

Chiropractic Research in Review

Occupational LBP in Primary- and High-School Teachers

Methods: In this cross-sectional study, 586 asymptomatic teachers were randomly selected from 22 primary and high schools in Semnan city of Iran. Data on the personal, occupational characteristics, pain intensity, and functional disability as well as the prevalence and risk factors of LBP were collected using different questionnaires.

Results: Point, last month, last six months, annual, and lifetime prevalence rates of LBP were 21.8%, 26.3%, 29.6%, 31.1%, and 36.5%, respectively. The highest prevalence was obtained for the high-school teachers. The prevalence of LBP was significantly associated with age, body mass index, job satisfaction, and length of employment ($P < .05$ in all instances). Prolonged sitting and standing, working hours with computer, and correcting examination papers were the most aggravating factors, respectively. Rest and participation in physical activity were found to be the most relieving factors.



Conclusion: The prevalence of LBP in teachers appears to be high. High-school teachers were more likely to experience LBP than primary-school teachers. Factors such as age, body mass index, length of employment, job satisfaction, and work-related activities were significant factors associated with LBP in this teacher population.

Source: Mohseni Bandpei MA, et al. Occupational low back pain in primary and high-school teachers: prevalence and associated factors. *J Manip Physiol Ther*, Nov-Dec 2014;37(9):702-708.

Treating MVA Complications With Chiropractic Care

Objective: The purpose of this case report is to describe the use of chiropractic care for a patient with neurogenic heterotopic ossification of the anterior longitudinal ligament in the cervical spine and soft tissues of the right hip after a traumatic brain injury and right femur fracture.

Clinical Features: A 25-year-old military officer was referred to a hospital-based chiropractic clinic with complaints of pain and stiffness of the neck and back along with reduced respiratory excursions that began several months after a motor vehicle accident in which he had a traumatic brain injury. The patient had a fractured right femur from the accident, which had since been treated surgically, but had complications of heterotopic ossification in the soft tissues of the hip. His overall pain level was 3 of 10 on a verbal pain scale during use of oxycodone HCL/acetaminophen. [Chest excursion](#) was initially measured at .5 cm.

Intervention and Outcome: With the intent to restore respiratory chest motion and to reduce the

patient's back and neck pain, the patient was placed on a program of chiropractic and myofascial manipulation, exercise therapy, and respiratory therapy. After a year of care, the patient rated overall pain at 3 of 10 verbal pain scale level, but was no longer taking medications for pain and an increase in respiratory chest excursions measured at 3.5 cm.

Conclusion: This case demonstrated that chiropractic treatment provided benefit to a patient with heterotopic ossification concurrent with musculoskeletal pain.

Source: Morgan WE, et al. Chiropractic care of a patient with neurogenic heterotopic ossification of the anterior longitudinal ligament after traumatic brain injury: a case report. *J Chiro Med*, Dec 2014;13(4):260-265.

Neck Pain: Immediate Effects of Active Scapular Correction

Objective: The purpose of this study was to investigate the effect of active vs. passive scapular correction on pain and pressure pain threshold at the most symptomatic cervical segment in patients with chronic neck pain.

Methods: Twenty-three volunteers with chronic, idiopathic neck pain were recruited (age, 38.9 ± 14.4 years; sex [man/woman], 3/20; Neck Disability Index, $28.1\% \pm 9.9\%$). Subjects were randomly allocated to two groups: active scapular correction or passive scapular correction. Pressure pain threshold and pain intensity rated on a numerical rating scale during a posteroanterior glide over the most symptomatic cervical segment were measured before and immediately after the active or passive scapular intervention.

Results: Only the active scapular correction produced a reduction in pain (pre, 6.3 ± 1.2 ; post, 3.7 ± 2.4 ; $P < .05$) and increase in pressure pain threshold (pre, 8.7 ± 4.2 kg/cm²; post, 10.1 ± 3.8 kg/cm²; $P < .05$) at the most painful cervical segment.

Conclusions: An active scapular correction exercise resulted in an immediate reduction of pain and pressure pain sensitivity in patients with chronic neck pain and scapular dysfunction.

Source: Lluch E, et al. Immediate effects of active versus passive scapular correction on pain and pressure pain threshold in patients with chronic neck pain. *J Manip Physiol Ther*, Nov-Dec 2014;37(9):660-666.

