

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.

Thirty-six women aged 18 to 55 years who experienced symptoms of TMD for more than 3 months were included in the study. Diagnosis was based on abnormal function, pain, tenderness, and joint sounds on mouth opening. Exclusion criteria included patients with previous operations or trauma to the region, patients with rheumatic or psychiatric disorders, and patients taking anti-inflammatory or muscle-relaxing medications. Participants were randomly assigned to receive either 30 minutes of OMTh or cranial osteopathy once per week for 5 weeks. The outcome measures included patient-reported pain intensity measured by a visual analog scale and the severity of TMD using the Helkimo Index. The patients also completed a questionnaire and a Short Form-36 Health Survey. These measures were taken at baseline and at the end of treatment. Data were analyzed using SPSS software (IBM), and intergroup comparisons were performed using a paired sample *t* test, the Wilcoxon signed-rank test, or the Mann-Whitney *U* test.

Statistically significant improvements were detected in all outcome measures, with no significant difference between the groups. Pain intensity improved 44% in the OMTh group and 48% in the cranial osteopathy group, and the calculation for all patients showed improvement after the treatments (paired sample *t* test: $t_{35}=6.7$; $P<.001$). Additionally, the average value on the Helkimo Index decreased in both groups, with an improvement of 31% in the OMTh group and a 41% improvement in the cranial osteopathy group in TMD severity. The calculation for all patients showed an improvement after 5 treatments (Wilcoxon signed-rank test: $z=-3.7$; $P<.001$).

These findings demonstrate the benefit of OMTh in the management of musculoskeletal conditions. The findings also support the need for the osteopathic profession to continue funding and conducting large-scale randomized controlled trials that

examine a variety of conditions to substantiate the use of manual manipulation for a variety of medical concerns. (doi:10.7556/jaoa.2017.063)

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Noninvasive Interventions Efficacious in Reducing Symptoms of Low Back Pain

Chou R, Deyo R, Friedly J, et al. *Noninvasive Treatments for Low Back Pain*. Rockville, MD: Agency for Healthcare Research and Quality; 2016. AHRQ Publication No. 16-EHC004- EF.

Low back pain (LBP) is one of the most frequently encountered conditions in clinical practice, with up to 84% of adults reporting having had LBP at some time in their lives. The Agency for Healthcare Research and Quality (AHRQ) published a report aimed to assess the benefits of different pharmacologic and noninvasive, non-pharmacologic interventions for adults with acute, subacute, or chronic LBP.

The AHRQ selected systematic reviews of randomized trials of pharmacologic interventions and nonpharmacologic interventions for patients with nonradicular or radicular LBP published before April 2015. Of the 2545 citations identified, 156 were included, most of which enrolled patients with pain symptoms of at least moderate intensity (defined as >5 on a 0- to 10-point