

## The Somatic Connection

“The Somatic Connection” highlights and summarizes important contributions to the growing body of literature on the musculoskeletal system’s role in health and disease. This section of *The Journal of the American Osteopathic Association (JAOA)* strives to chronicle the significant increase in published research on manipulative methods and treatments in the United States and the renewed interest in manual medicine internationally, especially in Europe.

To submit scientific reports for possible inclusion in “The Somatic Connection,” readers are encouraged to contact *JAOA* Associate Editor Michael A. Seffinger, DO (mseffinger@westernu.edu), or *JAOA* Editorial Advisory Board Member Hollis H. King, DO, PhD (hollis.king@fammed.wisc.edu).

### Exercise Shown Effective for Management of Neck Pain—Who Needs OMT?

Evans R, Bronfort G, Schulz C, et al. Supervised exercise with and without spinal manipulation performs similarly and better than home exercise for chronic neck pain. *Spine*. 2012;37(11):903-914.

How many of us have told patients to “use it or lose it” as we prescribed exercises for general health enhancement, as well as for remediation or prevention of low back and neck pain? Patient compliance in my experience is quite modest at best. So when asked, I always say, “The best exercises are the ones that you do!” Exercise has almost no downside; it has been shown to be beneficial in so many different health conditions encountered in human experience, especially in the management of chronic pain.<sup>1</sup> Elkiss and Jerome,<sup>1</sup> for example, provide an outstanding discussion on this topic that is worth review by every osteopathic physician and medical student, not only because of their discussion of the benefits of exercise but also because of the chapter’s excellent embodiment and explication of osteopathic principles in the treatment of patients with pain.

Even in the landmark osteopathic research project that showed that lymphatic pump treatment increased the flow of lymph through the thoracic duct in dogs,<sup>2</sup> it was shown that exercise also increased lymphatic flow. Both findings were statistically significant. Exercise has also been shown to be helpful in the management of neck pain.<sup>3</sup>

Researchers at Northwestern Health Sciences University, Wolfe Harris Center for Clinical Studies in Bloomington, Minnesota, found that high-dosed supervised exercise therapy with spinal manipulation therapy (ET+SMT) did not produce significantly better outcomes than the high-dosed supervised exercise therapy (ET) alone, and that both ET+SMT and ET produced significantly better outcomes than low-dose home exercise and advice (HEA).

This well-powered randomized controlled trial used a patient-rated pain scale (0-10 scale) as the primary outcome measure; secondary outcome measures included Neck Disability Index, Medical Outcomes Study 36-Item Short Form, and intensive individual interviews to assess patient satisfaction.

Objective biomechanical assessments of cervical spine motion, isometric strength, and dynamic endurance were performed at baseline and at 12 weeks by blinded examiners.

Patients were recruited by advertisement. Inclusion requirements were age 18 to 65 years; primary complaint of biomechanical, nonspecific neck pain duration of 12 weeks or more; and a neck pain score of 3 or greater. Exclusion criteria were previous cervical spine operation, neck pain referred from peripheral joints, progressive neurologic deficits, cardiac disease, inflammatory changes of the cervical spine, substance abuse, and pregnancy.

Patients (N=270) were randomly assigned among the 3 groups (ie, ET+SMT, ET, and HEA) at baseline for the 12-week trial. Data were collected at 2 baseline appointments (at 4 and 12 weeks) and after group assignment (at 24 and 52 weeks). The key to this study was the nature of the ET, which focused on neck and upper body strengthening individualized for each patient. The protocol called for 20 one-on-one supervised sessions of 1-hour duration with an emphasis on high numbers of repetitions and increasing loads with patient wearing headgear with variable weight attachments. Upper body strengthening included push-ups and dumbbell shoulder and chest exercises. The strengthening program also included light warm-up and stretching before and after strengthening.

