

THE EFFECTS OF POSTURAL AND ANATOMICAL ALIGNMENT ON SPEED, POWER, AND ATHLETIC PERFORMANCE IN MALE COLLEGIATE ATHLETES: A RANDOMIZED CONTROLLED TRIAL

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ABSTRACT

Background: Many human beings are strongly influenced by right-sided dominance. This may cause potentially pathologic or dysfunctional asymmetries within the innominate of the pelvis, which in turn influences movement throughout the body including the glenohumeral (GH), vertebral, femoral acetabular (FA), sacroiliac, and costovertebral joints. Techniques based upon the science of Postural Restoration® may help correct these asymmetries and improve multiple physiological and mechanical aspects of sports performance.

Purpose: To examine difference between non-manual, Postural Restoration® exercises and traditional postural interventions on anatomical alignment, available range of motion and symmetry, and speed and power in active college-aged males.

Study Design: Randomized control trial, pretest-posttest control group design

Methods: 25 male collegiate students (age = 21 ± 3 years) who met the ACSM guidelines to be considered physically active were chosen to participate. Participants completed a vertical jump test using a power analyzer (Tendo Sport, Lexington, SC, USA) and the pro agility test. Anatomical alignment was assessed through an adduction drop test, extension drop test, and standard goniometric measurements including femoral acetabular external rotation (ER), internal rotation (IR), flexion, and abduction, and glenohumeral internal rotation. Participants were randomly assigned to either non-manual, Postural Restoration® techniques or traditional posture improvement exercises. Following a four-week intervention period, participants were reassessed using the same aforementioned outcomes completed pre-intervention.

Results: Participants who completed the non-manual, Postural Restoration® techniques demonstrated significant improvements in pro-agility scores (-0.03 ± 0.10 seconds; $p=0.0005$). Neither set of interventions improved vertical jump scores (Treatment: $+35.7 \pm 288.02$ W, $p=0.1000$; Control: -10.08 ± 301.04 W, $p=0.381$). Areas of anatomical alignment that demonstrated significant change included the treatment group for FA IR ($p=0.010$) and FA abduction ($p=0.035$) symmetry and the left adduction drop test ($p=0.039$).

Conclusion: Non-manual exercise techniques based upon the science of Postural Restoration® may equalize asymmetries present in FA internal rotation and hip abduction. Improvements in symmetry of joint motion may indicate a restoration of neutrality of the pelvis and femoroacetabular joints. By improving anatomical alignment, through establishing a neutral pelvis, athletes may demonstrate improved neuromechanical efficiency, and kinesthetic control of multi-directional motions required for enhanced sports performance markers.

Level of Evidence: 1b

Key Words: Adduction drop test, asymmetry, compensatory movements, Postural Restoration®

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