shoulder pain, or oral or hormonal contraceptive use.

One doctor of physical therapy applied all interventions. He was randomly instructed which intervention to provide by turning over a card with the procedure written on it 30 seconds before applying either PAJM or placebo touch. Blood pressure and heart rate were measured before, during, and after the interventions. Statistical analysis used a mixed-effect model of repeated measures.

A transient mid-treatment decrease in systolic BP with PAJM \((P<.003)\) was measured, as well as significant group-time interaction for systolic BP \((P<.01)\), but no change was found in diastolic BP or heart rate between groups. Contrary to prevailing theory, the authors interpreted these findings to indicate a possible sympathetic inhibitory response to specifically dosed cervical PAJM that needs further exploration with symptomatic participants, comparator groups with various manual therapy dosing, and larger sample sizes. Joint mobilization may activate a descending pain inhibitory system originating in the periaqueductal grey area. The periaqueductal grey area’s effect on the peripheral vascular system may influence the mechanisms behind BP. The specific dosing of joint mobilization as used in this study should be considered for further research, as definite doses could be used in different potential clinical scenarios.

Some limitations of this study include conjecture, since measuring BP is not the criterion standard for determining sympathetic activation. As osteopathic physicians, we do not perform OMT to activate the sympathetic nervous system—we typically seek to inhibit it. Additionally, the methods are simple compared with Brown et al.,\(^3\) who directly measured the sympathetic nervous system activity at the peroneal nerve, for example. Future research should also assess the effects of various OMT procedures on cardiovascular parameters. (doi:10.7556/jaoa.2017.127)

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**References**


**Intervertebral Herniation Pain Reduced by Inpatient Manual Therapy and Traditional Korean and Chinese Medicine**


In a prospective observational study, hospital-based South Korean researchers evaluated the combination of manual medicine with traditional Korean medicine in the treatment of patients with lumbar intervertebral disk herniation. Inclusion criteria were hospitalization due to low back pain (LBP) and/or leg radiculopathy diagnosed by magnetic resonance imaging or physical examination. Exclusion criteria included main symptom other than LBP or cause of LBP not related to intervertebral disk herniation, such as...
spinal tumors, pregnancy, urolithiasis, or rheumatoid arthritis.

A total of 1178 patients with LBP were screened, and 524 completed the study. Chuna manipulation (described as gentle high-velocity, low-amplitude thrust) was applied 3 to 5 times per week in addition to herbal medicine, acupuncture, and bee venom pharmacopuncture. Conventional medical treatment, including analgesics and nerve blocks, was given to 151 patients (29%). The mean (SD) length of hospital stay for the patients in this study was 24.4 (13.2) days, reflecting the more holistically oriented treatment used in this particular medical setting. (In contrast, the mean hospital stay for intervertebral disk herniation in the United States is 2.6 days and is virtually all related to surgery.1) Outcome measures were a numeric rating scale score for LBP and leg pain, Oswestry Disability Index (ODI), and patient global impression of change. Change was compared with minimal clinically important difference in LBP or leg pain based on years of accumulated data gathered at this private hospital.

Results showed statistically significant reductions in the numeric rating scale scores for LBP (mean [SD], 3.18 [2.29]; 95% CI, 2.99-3.38) and radiating leg pain (mean [SD], 2.61 [2.60]; 95% CI, 2.38-2.83), and a reduction in ODI score (mean [SD], 19.45 [19.53]; 95% CI, 17.77-21.12). Improvement was seen in 274 patients (51.5%) over minimal clinically important difference in both the numeric rating scale and ODI.

Although this study did not have a placebo control group, the sample was relatively large. The novel combination approach of a manual medicine modality similar to osteopathic manipulative treatment along with herbal and acupuncture applications in an inpatient setting may have implications for implementing such a program in the US health care system. (doi:10.7556/jaoa.2017.128)

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References

Manual Therapy Shown to Increase Lumbar Blood Flow

Sports therapy researchers in the United Kingdom compared immediate effects of integrated myofascial techniques (IMTs) and kinesiotaping (KT) with a control group who received sham transcutaneous electrical nerve stimulation (TENS) on blood flow changes at L3. Blood flow changes were measured by near-infrared spectroscopy (NIRS).

Power analysis called for 45 participants who were randomly assigned to IMTs, KT, or sham groups. All were healthy college students. Exclusion criteria included low back pain, a diagnosis of serious infection in the preceding 2 weeks, previous severe back or leg injury, surgical procedure on the back, spinal deformity, and history of tumor or fracture in the back.

The IMT intervention was provided by a massage therapist. The techniques used were similar to those used in osteopathic manipulative medicine but included direct pressures using knuckles and elbows with the subject in the prone, side lying, and seated positions for 30 minutes.

Kinesiotaping consisted of 2 I-shaped RockTape elastic bandages attached directly to the participants’ skin over the erector spinae parallel to the spinous processes of the lumbar vertebrae using a light tension with 10% to 15% stretch for 30 minutes. The control group received sham TENS, with the sterile electrodes placed