In the ET+SMT group, the ET was preceded by a 15- to 20-minute session of SMT administered by a licensed chiropractor. The SMT was applied to the cervical and thoracic spine, as determined by the chiropractor, using high-velocity, low-amplitude thrust to the areas of interest. Light soft-tissue massage was used as needed.

The HEA group received two 1-hour sessions with therapists who taught simple self-mobilization of the neck and shoulder joints; exercises were individualized to each patient. Patients in this group were instructed to do 5 to 10 repetitions of each

exercise in the series up to 6 to 8 times per day. Each patient received a booklet with exercises illustrated. Patients were followed up in person 1 to 2 weeks later and were instructed to continue the exercises for the remainder of the trial.

There were no differences in the demographics between the 3 groups. At 4 weeks, all 3 groups reported decreased pain levels. At 12 weeks, there was a statistically significant reduction in pain reported by the ET+SMT and the ET groups compared with the HEA group. There was no difference between the ET+SMT and the ET groups at 12 weeks. At 26- and 52-week follow-up, there was no difference in self-reported pain. However, at 52 weeks, the ET+SMT and the ET groups reported significantly higher patient satisfaction scores. The authors suggested that SMT conferred little additional benefit when added to supervised exercise for chronic neck pain.

The authors noted that the study was not designed to differentiate between the specific effects of the exercise and SMT and the contextual or nonspecific effects including patient-provider interactions. However, it was impressive to see how a highly structured, intensive strengthening regimen and even a low-dose exercise regimen (HEA) reduced neck pain over 52 weeks from 5.5 to 5.7 for all 3 groups to a range of 3.1 to 3.6—findings that were considered clinically meaningful.

The question of whether or not osteopathic manipulative treatment is as beneficial as exercise in the treatment of patients with neck pain is not really addressed in this study. Most exercise programs implemented in osteopathic medical practice are not of the intensive nature as that used in this study. Indeed, it is questionable that third-party payers would cover such an exercise program even if the patients are highly satisfied, as suggested in this study. However, it is worthy to note that exercise is beneficial in the management of neck pain and deserves greater attention in osteopathic medi-

cal education in my opinion. This study was selected for review because of the long-term study of the patients and the opportunity to examine the effects of exercise in health care services.

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### References

1. Elkiss ML, Jerome JA. Chronic pain management. In: Chila AG, executive ed. *Foundations of Osteopathic Medicine*. 3rd ed. Baltimore, MD: Lippincott Williams & Wilkins; 2011:253-275.
2. Knott EM, Tune JD, Stoll ST, Downey HF. Increased lymphatic flow in the thoracic duct during manipulative intervention. *J Am Osteopath Assoc*. 2005;105(10):447-456.
3. Kay TM, Gross A, Goldsmith C, Santaguida PL, Hoving J, Bronfort G; Cervical Overview Group. Exercise for mechanical neck disorders. *Cochrane Database Syst Rev*. 2005;(3):CD004250.

## Yoga and Massage for Prenatal Depression and Prematurity

Field T, Diego M, Hernandez-Reif M, Medina L, Delgado J, Hernandez A. Yoga and massage therapy reduce prenatal depression and prematurity. *J Bodyw Mov Ther*. 2012;16(2):204-209.

Depression during pregnancy has been correlated to premature delivery, low birth weight, and increased morbidity and mortality in newborns. Studies have shown that massage therapy helps to decrease depression in pregnancy. In addition, there is speculation that yoga may decrease premature delivery and increase birth weight. Long-time researchers in the field of massage therapy from the Touch Research Institute at the University of Miami School of Medicine in Florida assessed the effectiveness of yoga, massage therapy, and standard care only to alleviate depression in pregnant women and prevent premature delivery.

Researchers screened 208 women between 18 and 22 weeks gestation for depression using the Center for Epidemiological Studies Depression Scale. The participants were screened at their first scheduled ultrasonography (mean, 20 weeks gestation). Women older than 18 years, having an uncomplicated singleton pregnancy, and receiving a diagnosis of depression through the use of the Structured Clinical Interview for Depression met inclusion criteria. Women with diabetes, with HIV, aged greater than 40 years, who were self-reported drug users (or who used medication that might increase depressive effects), or diagnosed with other psychiatric conditions such as bipolar disorder were excluded. Eighty-four participants qualified and completed the study.

