Spinal Mobilization Has Peripheral Vasodilation Effects


Osteopathic physicians who use spinal manipulation claim that it can improve skin blood flow (SBF), but there are few randomized, sham-controlled, cross-over research studies that have evaluated this claim. Researchers at A.T. Still University in Kirksville, Missouri, and at the Grenoble University in France investigated this claim using laser Doppler flowmetry and the inspiratory gap (IG) test to evaluate SBF during and after application of spinal mobilization (SM) and the Novel Pliance-X system pressure monitor to evaluate the influence of pressure on SBF.

Thirty-two participants (mean [SD] age, 25 [5.4] years) were randomly assigned to 1 of 4 sequences of interventions. Before each session, the participant’s pain pressure threshold (PPT) was determined. The researchers used varied pressures of spinal SM—control (no touch) and SM applied at 5% of PPT (sham), 40% of PPT (low-pressure), or 80% of PPT (high-pressure)—and compared the effects of each intervention on the participant’s SBF. Using a pressure sensor on the thumb, the investigator used the thumb to rhythmically push on the T1 vertebra, over the lamina on the side of the participant’s dominant arm, using a graded translatory pressure toward the base of the participant’s opposite axilla. Measurements were taken at baseline at the end of a 20-minute acclimatization period, during the IG test, 5 minutes after the IG test, during the SM phase (or no manual contact for the control intervention), and 5 minutes after the SM. Thus, 4 interventions were applied on 4 different days, and each 40-minute session comprised 5 phases.

There were equal and significant bilateral vasodilation measurements during application of unilateral sham SM, low-pressure SM, and high-pressure SM. A significant difference in mean SBF was seen across the second half of each low-pressure SM application and control (P=0.007). A significant difference in mean SBF was seen between high-pressure SM and control (P=0.008) and between sham SM and control (P=0.02). Significant vasodilation persisted only after high-pressure SM (P=0.02).

This study is the first well-controlled investigation to describe bilateral peripheral SBF changes occurring during and 5 minutes after application of standardized SM. The persistence of post-SM vasodilation after only high-pressure SM suggests possible pressure-dependent mechanisms. However, further research is warranted to clarify these findings. Spinal mobilization should also be compared with other manual procedures to determine if this finding is specific to this particular technique.

Frances Nanadiego, BA
Michael Seffinger, DO
Western University of Health Sciences
College of Osteopathic Medicine of the Pacific,
Pomona, California

Multidisciplinary Biopsychosocial Rehabilitation Improves Outcomes for Patients With Chronic Low Back Pain


This systematic review and meta-analysis of randomized controlled trials (RCTs) investigated the outcomes of multidisciplinary biopsychosocial rehabilitation for chronic low back pain compared with those of usual care, physical treatment, sur-
surgery, and a waitlist. A total of 41 studies were included, in which more than 75% of the participants had low back pain and the diagnosis of disk degeneration or bulging disks, facet joint dysfunction, or sacroiliac joint pain. The sample sizes ranged from 20 to 542 people, with a combined total of 6858 participants. The average age of the participants was between 40 and 45 years. Articles were excluded if the chronic low back pain resulted from any form of inflammatory articular disease.

Multidisciplinary rehabilitation (MR) intervention involved a physical component alongside a psychological or social- or work-targeted component. Usual care varied according to physician. Physical treatments included electrotherapeutic modalities; aerobic, stretching, and strengthening exercises; and manual therapies, but not osteopathic manipulation. The primary measured outcomes were pain, disability, and work absenteeism.

Sixteen RCTs measured the effects of MR vs usual care. Moderate-quality evidence showed that MR was more effective than usual care for long-term pain (7 trials, n=821) and disability (6 trials, n=722) but that MR had no effect above that of usual care in regard to work absenteeism (7 trials, n=1360).

Nineteen RCTs compared the outcomes of MR vs physical treatment. Low-quality evidence demonstrated that MR was more effective than physical treatment for long-term pain and disability (10 trials, n=1169). Moderate-quality evidence demonstrated that MR was more effective than physical treatment for work absenteeism (8 trials, n=1006). Low-quality evidence found that MR was not significantly different from surgical procedures in improving pain, disability, or work absenteeism (2 trials, n=423); however, more adverse events were reported in the surgical studies. Three trials provided low-quality evidence that MR was more effective than control (waitlist) in reducing pain and disability.

This review provides moderate- to low-quality evidence demonstrating that MR is more effective than usual care and physical treatment in patients with chronic low back pain. Although osteopathic manipulation studies were not considered, the results are of interest to osteopathic physicians because of the demonstration of the effectiveness of a biopsychosocial approach, which is a cornerstone of osteopathic care.

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Frances Nanadiego, BA
Michael Seffinger, DO
Western University of Health Sciences
College of Osteopathic Medicine of the Pacific,
Pomona, California

Manual Therapy for Hamstring Hypertonicity Improves Temporomandibular Dysfunction in Athletes


Temporomandibular disorder (TMD) affects more than 25% of the population. Because the use of local manual therapy in the management of TMD may have limitations when patients are in acute pain, there is increasing interest in myofascial release and trigger point therapy. Physiotherapists in Spain evaluated the immediate effects of the hold-relax proprioceptive neuromuscular facilitation (HR-PNF) stretching technique applied to a distant site—the hamstring muscle—with and without ischemic compression of masseter muscle trigger points on “hamstring extensibility, maximal amplitude of vertical mouth opening, pressure pain thresholds, and pain intensity in athletes diagnosed with TMD and hamstring shortening.”