

Gender Differences in Pelvic and Lower Limb Kinematics during Walking in People with Chronic Low Back Pain

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Abstract

Background: Chronic Low back pain (CLBP) is one of the most common musculoskeletal disorders. Previous studies have shown a link between spine and lower limb movement. The link between modified pelvic and lower limb range of motion (ROM) and LBP may vary by gender. Therefore, the purpose of this study was to explore gender differences in pelvic and lower limb kinematics during walking in people with chronic low back pain.

Materials and Methods: Participants included 20 individuals with chronic LBP (10 males). Pelvic and lower limb kinematics was tracked using a seven-camera motion capture system. One-way ANOVA was conducted to compare the range of motion of pelvis, hip, knee and ankle joints during walking between males and females.

Results: Male group showed less pelvic ($P= 0/02$) and ankle ($P= 0/03$) range of motion (ROM) in sagittal plane compared to female. Additionally, male displayed more ankle ROM in transvers plane ($P= 0/01$) in comparison with female.

Conclusion: Males LBP displayed less motion in the sagittal plane and more motion in the transvers plane in the dominant limb in comparison with females. Therefore, gender specific design of interventions for pelvic and lower limb should be considered to improve CLBP.

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