Five additional questionnaires were administered to participants to examine sociodemographics: comorbid psychological conditions; anxiety, a common comorbidity with depression; and anger, another common comorbidity with depression that has been noted to negatively impact neonatal outcome. Additional outcome measures included birth weight, gestational age, back pain, and leg pain.

Each participant received identical prenatal care and was randomly assigned to receive yoga, massage therapy, or standard prenatal care (control). Those assigned to yoga received 12 weekly sessions of professional yoga instruction (20 minutes per session) geared toward women in their second and third trimester. The massage group received 10 minutes of massage therapy lying on each side (20 minutes total) from a licensed massage therapist for 12 weeks. The researchers assessed the participants at the start of their regimen at 20 weeks gestation and again after the 12 weeks of treatment at 32 weeks gestation.

Demographic variables such as average age (26 years) and socioeconomic status (low) did not differ between the 3 groups. Both the yoga and massage groups showed significant improvement in depression ( $F=82.40$ ,  $P<.001$ ), anxiety ( $F=26.23$ ,  $P<.001$ ), anger ( $F=14.59$ ,  $P<.001$ ), back pain ( $F=39.06$ ,  $P<.001$ ), leg pain ( $F=19.77$ ,  $P>.001$ ), and relationships ( $F=7.88$ ,  $P<.001$ ) compared with the standard care group. Additionally, the interventional groups (yoga and massage) yielded a significantly increased gestational age ( $F=18.83$ ,  $P<.005$ ) and birth weight ( $F=31.52$ ,  $P<.001$ ) compared with those of the standard care group.

Both yoga and massage therapy in addition to standard care appear to be valuable complementary treatments for patients with depression during pregnancy. Limitations of the study include the lack of a placebo or sham therapy group and not assessing the combined effects of massage therapy plus yoga in addition to standard care.

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## Visceral Manipulation May Affect Pain Perception

McSweeney TP, Thomson OP, Johnston R. The immediate effects of sigmoid colon manipulation on pressure pain thresholds in the lumbar spine. *J Bodyw Mov Ther.* 2012;16(4):416-423.

Arguably one of the most significant contributions to health care made by the osteopathic medical profession is the development of the concept of viscerosomatic and somatovisceral interactions.<sup>1</sup> Initially published by Burns in 1907<sup>2</sup> and later researched by Korr,<sup>3</sup> the concepts of viscerosomatic reflexes and facilitated segments are now regularly taught in osteopathic medical schools. However, the concepts are in great need of further research to establish clinical significance and applications in medical treatment. Likewise, the use of visceral manipulation<sup>4</sup> is also in need of more empirical examination. This study was selected for review because it pertains to both osteopathic theory and practice.

Researchers at the British College of Osteopathic Medicine and Swansea University in the United Kingdom evaluated the effect of visceral manipulation therapy (VMT) on pressure pain thresholds in 15 healthy, asymptomatic participants in this single-blinded, randomized, within-subjects, repeated measures study. The experimental procedure comprised 1 minute of VMT to the sigmoid colon in the left iliac fossa, drawing it superolaterally, and then releasing it. This procedure was repeated at a frequency and amplitude determined by the tissue response, as is typical in clinical practice. The sham intervention was 1 minute of light manual contact over the umbilical region with no treatment intention or tissue barrier engagement. When receiving VMT and sham therapy, participants were told they were receiving osteopathic therapy. The control session consisted of the researcher simply being present for 1 minute. All interventions were carried out by a registered osteopath with clinical experience using VMT. All participants received each intervention with a minimum of 48 hours between sessions.

