

A COMPARATIVE STUDY BETWEEN BLADES AND STUDS IN FOOTBALL BOOTS

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KEY WORDS: Football, Rugby, Injury, Blades, Studs, sEMG

INTRODUCTION: The incidence of non-contact injuries in football is high. A significant proportion of the blame is aimed at the footwear worn. Bladed design boots have attracted criticism, with high profile sports teams banning them amid fears of causing knee injury (BBC, 2009). This study aimed to biomechanically compare a bladed boot design with a more conventional studded boot design to assess if either boot type produces a greater muscle response and suggest their potential for causing non-contact injury.

METHODS: 31 competitive football and rugby players were recruited to this study. Each participant was required to perform a standard running and sidestepping maneuver as commonly performed during match play. This was carried out along 18 meters of FIFA[®] approved synthetic turf. A TMSI Mobi sEMG device (TMS International, The Netherlands – www.tmsi.com) was used to measure peak muscle activity in four lower limb muscles closely related to the stability of the anterior cruciate ligament. A Vicon motion analysis system (Vicon UK, Oxford – www.vicon.com) was used to track the participants, and monitor stance phase (contact time) during the sidestep maneuver. Peak average sEMG values were recorded from all four muscles. To standardise the sEMG values recorded, percentage difference between the two boot types was calculated and used to test for any significant difference.

RESULTS: Data from 29 participants was suitable for analysis. Results showed that there is no statistically significant difference between peak average sEMG recordings when using bladed boots compared to studded boots. The four muscles: Rectus Femoris, Vastus Medialis/Lateralis and Semi Tendinosus, show very small percentage differences in peak average sEMG values between the two boot types.

DISCUSSION: The results show no difference in muscle activity when performing sidestepping maneuvers in bladed boots compared with studded boots. This suggests that the muscle forces acting across the joints of the lower limb are not affected by altering the shoe to ground interface. Specifically with relation to the muscles under investigation, there is no difference in the magnitude of muscle force acting across the knee joint.

CONCLUSION: Although there are many factors that influence the incidence of sporting injury. This study shows that with relation to muscle activity, there is no evidence to prove that bladed boots are more responsible for causing non contact lower limb injury than their studded counterparts. Neither boot could be concluded to be substantially more dangerous than the other and further in-depth investigation is required.

REFERENCE:

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