studies on the use represents a cost-effective, conservative intervention that of OMT for patients experiencing delays and symptoms significantly enhances patient outcomes and quality of of ASD would help to support a patient population who life. are often challenging to treat effectively.

Eleanor White, OMS II; Rebekah Johnson, OMS III; Xiaoxuan Yu, OMS II; Allison Bardowell, DO. MS

#### Management of Chronic Migraine in a 34-year-Old **Obese Female**

The Impact of Simulated Osteopathic Manipulative Medicine Hospital Rounds on Student Confidence Introduction: Chronic migraines are a major cause of and the Likelihood of OMT Use During Clinical disability, contributing to frequent emergency Clerkships department visits and substantial socioeconomic burden.

Standard management involves a "migraine cocktail" comprising intravenous fluids, NSAIDs, triptans, and anti-emetics. This case highlights the potential efficacy of osteopathic manipulative treatment (OMT) as a conservative, adjunctive approach to chronic migraine management, enhancing patient outcomes and quality of

#### **Education and Public Health**

Tatiana Abdulnour, OMS IV; Jan Pryor DO, MPH; Lisa Chun, DO, MS.Med.L, FNAOME **Background:** Studies suggest that limited exposure of osteopathic medical students (OMS) to clinicians using osteopathic manipulative treatment (OMT) impacts their ability to apply the osteopathic knowledge and skills developed during preclinical years. Other studies suggest that simulated activities can improve confidence and skills during clinical clerkships and presumably in the application of OMT.

**Phase 1 Methodology:** OMS III, as part of their requirements, simulated the role of osteopathic resident physicians by presenting one of four in-patient scenarios followed by discussions with OMM faculty and fellow students, and practicing related OMT in a simulated hospital setting. Pre- and post- activity Likert scales assessed changes in confidence and attitudes.

**Phase 2 Methodology:** As OMS IVs, another Likert scale survey will further assess students' levels of confidence and attitudes to evaluate the impact of the OMS III activities on OMT use during remaining clerkships. A survey on current OMM practices will be emailed to PGY-1 CHSU graduates who didn't participate, serving as a control.

**Results:** Analysis of Phase I surveys revealed significant improvements in the levels of students' post-simulation confidence in OMM knowledge, diagnosis, and treatment (p < 0.001), and greater confidence in explaining OMM to diverse audiences (p < 0.05). However, the intervention did not influence specialty preferences or interest in osteopathically recognized programs (p > 0.05).

**Conclusion:** Phase 1 findings indicate simulated OMM hospital rounds significantly enhance OMS III confidence in OMM knowledge, skills, and communication. Phase 2 has yet to be completed but will further evaluate the impact of the simulations on OMT practices, barriers to applying OMT during clerkships and intended future use. These insights should contribute to improved strategies to encourage the application of OMM throughout training.

#### Justin E. Magnus, OMS II; Kurt P. Heinking, DO, FAAO; Kyle K. Henderson, PhD

#### Increasing Student Confidence, Diagnosis, and Utilization of OMT: Has COVID-19 Struck Again?

**Introduction/Background:** Osteopathic Manipulative Treatment (OMT) is a cornerstone of the Osteopathic profession in providing holistic, self-healing, and

patient-centered care. To augment OMT training, Soft Tissue Clinic Experience (STCE) was created to increase 1st and 2nd year medical students' exposure to history taking, musculoskeletal assessment, and use of OMT. While COVID-19 halted STCE in 2020, training resumed in 2021. We hypothesize students who volunteer in the STCE will have more confidence diagnosing somatic dysfunction, performing OMT, making physical contact, and use OMT more frequently.

**Methods:** IRB approval was obtained (MWU-21068). An anonymous, voluntary, online survey was deployed to 3rd and 4th year medical students in 2021 and 2024. Students who didn't participate in the STCE served as controls. Data was analyzed with SigmaStat(14.5), a two-way ANOVA determined the effect of STCE and pre- vs. post-COVID-19 effects on outcomes.

**Results:** For both surveys, the response rate was >40%, with >23% of respondents participating in STCE. Participation in the STCE led to significantly greater confidence in OMT diagnosis (p<0.001). However, performing OMT, comfort with physical contact, and use of OMT only improved with the STCE in pre-pandemic students (p<0.05) despite a significantly higher interest in OMM in 2024. (p<0.001).

