Abstract: Soccer boots are the most important piece of equipment used by a soccer player. They have been improved from heavy bold leather shoes to lightweight aerodynamic designer objects. As traction is one of the key factors of performance, industry experiments with new stud designs, hoping to improve traction behaviour in the different directions. However, excessive traction may contribute to the occurrence of non-contact injuries of the anterior cruciate ligament (ACL). Therefore, many researchers have investigated the shoe-surface interaction of studded boots with mechanical test devices. As yet, a final conclusion regarding correlation between stud design and ACL injuries has not been obtained. Most of the current test devices do not test the soccer boots under game-relevant loading conditions. A new approach has been taken in order to overcome this limitation. In the first step, real ACL injury situations were analysed in detail. The results of this analysis were then used as input data for a multi-body computer model of the human body, to calculate internal forces at the injured leg. Based on this data, a new test device, the TrakTester, was developed including an artificial lower leg with a replica human ankle joint. This paper presents details of the development of the new traction test device and gives an overview of the research options the TrakTester may provide for the future.

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