JSM

JOURNAL of SPORTS SCIENCE & MEDICINE

Journal homepage ISSN: 1303 - 2968

©Journal of Sports Science and Medicine (2011) 10 , 763 - 767

Research article

Posterior Tibial Slope as a Risk Factor for Anterior Cruciate Ligament Rupture in Soccer Players

Seçkin Şenişik[1], Cengizhan Özgürbüz[1], Metin Ergün[1], Oğuz Yüksel[1], Emin Taskiran[2], Çetin Işlegen[1], Ahmet Ertat[1]

Author Information Publish Date How to Cite

Email link to this article

ABSTRACT

Anterior cruciate ligament (ACL) is the primary stabilizer of the knee. An impairment of any of the dynamic or static stability providing factors can lead to overload on the other factors and ultimately to deterioration of knee stability. This can result in anterior tibial translation and rupture of the ACL. The purpose of this study was to examine the influence of tibial slope on ACL injury risk on soccer players. A total of 64 elite soccer players and 45 sedentary controls were included in this longitudinal and controlled study. The angle between the tibial mid-diaphysis line and the line between the anterior and posterior edges of the medial tibial plateau was measured as the tibial slope via lateral radiographs. Individual player exposure, and injuries sustained by the participants were prospectively recorded. Eleven ACL injuries were documented during the study period. Tibial slope was not different between soccer players and sedentary controls. Tibial slope in the dominant and non-dominant legs was greater for the injured players compared to the uninjured players. The difference reached a significant level only for the dominant legs ($p < 0.001$). While the tibial slopes of the dominant and non-dominant legs were not different on uninjured players ($p > 0.05$), a higher tibial slope was observed in dominant legs of injured players ($p < 0.05$). Higher tibial slope on injured soccer players compared to the uninjured ones supports the idea that the tibial slope degree might be an important risk factor for ACL injury.

Key words: Tibial slope, knee, ACL injury, soccer, dominant leg, exercise

Key Points

- Dominant legs' tibial slopes of the injured players were significantly higher compared to the uninjured players ($p < 0.001$).
- Higher tibial slope was determined in dominant legs compared to the non-dominant side, for the injured players ($p = 0.042$). Different tibial slope measures in dominant and non-dominant legs might be the result of different loading and/or adaptation patterns in soccer.