**Conclusion:** STCE improves student confidence with OMT diagnosis, performing OMT, comfort with physical contact, and usage of OMT. These skills may have been attenuated by the COVID-19 pandemic. Future research is needed to determine if online learning, social distancing, as well as opportunities and/or attitudes toward OMT shifted post-pandemic at rotation sites. These data are a call to the profession for additional engagement and support of student education at the rotation sites, with a focus on OMM.

#### Moksha Mehra, OMS III; Atieh D. Ashkezari, OMS III; Emma Caron, OMS III; Philip Noto, DO; Sheldon C. Yao, DO, FAAO

#### Exploring the Impact of Teaching Assistants on Student Learning in Osteopathic Manipulative Medicine (OMM) Laboratory Session: A Survey Study

**Background:** Osteopathic Manipulative Medicine (OMM) is crucial in osteopathic medical education, necessitating effective teaching methods to help students master psychomotor skills involved in performing hands-on techniques. Teaching assistants (TAs) can enhance student learning by offering near peer teaching and diverse instructional strategies. We hypothesize that TAs will positively impact students' perceived learning, confidence, and understanding of OMM. exam performance among OMS1s and OMS2 TAs, and OPP faculty/staff impressions of student engagement – outcomes of clear relevance across all COMs.

Methods: A five point likert scale questionnaire was Methods: Surveys were distributed to all OMS1s, created to assess students' perceptions of TAs in the OMS2 TAs, and OPP faculty/staff over two consecutive OMM lab and sent to 320 first-year osteopathic medical academic years. Surveys were comprised of statements students via email. Responses were recorded exploring perceptions of program impact on anonymously from 5/21/24-6/13/24. Proportion of engagement, learning, exam performance, and general those who agreed with the posed question item was program impression using a Likert scale to assess reported with its 95% confidence interval. Data was responses. Responses were categorized as positive, analyzed by a statistician using Microsoft Excel. negative, or neutral, and relative frequencies for each were calculated.

Results: 113 responses were returned and analyzed. 'Strongly agree' and 'agree' responses were classified as Results: Response rates were <20% for students and agreement with the posed question. 95% of students ~50% for faculty/staff. 85.0% of all respondents agreed that OMM TAs were helpful in improving their expressed positive impressions of the program. 77.4% of overall understanding of OMM techniques and OMS1s and 95.8% of OMS2-TAs reported improved principles (95% CI= (91.0%, 99.0%)). 74% of students OMM skills and understanding. 82.3% of OMS1s and agreed that the TAs had different ways of explaining 75.0% of OMS2-TAs reported improvement on OPP practical exams. 43.5% of all students reported topics that helped bridge gaps in their understanding (95% CI= (66.0%, 82.0%)). 72% of participants agreed improvement on OPP written exams. 86.7% of OPP their interactions with TAs made them feel more faculty/staff reported improved student engagement and confident in performing OMM skills (95% CI= (64.0%, understanding 80.0%)). 43% of students agreed that they felt more Conclusions: Limitations of our study include low response rates, representativeness, and lack of a

comfortable approaching TAs with questions rather than faculty (95% CI= (34.0%, 52.0%)). control/comparison group. However, the data provide Conclusion: These results suggest that TA programs preliminary evidence for the potential benefits of promoting near peer teaching for psychomotor skills OPP-TA programs. Future research should increase courses could be beneficial in procedural courses. Further subject participation, explore ideas to optimize program research is needed to evaluate the impact on OMM impact, and employ methods, like focus groups, that practical test scores; however, confounding variables, allow for more detailed feedback and suggestions for such as intervention programs, make it difficult to improvement. currently isolate TAs' specific effect.

#### Grace Miller, OMS V; Jan Pryor, DO, MPH; Lisa Chun, DO, MS.Med.L, FNAOME

#### Assessing the Impact of Osteopathic Principles and Practice Teaching Assistants (OPP-TAs) at California Health Sciences University College of Osteopathic Medicine (CHSU-COM)

Background: Chronic neck pain (CNP) currently affects Introduction: We evaluated the impact of the OPP-TA 203 million people worldwide, with projections rising to program, which aims to enhance student interest, 269 million by 2050. CNP can result from muscle strain, learning, and skill acquisition by providing peer-to-peer stress, or underlying health issues, ranging from mild teaching and support. Research in this area is sparse. One discomfort to serious conditions. Around half of those COM explored student perceptions of a peer-to-peer affected experience recurrence despite standard medical teaching/tutoring program using surveys, and another care. While effective protocols exist for conditions like used surveys and academic performance to evaluate the whiplash and cervical radiculopathy, treatment for CNP impact on students and tutors. We hypothesize that the often relies on alternative therapies, including manual OPP-TA program will improve skills/understanding and approaches. Integrating osteopathic care into these

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*ic* Evaluation of Osteopathic Manipulative Treatment Strategies in Adults with Chronic Neck Pain treatments may enhance long-term outcomes.