The dependent variable was pressure pain threshold (PPT) as measured by a handheld manual pressure algometer. One algometer reading was made at the L1 level, 1 cm left-lateral to the spinous process. This site was chosen for its established segmental level for autonomic innervation associated with the sigmoid colon. The first dorsal interossei on the right hand was used to monitor any systemic response to the interventions. Readings of PPT were made immediately before and after the interventions. Participants were instructed to report when the pressure applied by the algometer transitioned from an experience of pressure to a painful sensation.

The results showed a statistically significant difference for pre- and postintervention PPTs in the lumbar spine ( $P < .0001$ ) with no differences reported for the sham or control groups. The mean change for lumbar spine PPT readings was 18.4%, which was above the literature-established level of 15% as indicative of clinically meaningful change.

Limitations of the study are that it used a small sample and did not use a participant-activated button press for reporting pain, which means that there could have been a pain perception report from a time-delayed verbal report that the PPT assessor visually measures. Also, the use of asymptomatic participants raised questions as to whether the effects would have been less if participants with visceral or musculoskeletal disorders were used.

Also lacking is any assessment of the duration of effect.

Although it appears that a viable and likely mechanism of action in this study was a neurophysiological process related to the concept of viscerosomatic reflexes, the design is not robust enough to justify anything more than the usual statement that more research is needed before any definitive conclusion can be made. However, the authors should be acknowledged for presenting a novel research design to explore both the application of VMT and the osteopathic concept of viscerosomatic interactions.

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#### References

1. King HH. Osteopathic medicine, somato-visceral interactions and clinical research—ready for prime time? Presented at: International Symposium on Somato-Visceral Interactions and Autonomic Mechanisms of Manual Therapy; March 31-April 1, 2008; Fort Worth, TX.
2. Burns L. Viscerosomatic and somatovisceral spinal reflexes. *J Am Osteopath Assoc.* 1907;7:51-57.
3. Korr IM. *The Collected Papers of Irvin M. Korr.* Indianapolis, IN: American Academy of Osteopathy; 1979.
4. Lossing K. Visceral manipulation. In: Chila AG, executive ed. *Foundations of Osteopathic Medicine.* 3rd ed. Baltimore, MD: Lippincott Williams & Wilkins; 2011:845-849.

## Abdominal Visceral Manipulation Prevents and Reduces Peritoneal Adhesions

Bove GM, Chapelle SL. Visceral mobilization can lyse and prevent peritoneal adhesions in a rat model. *J Bodyw Mov Ther.* 2012;16(1):76-82.

One of the major complications of abdominal surgery is abdominal adhesions, which can negatively impact a patient's quality of life. Unfortunately, the only intervention currently available is further abdominal surgery—adhesiolysis.<sup>1</sup> Diamond et al<sup>2</sup> noted, "Adhesions are a major health care burden, and their reduction is a significant unmet need in surgical therapeutics." Additionally, there are limited options for preventing adhesion formation, and none are consistently reliable.<sup>3</sup> However, one relatively unexplored option is visceral manual manipulation.

To explore the efficacy of visceral manipulation in preventing and managing abdominal adhesions, Bove and Chapelle assigned 10 rats each to a lysis group, a preventive group, and a control group. All 30 rats were given an abdominal incision followed by cecum and abdominal abrasions to induce abdominal adhesions. Seven days after the procedure, the rats were euthanized, and evaluation and grading of abdominal adhesions were conducted by blinded, trained individuals.

In the lysis group, abdominal visceral manipulation was used to break up adhesions palpated on postoperative day 7, right before the rats were euthanized. In the preventive group, visceral manipulation was used beginning postoperative day 1 and was repeated once per day up until day 7, when they were euthanized. Control group rats received no visceral manipulation. Visceral manipulation consisted of no more than 5 minutes of digital palpation for adhesions, lysis of palpated adhesions, and mobilization of intestines and the abdominal wall on unsedated rats. Adhesions were identified as areas with decreased mobilization on palpation. In brief, palpation consisted of evaluating the ab-

dominal wall's ability to be lifted from its contents, the cecum's ability to be moved in all planes, and the small intestine's ability to be mobilized. When decreased motion was felt, appropriate pinching and stretching methods were used to free the area of the adhesion causing the restriction. The coauthor who applied the palpation and manipulation was a registered massage therapist in British Columbia, Canada. No information was given on her training or experience.

