ABSTRACT

Purpose: Essential to the successful management of patients with sacroiliac joint pain (SIJP) is understanding how these joints move. The innomates tilt together in the same direction with symmetrical activities (i.e. forward-bending) but move opposite of one another when performing asymmetrical activities (i.e. walking). How they move in patients with SIJP is unknown. The purpose of this study was to examine inter-innominate movement (tilt) when assuming three different stance positions to describe how the innominate bones move in those with and without SIJP.

Study type: Observational Cohort Study

Methods: Twenty-eight participants were classified into two groups; SIJP with low back pain (LBP), and no SIJP or LBP. SIJP participants were further classified into groups with left or right pelvic tilt. Pelvic tilt was measured during neutral standing and in both left-sided and right-sided reciprocal stance, with a full-stride (one hip fully flexed the other fully extended) and in a half-stride position, which mimic the double-stance phase of gait. A repeated measure ANOVA assessed for differences between Groups (Level, Left or Right Pelvic Tilt), stance side position (left/right), and stride length (full/half).

Results: There was a significant Group main effect (F [2, 25] = 130.2, p < 0.0001), and a significant Side main effect (F [1, 25] = 429.7, p < 0.0001), qualified by a significant Side x Group interaction (F [2, 25] = 19.9 p < .0001). Follow-up comparisons showed that pelvic tilts for right and left stance were significantly different (p < 0.05) for each group (Level, left and right pelvic tilt). For the right stance condition, all groups were significantly different from each other (p < 0.05). For the left stance position, the right pelvic tilt and level pelvic tilt means were not different from each other (p > 0.05), but each was different from the mean for the left pelvic tilt group (p < 0.05).

Conclusions: When assuming an asymmetrical stance position, the innomates tilt opposite of each other in those without SIJP. In patients with SIJP they behave in the normal fashion in one asymmetrical stance position but not the other. Instead of tilting opposite, as expected, the innomates remain symmetrical, dependent on the side of the presenting pelvic tilt.

Level of Evidence: 2b

Keywords: Innominate tilt, low back pain, sacroiliac joint

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