Methods: The primary databases used were CINAHL, Cochrane Library, EMBASE, MEDLINE, PubMed, and Web of Science. This analysis aims to assess neck pain in the context of modern lifestyle changes and mechanical dysfunction, following JBI systematic review methodology.

Results: Randomized controlled trials of osteopathic treatment modalities, including High Velocity Low Amplitude, Muscle Energy, and soft tissue techniques, show significant improvements in chronic neck pain compared to control and alternative groups. These studies assessed outcomes using various measures, such as the Visual Analogue Scale, Neck Disability Index, range of motion, and standing postural balance. The consistent positive results across overlapping outcomes support the efficacy of osteopathic manipulative treatment (OMT) in chronic neck pain management. Secondary outcomes also demonstrated moderate to long-term improvements in sleep and fatigue. Despite limitations such as small sample sizes (<100) and relatively short follow-up periods (up to 52 weeks), randomized controlled trials highlight OMT's consistent and promising advantages.

Conclusion: OMT remains underutilized and warrants further research to highlight the benefits of its long-term use. Understanding viscerosomatic treatment of neck pain can provide a valuable precedent for identifying other chronic conditions.

Hasin Sharma, OMS III; Julia Bethea, OMS III; Nicholas Doberstein, OMS III; Tara Shenker, OMS III; Bradley Gregory, OMS III; Rebecca Hoffman, OMS III; Daniel Aizenman, OMS III; George Guirguis, OMS III; Johnny Hoffmann, OMŠ III; Zachary Harris, DO

#### The Application of Osteopathic Manipulative Treatment (OMT) in Neurodegenerative Disorders: A **Scoping Review**

Introduction/Background: Neurodegenerative disorders (ND) are characterised by age-dependent damage and neuronal loss. Osteopathic manipulative treatment (OMT), consisting of non-invasive modalities used to treat multiple conditions, has proven to increase range of motion and decrease pain. However, OMT's efficacy in ND has not been well-established. This study aims to gather information on OMT's impact on patient quality of life for Parkinson's disease (PD), Alzheimer's disease (AD), dementia, Huntington's disease and

Amyotrophic Lateral Sclerosis (ALS).

Methods: Literature was collected through EMBASE, Ovid MEDLINE and Web of Science. Criteria was limited to papers in English and published after 1995. Human subjects were included, with the exception of AD in which rat models were used. The most commonly diagnosed neurodegenerative disorders were chosen to generate a broad pool of results. 143 articles were identified, with eleven articles selected for analysis.

Results: Seven studies highlighted OMT's effect on PD. Five addressed patients' gait, one investigated PD-related constipation, and one evaluated PD-related reactive oxygen species biomarkers. PD patients reported improved gait and constipation. Three studies, utilizing rat models, addressed OMT's effects on AD. Two studies discussed OMT's effects on spatial memory; one study explored its effects on biomechanical processes involving AD. One study addressed OMT's safety and practicality in ALS management. ALS patients demonstrated high satisfaction levels with OMT. No data was found regarding OMT's effects on Huntington's Disease.

**Conclusions:** Overall, OMT is a modality that may be used as an adjunct to traditional treatment regimens for NDs. However, research is necessary to support OMT's long-term efficacy in managing NDs. Limitations of this study include the use of rat models due to unavailable clinical studies for AD, as well as small patient pools.

Lauren Velasquez, OMS III; Allison Walker-Elders, OMS II; Hadas Feygin, OMS II; Daniel Hahn, OMS III; David Lee, OMS I; Mikhail Volokitin, MD, DO

#### Gender Sensitivity in Osteopathy: The Challenge of **Diagnosing Pubic Symphysis Somatic Dysfunctions**

Introduction: Osteopathic medical students are trained in palpatory skills to diagnose somatic dysfunctions, often practicing on peers. However, mental discomfort with evaluating certain body parts, such as the pubic symphysis, may hinder their ability to fully address clinical needs, conflicting with the osteopathic principle of treating the body as a unit.

