

Correlation between Flexible Flatfoot and Lumbosacral Angle

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Abstract : One of the most risky factors that lead to a foot injury during physical activities are both high and low arched feet. Normally the medial longitudinal arch of the foot develops in the first 10 years of life, so flexible flat foot has an inversely relationship with age in the first decade, all over the world, the prevalence of flat foot is increasing. In approximately 15% of foot deformities cases, the deformity does not disappear and remains throughout adulthood, 90% of the clinical cases are complaining from foot problems are due to flatfoot. Flatfoot creates subtalar over pronation, which creates tibial and femoral medial rotation, and that is accompanied with increases of pelvic tilting anteriorly, which may influence the lumbar vertebrae alignment by increasing muscle tension and rotation. Objective: To study the impact of the flexible flatfoot on lumbosacral angle (angle of Ferguson). Methods: This experiment included 40 volunteers (14 females & 26 males) gathered from the Faculty of Physical Therapy, Modern University of Technology and Information, Cairo, Egypt, for each participant, four angles were measured in the foot (talar first metatarsal angle, lateral talocalcaneal angle, , Calcaneal first metatarsal angle, calcaneal inclination angle) and one angle in the lumbar region (lumbosacral angle). Measurement of these angles was conducted by using Surgimap Spine software (version 2.2.9.6). Results: The results demonstrated that there was no significant correlation between Ferguson angle and lateral talocalcaneal ($r=0.164$, $p=0.313$). Also, there was no significant correlation between Ferguson angle and talo first metatarsal "Meary's angle" ($r=0.007$, $p=0.968$). Moreover, there was no significant correlation between Ferguson angle and calcaneal-first metatarsal angle ($r=0.083$, $p=0.612$). Also, there was no significant correlation between Ferguson angle and calcaneal inclination angle ($r=0.032$, $p=0.846$). Conclusion: It can be concluded that there is no significant correlation between the flexible flat foot and lumbosacral angle So, more study should be conducted in large sample and different ages and conditions of foot problems.

Keywords : calcaneal first metatarsal, calcaneal inclination, flatfoot, ferguson's angle, lateral talocalcaneal angle, lumbosacral angle, and talar first metatarsal angle

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