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A NON-RANDOMIZED CLINICAL CONTROL TRIAL OF HARRISON MIRROR IMAGE METHODS FOR CORRECTING TRUNK LIST

The human spine as viewed in the frontal plane is normally straight. However, on anteroposterior (AP) radiographic views, the presence of abnormal thoracic cage postures and their associated vertebral coupling patterns can lead to the appearance of a scoliosis. One such posture is trunk list. Although not a traditional range of motion (axial rotation, lateral bending, flexion/extension), the lateral displacement of the human thoracic cage relative to the pelvis (trunk list) is a clinically common postural displacement.

This study, published in the European Spine journal by Deed Harison DC et al., is a non-randomized clinical control trial of 63 consecutive retrospective subjects undergoing Harrison CBP (chiropractic biophysics) Mirror Image Methods and 23 prospective volunteer controls. The authors hypothesized that the Harrison method would cause tension on the thoracic and lumbar paraspinal soft tissues, thereby resulting in a reduction of adverse mechanical loading of the musculoskeletal system and subsequent clinical improvement through corrected frontal plane alignment of the lumbar spine.

All subjects presented with lateral thoracic-cage-translation posture (trunk list) and chronic low back pain (CLBP). For this study, CLBP was defined as symptoms of more than 3 months duration or more than one episode of recurrent LBP. Subjects were included if they had CLBP, trunk list posture, and if their anteroposterior (AP) lumbo-pelvic radiograph depicted coupling patterns associated with lateral thoracic translation. A prospective control group of 23 subjects, who had CLBP and trunk list posture, were volunteers who gave informed consent. The study was approved by a nonprofit institutional review board (CBP Nonprofit). All of the subjects were patients and/or volunteers at a spinal rehabilitation clinic center in Elko, Nevada.

Initial and follow-up numerical pain rating scales (NRS) and AP lumbar radiographs were obtained after a mean of 11.5 weeks of care (average of 36 visits) for the treatment group and after a mean of 37.5 weeks for the control group. The radiographs were digitized and analyzed for a horizontal displacement of T12 from the second sacral tubercle, verticality of the lumbar spine at the sacral base, and any dextro/levo angle at mid-lumbar spine.

All 63 treatment-group subjects received the same treatment protocol. In the treatment group, high-velocity, low-amplitude (HVLA), side-posture lumbar-spinal manipulation was provided at each visit for pain relief for the initial 3 weeks of treatment and then discontinued. The treatment group then underwent CBP mirror image exercises and lateral translation traction treatment three to five times weekly for 10-12 weeks. Trunk-list traction time started at approximately 3 min and increased 1 min per session until reaching the goal of 20 min per session. The patients were informed to remain within their pain tolerance and were not encouraged to exert themselves beyond the limit of slight discomfort. This new type of lateral thoracic-cage-translation traction has been termed Berry translation traction (Dr. Bob Berry, Ithaca, New York) because of the lateral force providing a transverse load on the rib cage and lumbar spine while the pelvis is fixed. Control subjects did not receive spinal rehabilitation therapy, but rather self-managed their CLBP.

Patients undergoing treatment, and control subjects, were closely matched for age, height, and initial pain scores, while differing in weight by approximately 10 kg. No significant differences in patient demographics were noted between the two groups, with the exception of weight ($p=0.006$). Since a difference in weight between the two groups was noted, an ANCOVA was performed with weight as a covariate. Comparing the control and treatment groups, the conclusions remain the same when controlling for weight.

For the treatment group, there were statistically significant improvements (approx 50%) in all radiographic measurements and a decrease in pain intensity (NRS: 3.0 to 0.8). For the control group, no significant radiographic and NRS differences were found, except trunk-list displacement of T12 to S1, which worsened by 2.4 mm.

In discussing their findings the authors state,

“These results support our initial hypothesis that these spinal rehabilitative measures resulted in clinically relevant postural improvements in this patient population. This report thus represents the first study reporting conservative rehabilitative methods that demonstrate improvements in abnormal trunk-list postures as measured on AP lumbo-pelvic radiographs.”

The authors concluded,

“Mirror image (opposite posture) postural corrective exercises and a new method of trunk-list traction resulted in 50% reduction in trunk list and were associated with nearly resolved pain intensity in this patient population. The findings warrant further study in the conservative treatment of CLBP and spinal disorders.”

Reference:

Harrison DE, Cailliet R, Betz JW, Harrison DD, Colloca CJ, Haas JW, Janik TJ, Holland B. A non-randomized clinical control trial of Harrison mirror image methods for correcting trunk list (lateral translations of the thoracic cage) in patients with chronic low back pain. *Eur Spine J.* 2004 Oct 27; [Epub ahead of print]