Hypothesis: This study examines areas where students may feel discomfort while diagnosing pelvic somatic dysfunctions, including the pubic symphysis.

Methods: Twenty student researchers were randomly assigned fellow students to study. Following consent, researchers diagnosed the participant's pelvis, including the pubic symphysis (n=104). Pubic somatic osteopaths on a HwH "medical mission" to Cartago, dysfunctions were classified as either "Superior Shear," Costa Rica. The team partnered with local schools and "Inferior Shear," or "Equal." Researchers rated their agencies providing OMT treatments (articulatory, myofascial release, craniosacral, and other techniques) in comfort and proficiency in accurately diagnosing the pubic symphysis on a Likert scale (1.0 = Not)one-hour appointments to over one hundred children Proficient/Uncomfortable; 7.0 = Very Proficient/Very and adults with cognitive or physical disabilities. Improvements in somatic dysfunctions were measured Comfortable). A blinded analyst compared the through pre- and post-treatment screenings, with distribution of diagnoses based on researcher-participant follow-ups offered as needed. gender pairings ("Same" or "Opposite").

Results: "Opposite"-gender pairs showed higher "Equal" Results: Post-treatment, patients demonstrated pubic symphysis diagnoses (40.00% of all diagnoses) significant improvements in joint range of motion, gait when compared to "Same"-gender pairs (13.56%), coordination, and functional capacity including sleep and mood. HwH volunteers were able to address regardless of lateralization or innominate diagnosis. The post-study survey highlighted that researchers patients' emotional and spiritual needs by creating a safe self-reported feeling less proficient in diagnosing pubic environment, being present, and attuning to nonverbal cues. The time spent with patients during treatments also symphysis dysfunctions than the general pelvis (5.77 vs. 6.30). The primary barrier was the region's sensitivity allowed HwH volunteers to engage their family members (69.2% of 13 respondents). in meaningful conversations and encourage them on their caretaking journeys.

Conclusion: Students feel less proficient in diagnosing pubic symphysis dysfunctions, particularly with Conclusion: HwH serves as a model for integrating opposite-gender participants, due to the region's hands-on therapy, to address physical, emotional, and sensitivity. Osteopathic educators must consider these developmental needs of global communities. HwH hesitations and help students diagnose the whole body as provided osteopathic medical students the opportunity to utilize OMT to benefit individuals with disabilities as a unit. One limitation of our study is that not all researchers completed the post-study survey (n=13). well as their families. The mission exemplified caring for Additional research could help identify sensitive areas individual's mind, body, and spirit, while highlighting where students need further instruction. the importance of community, demonstrating the value of expanding the accessibility of OMT especially Mia Villarosa, OMS IV; Peter Bae, OMS IV; amongst populations with disabilities.

Joohee Yeam, OMS IV; Vivian Hoang, OMS IV; Garrison White, OMS IV; Janice Blumer, DO, FAAO

# Impact of Osteopathic Manipulative Treatment in

Daniel Hahn, OMS III; Michael Krakowski, **Delivering Comprehensive Care in Populations with** OMS II; Saranda Kadriovski, OMS II; Michael **Disabilities** Pierides, OMS II; Lauren Velasquez, OMS III; Introduction: Non-governmental organizations Mikhail Volokitin, MD, DO (NGOs) provide support to socioeconomically A Novel Calibration Methodology for Osteopathic disadvantaged countries in the form of services (e.g. Manipulative Medicine Research: Improving Study educational, healthcare) and material resources, but Validity by Standardizing Intra-researcher addressing the mental and emotional needs of the **Techniques** communities is especially challenging. Hands with Heart Foundation (HwH), an osteopathic volunteering Introduction/Background: Conducting Osteopathic organization that serves people with disabilities globally, Manipulative Medicine (OMM) research poses exemplifies how leveraging osteopathic manipulative challenges in maintaining validity due to variations in treatment (OMT) can empower healthcare NGOs to palpatory skills among researchers, which can skew data care for communities more holistically. in randomized trials. Previous literature shows that efforts to improve intra-researcher reliability, such as Methods: In June 2024, osteopathic medical students

involving multiple physicians or establishing detailed and faculty from WesternU COMP joined European

#### **Original Research**

guidelines, have shown limited success. Increasing the number of researchers could reduce the study's validity.