Once the rats were euthanized, a careful abdominal incision was made and pictures were taken of the rats' adhesions. Photographs were sent to 2 blinded investigators for grading, where 0 indicated no adhesions and 4 indicated established adhesions. Four types of adhesions identified postmortem were cecum-cecum, cecum-abdominal wall, cecum-fat, and fat-abdominal wall adhesions. The number of adhesions did not differ between groups; however, the grading severity did. Notably, the lysis group had the highest average at 1.9 lesions, which was significantly higher than the preventive group's average of 0.6 lesions ( $P < .01$ ). The control group had an average of 1.4 lesions.

The investigators also looked for evidence of lysed adhesions, noted as shallow peritoneal defects in the lysis and preventive groups. Within the lysis group, 6 lysed adhesions were identified. The preventive group not only had 4 lysed adhesions, but the resulting peritoneal defect was not inflamed. Lastly, overall healing was improved in the preventive group compared with the lysis and control groups. Although not measured, the parietal peritoneal incisions were noted as being better healed and petechiae on the cecum from the surgical abrasion were notably less in the preventive group.

It was concluded that visceral manipulation has a positive benefit not only of lysing adhesions, but also of preventing them as well. Physiologically, visceral manipulation may decrease the formation of adhesions because it causes disruption of fibrin

and inhibits fibroblast migration to the injured area. Additionally, the increase in fluid movement due to manipulation could have caused increased metabolite exchange and, as a result, fibrinolysis. Rats were not sedated during manipulation, and the force needed to mobilize abdominal contents did not elicit flinching or biting. In fact, the investigators noted during manipulation that the rats became calm and allowed deep palpation and treatment. The investigators suggested that visceral manipulation should be used immediately after a surgical procedure because adhesion formation is greatest at this time. Furthermore, the rats in the preventive group were noted to have increased signs of healing, including a general observation of overall improved healing of the abdominal incision site. If more studies explore and confirm the benefits of visceral manipulation, these methods could be used on postoperative patients as an economical and non-invasive means of preventing abdominal adhesions and subsequent health complications.

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## References

1. DeWilde RL, Trew G; Expert Adhesions Working Party of the European Society of Gynaecological Endoscopy. Postoperative abdominal adhesions and their prevention in gynaecological surgery: expert consensus position. *Gynecol Surg.* 2007;4(3):161-168.
2. Diamond MP, Wexner SD, diZerec GS, et al. Adhesion prevention and reduction: current status and future recommendations of a multinational interdisciplinary consensus conference. *Surg Innov.* 2010;17(3):183-188.
3. Kumar S, Wong PF, Leaper DJ. Intra-peritoneal prophylactic agents for preventing adhesions and adhesive intestinal obstruction after non-gynaecological abdominal surgery. *Cochrane Database Syst Rev.* 2009;(1):CD005080.

## Frozen Shoulder Treatment—Different Strokes for Different Folks

Yang JI, Jan MH, Chang CW, Lin JJ. Effectiveness of the end-range mobilization and scapular mobilization approach in a subgroup of subjects with frozen shoulder syndrome: a randomized control trial. *Man Ther.* 2012;17(1):47-52.

Spencer techniques for the treatment of patients with shoulder somatic dysfunction have been applied in osteopathic medical practice for nearly 100 years,<sup>1</sup> have clinical research to support their efficacy,<sup>2</sup> and have been incorporated in sports medicine protocols.<sup>3</sup> The application of Spencer techniques in the treatment of patients with frozen shoulder has been a mainstay of my clinical practice and that of every osteopathic physician with whom I have discussed such conditions. Other manual therapy professionals use similar techniques in their care of patients with frozen shoulder conditions.