Taping Benefits Stride, Step Length in Fatigued Runners

Objective: The purpose of this study was to determine if elastic therapeutic tape placed on anterior lower limbs would affect stride and step length in fatigued runners' gait.

Methods: Forty-two healthy participants were equally divided into a kinesiology tape group and a no-tape control group. Participants in both groups underwent a baseline running gait test at 6 mph without tape. After this, participants engaged in an exhaustive lower body fatigue protocol until they reached maximal volitional exhaustion. Participants were then randomized to one of two interventions: (1) Experimental group, which had kinesiology tape placed under tension on the anterior aspect of their lower limbs bilaterally from the upper thigh to just below the patella; or (2) Control group, which

did not receive taping. All participants then engaged in a similar 6-mph running gait postanalysis. Participant's gait was analyzed for 90 seconds during each test iteration. Researchers used a 2-way repeated-measures analysis of variance considering fatigue (prefatigue, postfatigue) and group (tape, no-tape) as subject factors.

Results: After the fatigue protocol, the no-tape group demonstrated a significant decrease in step length of 14.2 mm ($P = .041$) and stride length of 29.4 mm ($P = .043$). The kinesiology tape group did not demonstrate a significant decline in these gait parameters.

Conclusions: In this preliminary study, placing elastic therapeutic tape over the anterior lower limbs demonstrated short-term preservation of runner step length and stride length in a fatigued state.

Source: Ward J, et al. The ergogenic effect of elastic therapeutic tape on stride and step length in fatigued runners. *J Chiro Med*, Dec 2014;13(4):221-229.

Impact of Body Position on Pulmonary Function, Chest Wall Motion and Discomfort

Objective: The purpose of this study was to investigate the effect of different recumbent positions on pulmonary function, chest wall motion, and feelings of discomfort in young nonobese healthy volunteers.

Methods: Twenty healthy volunteers (age, 28.0 ± 1.4 years; height, 167.5 ± 10.1 cm; weight, 62.3 ± 10.2 kg) were studied in the sitting position and in the following six recumbent positions: supine, left retroversion at a 45° tilt, left anteversion at a 45° tilt, right retroversion at a 45° tilt, right anteversion at a 45° tilt, and prone. After 5 minutes of a selected position, pulmonary functions, including vital capacity (VC), forced expiratory volume in 1 second, maximal inspiratory and expiratory mouth pressures (MIP and MEP, respectively), and breathing pattern components at the chest wall were assessed. Discomfort was assessed using a modified Borg scale.

Results: When participants changed position from sitting to each of the six recumbent positions, forced expiratory volume in 1 second values decreased significantly ($P < .05$). None of the participants showed changes in the MIP or MEP in any of the 6 recumbent positions. Rib cage motion was restricted in all recumbent positions except supine, left anteversion at a 45° tilt, and prone. In all six recumbent positions, discomfort was experienced during the pulmonary tests. However, in the left retroversion at a 45° tilt position, no discomfort was experienced during the MIP and MEP assessments.

Conclusion: In young, nonobese, healthy volunteers, recumbent positions caused diminished pulmonary functions and induced feelings of discomfort.

Source: Naitoh S, et al. The effect of body position on pulmonary function, chest wall motion, and discomfort in young healthy participants. *J Manip Physiol Ther*, Nov-Dec 2014;37(9):719-725.

HVLA Manipulation for Adolescent LBP & Spina Bifida

Objective: The purpose of this case report is to describe chiropractic care of an adolescent with acute low back pain and incidental finding of [spina bifida occulta](#) managed with high-velocity low-amplitude

manipulation.

Clinical Features: A 10-year-old boy was referred for chiropractic care by his pediatrician for the management of low back pain after a fall three days prior. Examination and medical records revealed the patient also had spina bifida occulta at the level of L5.

Intervention and Outcome: High-velocity low-amplitude treatment for lower back pain showed resolution of patient's pain after six visits. No adverse effects were reported.

Conclusion: An adolescent patient with lower back pain and incidental finding of spina bifida occulta improved with a course of care that included with high-velocity low-amplitude manipulation therapy.

Source: Cofano GP, et al. Chiropractic care of acute low back pain with incidental spina bifida occulta: a case report. *J Chiro Med*, Dec 2014;13(4):273-277.

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