Hypothesis: This study hypothesizes that a calibration protocol before initiating OMM research will standardize diagnostic skills, improve assessment proficiency, and reduce variability in investigating techniques.

Methods: Nineteen researchers underwent a calibration protocol to qualitatively and quantitatively evaluate innominate and pubic somatic dysfunctions. Researchers were paired with a board-certified OMM physician for identical evaluations. "Passing" calibration required adherence to all protocol steps, 70% accuracy in palpatory findings, and measurements within 15% error. Failing participants repeated calibration or faced exclusion from future participation. Pre- and post-calibration questionnaires assessed self-reported proficiency in OMM techniques on a 7-point Likert scale (1 = Not proficient, 7 = Very proficient).

Results: Fourteen researchers passed calibration on the first attempt, and five succeeded on the second. Post-calibration, all achieved proficiency with high inter-researcher reliability, verified by the OMM physician. Pre- and post-calibration surveys showed that self-reported diagnostic confidence increased from 5.9 to 6.2, and treatment confidence rose from 5.8 to 6.8.

Discussion/Conclusion: The evidence supports the effectiveness of a calibration in enhancing intra-researcher reliability in OMM studies. As OMM research relies on practitioners' hands for data collection and treatment analysis, implementing calibration is essential for OMM research to improve study validity in multi-researcher designs. A limitation was the small sample. Future studies should calibrate additional OMM techniques, such as vertebral or cranial evaluations.

Regan Hunt, OMS IV; Alexandra Stellon-Miller, OMS IV; Jordan Appel, OMS IV; Brian Neiheisel, OMS IV; Sarah Parrott, DO

#### Turning Heads: Utilization of FDM in Treatment of Asymmetrical Neck Range of Motion

The Fascial Distortion Model (FDM) assesses musculoskeletal dysfunctions using patient verbal and body language to indicate a fascial distortion(s). Current FDM research lacks objective data, which this pilot study aimed to produce. We hypothesize that neck ROM, measured by rotation and side-bending, will increase immediately following single FDM treatment.

We conducted a single-arm study of adults with asymmetric neck ROM in side-bending and/or rotation within a university population. Neck ROM was measured via goniometer before and after FDM treatment. ROM was considered asymmetric if there was a 10° and 5° or greater difference between right and left rotation and side-bending, respectively. Participants were evaluated for supraclavicular herniated trigger points (HTP) and acromioclavicular joint to mastoid trigger bands (TB) and treated appropriately. These are common distortions and can implicate upper trapezius dysfunctions.

Initially, 22 participants had asymmetric neck ROM, with 9 asymmetric in rotation and 19 in side-bending. 9/9 (P<0.001) achieved improved symmetry in rotation, with 6/9 having increased rotation in both directions. In side-bending, 12/19 (P=0.19) achieved improved symmetry, and 11/19 had improved ROM to both right and left. 21/22 (95%) participants self-reported improvement, and the researcher noted visually improved ROM in 17/22 (77%) following FDM.

Results conclude that FDM significantly and immediately improves neck ROM and asymmetry in rotation. Rotation improvements may enhance overall neck function and reduce discomfort. Changes in side-bending were not significant, which could be attributed to a lesser normal ROM in side-bending. Given the prevalence of neck pain, we encourage the potential of FDM as a treatment. Further investigation should expand study population, compare FDM to NSAIDs/Tylenol, and explore the impact of FDM on other body regions.

Michael Milius, OMS II; Trevor Jurges OMS II; Jessica Pentlarge; Diane Gabriel OMS II; Nathaneal Yang; Samhitha Yadalla; Sarah Siddiqui; Kyle Bills, PhD, DC; Nathan Barnhurst, DO

#### **Evaluating the Efficacy of AI Note-Taking Software** in Documenting Osteopathic Manipulative Medicine **Treatment Encounters**

Introduction: Recent research shows that physicians spend nearly half of their workday interacting with electronic health records (EHR), with a significant portion of this time occurring during patient visits. This contributes to a substantial documentation burden both

during and outside of encounters. While artificial establishing a foundation for developing a treatment intelligence (AI) softwares are increasingly being used to protocol. generate clinical notes, allowing physicians to focus on **Objective:** To assess the application of osteopathic patient interactions, there is limited research on their manipulative treatment (OMT) for patients with effectiveness in documenting osteopathic manipulative post-COVID symptoms. medicine (OMM) encounters.