One group of physical therapists in Taipei City, Taiwan, used range of motion (ROM) and kinematic technology to evaluate the effectiveness of what they call “end-range mobilization/scapular mobilization treatment approach” (EMSMTA) in frozen shoulder syndrome (FSS) therapy. Previously, this research group established a system for determining degrees of FSS with the idea that certain treatment techniques would work better depending on the nature of the biomechanics of a frozen shoulder.

Patients with FSS were recruited through a university hospital clinic. Inclusion criteria were at least 50% loss of passive ROM of the shoulder joint relative to the nonaffected side in at least 2 of 3 movement directions (forward flexion, abduction, or external rotation in 0° of abduction) and complaints of at least 3 months duration. Exclusion criteria included history of stroke with upper extremity involvement, diabetes mellitus, rheumatoid arthritis, rotator cuff tear, surgical stabilization of the shoulder, osteoporosis, or malignancies in the shoulder region.

Patients were assigned according to ROM and kinematic analysis. To be considered for the study, patients had to demonstrate 8° of scapular posterior tipping, 97° of humeral elevation, and 39° of humeral external rotation during arm elevation. Patients who manifested these measurements were placed in the control group. Patients who were worse in any 1 of these dimensions were randomly assigned to a criteria-control group or the group that received the EMSMTA. The control group consisted of 10 patients, and the criteria-control group consisted of 12 patients who received the same standardized treatment approach. These patients received passive mid-range mobilization, flexion and abduction stretching techniques, physical modalities (ultrasound, shortwave diathermy, and/or electrotherapy), and active exercises. The 10 patients in the criteria-intervention group received the same therapies plus EMSMTA. The physical therapists applying the therapies all had at least 3 years of experience.

Of special interest to those familiar with Spencer and myofascial release techniques, the study's end range mobilization technique's description appeared to be very similar to "traction with inferior glide" and "traction circumduction,"<sup>4</sup> and the scapular mobilization technique was very similar to the "scapular myofascial release" described by DiGiovanna et al.<sup>5</sup> However, in this study, unlike in osteopathic medical practice, which uses "continuous palpatory feedback" to guide the technique, the physical therapy application of both EMSMTA techniques used a predetermined number of repetitions and sets.

All patients were treated twice per week for 3 months. The outcome measures were taken at baseline, 4 weeks, and 8 weeks. Outcome measures were ROM for arm elevation in frontal plane, hand-behind-back reach, humeral external rotation, humeral internal rotation; kinematic measurement of scapular posterior tipping, scapulohumeral rhythm, and scapular upward rotation; and a disability assessment using the FLEX-SF.

The control group, which had the least amount of FSS, improved in almost all outcome measures. However, for the more severe FSS groups, there were significant differences between the criteria-control (standard care group) and the EMSMTA group. On the self-rated FLEX-SF, the EMSMTA group had significantly higher scores than both control groups (at 8 weeks). There were significant improvements for the EMSMTA group compared with the criteria-control group on hand-behind-back reach (at both 4 and 8 weeks) and external rotation (at both 4 and 8 weeks) ROM outcomes. The kinematic measure improvements were significant on scapular posterior tipping (at 8 weeks) and scapular upward rotation (at 8 weeks).

The authors concluded that management of FSS should be preceded by the kind of assessment they used to determine the groups; in the more severe FSS cases, the EMSMTA techniques should be used. From my osteopathic perspective, the degree of FSS restricted movement and pain and thereby how much osteopathic manipulative treatment (OMT) is needed is readily discernible. This study was selected because it offers some confirmatory data relevant to the use of OMT and could be replicated readily using OMT.

