

# ASSESSMENT OF THE EFFECT OF INJURY ON THE KINEMATIC DIFFERENCES IN THE SAGGITAL PLANE UPON LANDING

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**INTRODUCTION:** Landing on one leg is a common activity in Gaelic Football. Research has shown that the internal and external forces on the joints of the lower extremity can be modulated by changing kinematic patterns of lower limb function (Schmitz et al, 2007). Previous studies in other sports have suggested that uninjured limbs tend to land in more flexed positions (Ortiz et al, 2008). The purpose of this pilot study was to assess if injury had an effect on the kinematic pattern of a drop land in Gaelic footballers.

**METHODS:** Ethical approval was obtained for this study from the University of Limerick research ethics committee. This was a quantitative cross sectional study. 11 male college level Gaelic Footballers provided written informed consent and completed 5 single leg drop lands on each leg from a height of 0.6m while 3D kinematic data was simultaneously collected. The CODA motion analysis system was used to track 22 markers which were placed on specific anatomical landmarks, which allowed the measurement of lower-limb joint angle displacement during each drop land. An average of the five drop lands i.e. mean of the maximum joint angle achieved at the ankle, knee and hip during the drop were calculated and statistical analysis was performed on data using SPSS version 15.0. Limbs were classified as injured if they sustained an injury which prevented their participation in their sport for greater than 2 weeks. Injuries were lower limb soft tissue injuries and did not include ruptures.

**RESULTS AND DISCUSSION:** The results of this study show that the uninjured ankle dorsiflexed more than the injured ankle ( $6.7^\circ$ ). This change is statistically significant ( $p=0.009$ ). The other joints show that the injured limb flexed more, however these changes were not determined to be clinically or statistically significant (all  $p>0.05$ ). This result differs from previous research in other sporting populations and may suggest a differing kinematic landing pattern among Gaelic Footballers. As the previous literature in this area is limited especially among Gaelic Footballers this study serves to add to the current research carried out on this population and this topic. The results of this preliminary study should be examined with caution considering its small sample size. However, it is hoped that this pilot will inform a future larger study in this area.

**CONCLUSION:** This study suggests that kinematics alterations may exist in Gaelic Footballers following injury. In addition, this study may indicate that Gaelic Footballers rehabilitation programmes may require modifying in order to optimise the function of the injured limb.

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