Methods: This NYIT IRB BHS-1719 approved survey Hypothesis: Not all AI softwares are created equally. was nationally distributed through osteopathic This study aims to identify whether a certain program is associations to physicians who use OMM for post-covid more accurate than others at capturing and documenting symptoms. Participants participated via an anonymous an OMM-specific patient encounter-both the redcap survey. Five gift cards were randomly offered for diagnosis and treatment of somatic dysfunction. participation. Survey data was gathered and analyzed.

Research Design and Methods: Four AI softwares were Results: 48 of the 56 of respondents reported using used to record seven patient encounters that involved OMT to treat patients post COVID-19 symptoms. OMT. Student doctors and physicians then reviewed the OMT was most commonly applied for neurological symptoms (200/508), followed by musculoskeletal (174/508) and pulmonary symptoms (75/508). Within all categories, the following symptoms were most treated: fatigue (12.2%), dyspnea (5.5%), cough (5.7%), headache (6%), and muscle pain or tenderness (5.5%). treatment, inclusion of appropriate ICD-10 codes, note From the various techniques, physicians found formulation speed, and ease of use. osteopathic cranial manipulation medicine (18.9%), balanced ligamentous tension (16.2%), and lymphatic drainage (15.8%) to be most beneficial for improvement of these symptoms.

generated notes and compared one software's note to another for each encounter, and generated a score based on the follow criteria: consistency of the primary diagnosis with the physician's diagnosis, accuracy of documentation of somatic dysfunction diagnosis and Results: The AI softwares were ranked based on their total scores, from highest to lowest: Freed achieved the highest score at 81.43%, followed by Heidi with 79.64%, Nabla with 66.67%, and Swifty with 26.19%.

**Conclusion:** The study results indicated that physicians **Conclusion:** These results can guide osteopathic most frequently used OMT to treat neurological complaints, followed by musculoskeletal and pulmonary physicians in selecting the most effective AI software for documenting OMM encounters. Our goal is to reduce issues. Preferred treatment techniques included cranial, documentation burdens, alleviate physician fatigue and indirect, and lymphatic methods. This data can help design future studies on OMT protocols to effectively burnout, and ultimately improve patient outcomes while focusing on osteopathic medical care. address the most common symptoms treatable with OMT.

Natalia Nawrocka, BS, OMS II; Athena Baronos, BA/BS, OMS II; Sheldon C. Yao, DO, FAAO

#### **Osteopathic Manipulative Treatment (OMT) Techniques Utilized for Specific Post-COVID** Symptoms Based on Physician Survey Results

Introduction: COVID-19 impacts multiple body systems, resulting in a wide range of symptoms for **Evaluating the Acute Effects of Osteopathic** patients. Osteopathic Manipulative Treatment (OMT) **Manipulative Treatment on Sprint Times** has the potential to aid in the treatment of post-COVID Osteopathic Manipulative Treatment (OMT) has symptoms. However, there is currently limited data on demonstrated effectiveness in improving athletic the application of OMT for post-COVID-19 symptoms, performance, such as shoulder range of motion in and no established OMT protocols exist for treating long baseball players and balance in soccer players. However, COVID. This survey aims to identify the most its effects on sprint performance, specifically in commonly treated symptoms and the preferred OMT competitive environments, have not been adequately techniques used by physicians, with the goal of explored. Sprinting is a high-intensity activity that relies

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on factors such as anaerobic capacity, neuromuscular efficiency, and VO2 max. While OMT has shown promise in enhancing VO2 max and muscle function, its immediate impact on 100-meter sprint performance remains unclear. This study aims to evaluate whether OMT can improve 100-meter sprint times in competitive athletes and inform its potential use in sideline protocols during competitions.

Participants were young adults recruited from the community. After obtaining informed consent, participants completed a standardized 10-minute dynamic warm-up before their first timed 100-meter sprint trial. Following this, participants were randomized into two groups: a treatment group receiving a 5-minute lower extremity OMT protocol administered by an osteopathic physician, and a control group receiving 5 minutes of sham therapeutic ultrasound. A second 100-meter sprint was performed under identical conditions to the first trial.

