

Correlation between Dynamic Knee Valgus with Isometric Hip External Rotators Strength during Single Leg Landing

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Abstract : The excessive frontal plane motion of the lower extremity during sports activities is thought to be a contributing factor to many traumatic and overuse injuries of the knee joint, little is known about the biomechanical factors that contribute to this loading pattern. Objectives: The purpose of this study was to investigate if there is a relationship between hip external rotators isometric strength and the value of frontal plane projection angle (FPPA) during single leg landing tasks in normal male subjects. Methods: One hundred (male) subjects free from lower extremity injuries for at least six months ago participated in this study. Their mean age was (23.25 ± 2.88) years, mean weight was (74.76 ± 13.54) (Kg), mean height was (174.23 ± 6.56) (Cm). The knee frontal plane projection angle was measured by digital video camera using single leg landing task. Hip external rotators isometric strength were assessed by portable hand held dynamometer. Muscle strength had been normalized to the body weight to obtain more accurate measurements. Results: The results demonstrated that there was no significant relationship between hip external rotators isometric strength and the value of FPPA during single leg landing tasks in normal male subjects. Conclusion: It can be concluded that there is no relationship between hip external rotators isometric strength and the value of FPPA during functional activities in normal male subjects.

Keywords : 2-dimensional motion analysis, hip strength, kinematics, knee injuries

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