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#### References

1. Spencer H. Shoulder technique. *J Am Osteopath Assoc.* 1916;15:218-220.
2. Knebl JA, Shores JH, Gamber RG, Gray WT, Herron KM. Improving functional ability in the elderly via Spencer technique, an osteopathic manipulative treatment: a randomized, controlled trial. *J Am Osteopath Assoc.* 2002;102(7):387-396.
3. Heinking K, Brolinson PG, Goodwin TA. Large joint injury in an athlete. In: Chila AG, executive ed. *Foundations of Osteopathic Medicine.* 3rd ed. Baltimore, MD: Lippincott Williams & Wilkins; 2011:946-951.



4. Ehrenfeuchter WC. Soft tissue/articulatary approach. In: Chila AG, executive ed. *Foundations of Osteopathic Medicine*. 3rd ed. Baltimore, MD: Lippincott Williams & Wilkins; 2011:781-782.
5. Dowling DJ, Scariati P. Myofascial release concepts. In: DiGiovanna EL, Schwiowitz S, Dowling DJ, eds. *An Osteopathic Approach to Diagnosis and Treatment*. 3rd ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2005:101.

## Osteopathic Fascial Manipulation Reduces Low Back Pain and Increases Kidney Mobility

Tozzi P, Bongiorno D, Vitturini C. Low back pain and kidney mobility: local osteopathic fascial manipulation decreases pain perception and improves renal mobility [published online ahead of print March 3, 2012]. *J Bodyw Mov Ther*. 2012;16(3):381-391. doi:10.1016/j.jbmt.2012.02.001.

Manipulation of organs and their surrounding fascial connections has been promoted by osteopathic physicians since the founding of the profession. The American Academy of Osteopathy has been offering courses for physicians on these types of procedures since its founding 75 years ago. However, controlled clinical trials evaluating the efficacy of this approach are rare. Clinical researchers in Italy addressed this topic by using a well-designed study protocol. They focused on 3 objectives: (1) calculate and compare kidney mobility in asymptomatic individuals and those with low back pain (LBP) using real-time ultrasonography (US), (2) assess renal mobility, and (3) assess pain perception in participants with nonspecific LBP after osteopathic fascial manipulation (OFM).

Researchers recruited 101 asymptomatic participants (30 women, 71 men; mean [standard deviation (SD)] age, 38.9 [8] years) who were evaluated with abdominal US screening. The distance between the superior renal pole of the right kidney and the ipsilateral diaphragmatic pillar was calculated in both maximal expiration (RdE) and maximal inspiration (RdI). The mean of the RdE:RdI ratios provided a kidney mobility score (KMS) in the cohort of

asymptomatic participants. The same procedure was applied to 140 symptomatic participants (66 women, 74 men; mean [SD] age, 39.3 [8] years). This symptomatic cohort was divided into 2 groups: 109 were randomly assigned to the experimental (OFM) group and 31 to the control (sham therapy) group. Range of right kidney mobility for both groups was ascertained by calculating the difference between RdE and RdI values before and after each intervention.

The ultrasonographer was blinded to group allocation. The osteopath who administered the OFM had 6 years of experience. The sham therapy, which consisted of light touch applied to the same areas as the OFM, was administered by an untrained layperson. Participants in both groups completed a Short-Form McGill Pain Assessment Questionnaire on the day of recruitment as well as on the third day after treatment.

Factorial analysis of variance showed a significant difference ( $P < .05$ ) in mean (SD) KMS in asymptomatic participants (1.92 [1.14] mm) compared with the KMS in those with LBP (1.52 [0.79] mm). For symptomatic participants, repeated measures analysis of variance showed a significant difference ( $P < .0001$ ) between pre- and post-RD values of the experimental group compared with those found in the control group. Additionally, the pain scores were significantly lower ( $P < .0001$ ) in the OFM cohort compared with those in the sham cohort.

This pioneer study, using standard, validated instruments, demonstrated that participants with nonspecific LBP had reduced range of kidney mobility during respiration compared with asymptomatic individuals. Osteopathic fascial manipulation applied to the thoracolumbar junction region improved kidney mobility and reduced pain perception over the short term compared with light touch sham therapy.

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