Data analysis using paired t-tests revealed a slight improvement in sprint times in both groups, with a mean improvement of 0.07 seconds in the treatment group (p = 0.243) and a 0.03-second improvement in the control group (p = 0.329). However, these improvements were not statistically significant, and between-group analysis showed no significant differences (p = 0.477).

In conclusion, while OMT showed a slight improvement in sprint performance, its acute impact on 100-meter sprint times was not statistically significant. Future studies with larger sample sizes and alternative protocols are needed to better understand the potential benefits of OMT in competitive settings.

#### Kaili Sudweeks, OMS II; Matthew McClendon, OMS II; Fatima Khalil, OMS II; Adrienne Kania, DO, FAAO

#### Short-Lever Assessment of Spinal Side-Bending

**Hypothesis:** Translation of lumbar and thoracic vertebrae can be visualized on ultrasound during short-lever side-bending technique.

**Research Design:** Osteopathic literature doesn't include adequate evaluation of in vivo testing of spinal somatic dysfunction corroborated with modern imaging. Through collection of normative data, our objective was to determine if the thoracic and lumbar vertebrae moved into side-bending when applying the short-lever side-bending technique, and to determine the force required to induce side-bending.

Methods: Physicians skilled in osteopathic manipulation identified four vertebral segments in a prone subject: one normal and one Type 2 somatic dysfunction in the lumbar and thoracic regions. Subjects were free of debilitating conditions of the spine. The short-lever side-bending technique was applied per Atlas of Osteopathic Techniques by Drs. Nicholas. As ultrasound is routinely used in spinal evaluation, a transducer was positioned longitudinally, monitoring changes in intertransverse space during translations in both phases. In the unblinded phase, physicians were allowed to observe the ultrasound screen. Physicians replicated applied forces on loadpad sensors after each translation, ranging from 14-117N for successful translations. Twelve physicians completed 16 attempts each, totaling 192 attempts across phases.

**Results:** Only 13/192 translation attempts induced side-bending. Successes didn't vary significantly with variable physician experience, translation direction, vertebral dysfunction, or vertebral level. There was no relationship between success rate and force application.

**Conclusions**: Physicians were unable to consistently induce side-bending using the short-lever approach on ultrasound. The few successes were likely due to chance. The short-lever technique, as demonstrated in the Nicholas manual, is not effectively visualized on ultrasound in living subjects. Instruction using this technique should be reconsidered.

**Limitation:** evaluation time permitted only one subject per physician.

Lauren Velasquez, OMS III; Hagop Klachian, OMS II; Natalie Paraschiv, OMS II; Julia Sinsky, OMS II; Daniel Hahn, OMS III; Mikhail Volokitin, MD, DO

#### The Anatomy of Flares: Correlations Between Inflare/Outflares and Innominate Movements

**Introduction/Background:** Recent studies suggest a link between innominate inflare/outflare, rotational, and shear patterns, but findings are limited due to a lack of large-scale studies. This study aims to establish baseline patterns of innominate flares with rotational and shear components to help optimize treatments for these dysfunctions.

**Objective:** This research aims to understand the distribution of innominate flares in a healthy population

and how they correlate with innominate somatic dysfunctions (SD).

**Methods:** Participants (n=64) were randomly assigned to be evaluated using a double-blinded protocol assessing innominate rotational and flare SDs. This included a palpatory qualitative diagnosis and a measurement quantitative diagnosis. Two researchers measured flare distances (cm) from the umbilicus to the Anterior Superior Iliac Spine (ASIS) for inter-reliability. Quantitative data was used to determine the distribution of SD diagnoses, and correlations were identified within the subject population.

**Results:** Anterior innominate rotation SDs (39.68% of total) are the most correlated innominate SD with both Inflares and Outflares. Left-sided flare dysfunctions were primarily correlated with superior shear SDs (25.40%),

- while right-sided flare dysfunctions were correlated most with anterior innominate rotations (28.57%). Inflare and outflare patterns are commonly observed when the affected side's PSIS is superior (36.51% and 33.33%, respectively), such as with anterior innominate rotations and superior innominate sheers. Inflare patterns are rarely associated with inferior shear innominate dysfunctions (3.17%). **Discussion/Conclusion:** The findings suggest that addressing inflare or outflare SD with osteopathic manipulation may indirectly aid anterior innominate rotation SDs. Further studies are needed to validate these observations and refine treatment protocols,
- these observations and refine treatment protocols, poth were help by the lack of additional bony landmark measurements to qualify diagnoses.