A RANDOMIZED CONTROLLED TRIAL OF THE EFFECTS OF INSTRUMENT-APPLIED CERVICAL MANIPULATIVE THERAPY ON CERVICAL RANGE OF MOTION

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ABSTRACT

Introduction: Measures of cervical range of motion (CROM) have been used to evaluate a wide range of cervical spine conditions, with numerous assessment instruments showing reliabilities ranging from poor to excellent. Several well-conducted studies have concluded that inclinometry provides valid and reliable measures of CROM when properly used. Several chiropractic manipulative therapies (CMTs) have been shown to increase CROM in symptomatic and asymptomatic populations. The current study investigated the effects of an instrument applied CMT, the Pro-Adjuster System (PAS), on CROM for the first time.

Method: The Logan College of Chiropractic (LCC) Institutional Review Board approved this investigation. Design: This was a pilot-level randomized controlled trial (RCT) of the effects of PAS on CROM. Participants: Forty consecutively selected, asymptomatic consenting volunteers were randomly assigned to treatment or control groups of 20 each. All participants were students at LCC, 18 female and 22 male between the ages of 22 and 59 years of age (mean age 29.3). Exclusion criteria were previous experience with PAS, any cervical symptoms, any contraindications to cervical manipulation, analgesic or muscle relaxant use, and any spinal manipulation within 48 hours. Measure/Examiner: Dual inclinometry (J-Tech Dualer IQ) CROMs were performed by a licensed DC with training and experience with the J-Tech. Three active passes of each ROM were taken by the examiner, who was masked to participant status. Treating Physician: A licensed DC with 10 years of experience with the PAS performed all cervical scans and treated according to standard PAS protocol. Procedure: Treatment and control groups received: 1. CROM assessment; 2. PAS CMT or a control condition; 3. Post treatment or control CROM assessment. Data Analysis: Pre and Post CROM measures of the treatment and control groups were compared by paired t-tests (a priori $p < .01$). Hypotheses: 1. The treatment group would have significant CROM increases; 2. The control group would have no CROM changes.

Results: All data sets were complete with no drop-outs. Both hypotheses were supported by data analysis. The treatment group achieved significant ($p < .01$) increases in all cervical ranges of motion while the controls had no CROM changes.

Conclusion: This investigation offers several implications for chiropractic research and practice. Scientific, legal and economic forces are changing chiropractic practice through evidence-based practice and best practices initiatives. New technology like the Pro-Adjuster System should be subjected to rigorous empirical investigation to provide researchers, educators and practitioners with information as to its clinical efficacy. The results of this first investigation have shown that a single PAS CMT can significantly increase CROM in asymptomatic participants. These results are similar to those obtained

in studies using other chiropractic techniques, i.e., diversified and toggle. Further investigation of the effects of PAS on CROM is warranted. Future studies should include symptomatic participants and repeated measures designs.
Key Words: Pro-Adjuster System, chiropractic manipulative therapy, cervical range of motion