

Effects from the Hesch Method of Pelvic Mobilization on Lumbar Flexion, Straight Leg Raise Performance, and Standing Pelvic Inclination Angles in Patients with Low Back Pain

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Abstract

The purposes of this study were multiple. One purpose was to assess changes in pain and adjacent musculoskeletal movements following sacroiliac joint mobilization with the Hesch Method. Adjacent musculoskeletal movements including straight leg raising, lumbar flexion, and pelvic inclination angles. A second purpose was to determine the reliability of these three variables over a two week period prior to any treatment intervention. A third purpose of this study was to establish intrarater reliability of the Hesch spring and positional tests. A fourth purpose was to assure reliability in the forces delivered with the Hesch Method of pelvic mobilization.

Method: Two research studies and two pilot studies were employed to answer the purposes, the first research study used a double-blind experimental design to assess both pain and musculoskeletal changes following pelvic mobilization. Musculoskeletal measures were assessed immediately post-treatment and again, two-weeks later. Pain changes were assessed twice; prior to intervention and two-weeks post-treatment. A total of twenty-seven volunteers with low back pain were utilized in this study. Ages ranged from 25 – 67 years. Fourteen control group and thirteen experimental subjects were used to assess these changes. The second research study utilized twenty-eight subjects in a single-blinded format designed to assess the intratester reliabilities of the Hesch spring & positional tests. One pilot investigated the reliability of the same adjacent musculoskeletal motions used in the first research study over a time period equal to the time used in the first research study. This pilot used ten volunteer physical therapist assistants students with complaints of low back pain. The second pilot assessed the reliability of force delivery immediately prior to any given treatment session.

Variables measured: straight leg raising, lumbar flexion, pelvic inclination angles, pain, and force delivery.

Results: Pilot reliabilities (ICC's) of the musculoskeletal measures were excellent for straight leg raise (.92), and found to be good for lumbar flexion (.73 & .77). The ICC's for pelvic inclination were negative and determined invalid. The first research design noted the right straight leg raising in the experimental group to demonstrate a delayed between-group change ($p < .05$). Significant within group changes in straight leg raising were noted bilaterally in both the

experimental (10°) and control groups (5°) at two-weeks post-treatment. No other between-group or within-group changes were noted for lumbar flexion or pelvic inclination angles. Pain was reduced in the experimental group ($p < .05$). Seven of ten spring tests and twelve positional tests demonstrated better than 70% agreement.

Conclusions: Straight leg raising performance does demonstrate a delayed increase following pelvic mobilization. Lumbar flexion and pelvic inclination angles do not change following pelvic mobilization. Pain was significantly reduced following a single treatment of Hesch mobilization. Seven out of ten spring tests and twelve out of fifteen positional tests demonstrated clinical usefulness.