provided by foreign-trained osteopaths) combined with standard cardiorespiratory rehabilitation care compared with standard cardiorespiratory rehabilitation care alone for patients who underwent heart surgery. Eighty patients who underwent elective heart surgery using sternotomy for coronary artery bypass grafting, valve replacement or repair, or ascending aorta surgery were randomly assigned to the OMTh or standard care group on admission to the rehabilitation center. Patients were aged 18 years or older and capable of providing informed consent. Exclusion criteria included a history of heart surgery with minithoracotomy, heart transplant, or implantation of ventricular assistance; diabetes mellitus; autoimmune disease; or altered cognitive capabilities. The groups were evenly matched for age, sex, demographics, type of cardiac surgery, and comorbid conditions.

All patients received a supervised rehabilitation program, which began 24 hours after admission and continued throughout hospitalization. The patients in the OMTh group received OMTh on admission to the cardiac rehabilitation unit, which was the day after they were discharged from the hospital. The OMTh was administered for 5 days, for approximately 15 minutes per session. The OMTh procedures used were myofascial release to the diaphragm and sternal and thoracic inlet areas.

Outcome measures included pain intensity measured by a visual analog scale (VAS), functional respiratory capacity, and the hospital length of stay. On entry to the rehabilitation center, the mean inspiratory volume was 744 mL for the OMTh group and 825 mL for the standard care group. Both groups had a statistically nonsignificant pain VAS score of 4 at the time of admittance to the rehabilitation unit. At the end of rehabilitation, the median VAS score was 1 for the OMTh group and 3 for the standard care group ($P<.01$). The mean (SD) inspiratory volume at the time of discharge was 1781 (633) mL for the OMTh group and 1400 (588) mL for the standard care group ($P<.01$). The mean (SD) hospital length of stay was shorter in the OMTh group than in the standard care group (19.1 [4.8] days vs 21.7 [6.3] days, respectively; $P<.05$).

The researchers concluded that the addition of OMTh probably increased the rate of recovery by reducing pain and improving physiologic function of chest cavity structures. These results support previous findings on the application of OMT by osteopathic physicians to manage symptoms in similar patients.[1,2] These results add to the growing evidence that OMTh has significant benefits in the management of systemic disorders and physiologic dysfunctions, in addition to musculoskeletal conditions. (doi:10.7556/jaoa.2017.061)

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Addition of Osteopathic Visceral Manipulation to OMT for Low Back Pain Decreases Pain and Increases Quality of Life

Tamer S, Öz M, Ülger Ö. The effect of visceral osteopathic manual therapy applications on pain, quality of life and function in patients with chronic nonspecific low back pain. *J Back Musculoskelet Rehabil.* 2016:1-7. doi:10.3233/BMR150424

Turkish researchers from the Department of Physiotherapy and Rehabilitation at Hacettepe University in Ankara, Turkey, compared the effects of osteopathic manipulative therapy (OMTh; manipulative care provided by foreign-

trained osteopaths) procedures with those of visceral OMTh in patients with chronic nonspecific low back pain (LBP). Inclusion criteria for patients were nonspecific LBP for more than 12 weeks and no treatment received in the past 6 months. Exclusion criteria were patients with tumors, severe scoliosis, inflammation, radicular symptoms, motor and sensory deficits, or abdominal surgery in the past 6 months.

Thirty-nine patients were randomly assigned to the OMTh (n=19) or visceral OMTh (n=20) group. No significant demographic differences were found between the groups. The OMTh techniques consisted of soft-tissue mobilization, muscle energy techniques, and mobilization for lumbar segment procedures. The visceral OMTh group received the OMTh procedures in addition to thoracic lymphatic pump, liver pump, pelvic floor, and respiratory diaphragm procedures. Also, according to the patients' need, they received arterial, venous and neural techniques, lymphatic drainage, and fascial mobilization of visceral organs. Each patient received treatments twice per week for 5 weeks. Data were gathered at baseline and 6 weeks after the beginning of interventions.

The outcome measures were pain visual analog scale for pain intensity and the Short Form-36 for quality of life, with subscales for physical functions, physical role limitations, general health, energy, social function, emotional role limitations, and mental health. Functional ability levels were measured on the Oswestry Function Scale.

Both groups showed reduced pain intensity on the visual analog scale ($P<.001$) and functional ability on the Oswestry Function Scale ($P<.001$). For the visceral OMTh group, improvement on the Short Form-36 Health Survey was shown in all parameters, but the OMTh group did not improve in energy, emotional role limitations, mental health, or total mental health. Comparison of the 2 groups showed greater physical function ($P=.028$), energy ($P=.034$), and total physical ($P=.025$) score improvement in the visceral OMTh group.

The researchers suggest that the interventions inhibited pain by reducing muscle spasms and sympathetic system activation. They surmise that the visceral procedures improved blood circulation throughout the body and eliminated congesting bodily fluids, thus explaining the additional benefits that the patients in the visceral OMTh group demonstrated. They also suggest that viscerosomatic segmental effects may have reduced pain and increased energy. These findings demonstrate the need for further examination of viscerosomatic interactions in musculoskeletal disorders. (doi:10.7556/jaoa.2017.062)

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Effectiveness of OMT and OCMM for Temporomandibular Disorders

Gesslbauer C, Vavti N, Keilani M, Mickel M, Crevenna R. Effectiveness of osteopathic manipulative treatment versus osteopathy in the cranial field in temporomandibular disorders: a pilot study. *Disabil Rehabil*. 2016;1-6. doi:10.1080/09638288.2016.1269368

Temporomandibular disorders (TMDs) are the second most common musculoskeletal condition, negatively affecting both somatic and psychosocial function. Thus, the need for first-line conservative treatment like osteopathic manipulative treatment (OMT) and therapy (OMTh; manipulative care provided by foreign-trained osteopaths) is recognized.[1,2] Researchers at the Medical University of Vienna conducted a randomized clinical trial to compare the effectiveness of OMTh with osteopathy in the cranial field in managing symptoms in patients with TMD.