

Influence of Bilateral and Unilateral Flatfoot on Pelvic Alignment

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Abstract : Background: The changes in foot posture possibly generate changes in the pelvic alignment, although, there is lack of evidence about the effects of bilateral and unilateral flatfoot on possible changes in pelvic alignment. The purpose of this study was to investigate the effect of flatfoot on the sagittal and frontal planes of pelvic postures. Materials and Methods: 56 subjects, aged 18-40 years, were assigned into three groups. 20 healthy subjects, 19 subjects with bilateral flexible second-degree flat foot, and 17 subjects with unilateral flexible second-degree flat foot. 3D assessment of the pelvis using the formetric-II device was used to evaluate pelvic alignment in the frontal and sagittal planes by measuring pelvic inclination and pelvic tilt angles. Results: ANOVA test with LSD test were used for statistical analysis. Both Unilateral and bilateral second degree flatfoot produced significant ($P < 0.05$) pelvic anteversion in comparison to the healthy subjects ($P < 0.05$), but the bilateral flatfoot subjects seemed to have more anteversion than the unilateral subjects. Unilateral flatfoot caused a significant ($P < 0.05$) lateral pelvic tilt in the direction of the affected side in comparison to the healthy and bilateral flatfoot subjects. Conclusion: The bilateral and unilateral second degree flatfoot changed pelvic alignment. Both of them led to increases of pelvic anteversion while the unilateral one caused lateral pelvic tilt toward the affected side. Thus, foot posture should be considered when assessing patients with pelvic misalignment and disorders.

Keywords : bilateral flatfoot, unilateral flatfoot, pelvic alignment, foot posture

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