Relationship between hip joint active range of motion and spatiotemporal parameters of gait in patients with non-specific low back pain attending the Rheumatology and Rehabilitation Clinic at the National Hospital of Sri Lanka

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Low back pain is a global public health concern in musculoskeletal disorders that affects activities of daily living and functional mobility including gait. The range of motion of the hip joint plays a crucial role in gait biomechanics. This study aimed to determine the relationship between hip joint active range of motion and spatiotemporal parameters of gait in patients with non-specific low back pain (NSLBP). This descriptive cross-sectional study was conducted at the Rheumatology and Rehabilitation Clinic at the National Hospital of Sri Lanka. Patients with NSLBP aged between 20-70 years were recruited through simple random sampling technique. Hip joint active range of motion was measured using a long-armed universal goniometer. Kinovea software, 10 m walk test and a hand tally counter were used to assess hip joint range of motion, stride length, walking speed and cadence respectively. The data were analysed using Spearman's Correlation test in Statistical Package for the Social Sciences (SPSS) version 22. Among the 101 study participants 71.3% (n=72) were females. The majority of hip joint active range of motions showed moderate positive correlation with cadence. All hip joint active range of motions showed significant relationships with stride length. Stride length and right hip flexion (r=0.788), left hip flexion (r=0.789), right hip extension (r=0.602), left hip extension (r=0.616) had strong positive relationships. There were positive correlations between walking speed and all hip joint active range of motions. Walking speed showed strong positive relationships with right hip flexion (r=0.973), left hip flexion (r=0.972), right hip extension (r=0.721), and left hip extension (r=0.727). The study findings show significant relationship between hip joint active range of motion and spatiotemporal parameters of gait. Therefore, clinicians should pay attention to the hip joint and rehabilitation programmes with gait optimisation in the management of NSLBP.

Keywords: *Non-Specific Low Back Pain*, *Hip Active Range of Motion*, *Gait parameters, Stride length*, *Walking speed*