

Can simple balance tests, injury history or FAOS ankle function score predict which players are more prone to sustain a new ankle injury?

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Introduction

Ankle injuries are common in many sports, although effective prevention methods exist (bracing, balance training) (1,2). However, to better target intervention programs, there is a need to be able to identify players at increased risk of injury.

Aim

To examine whether a simple balance test, history of previous injury or an ankle function score can identify football players who are more prone to sustain a new ankle injury.

Methods

A total of 32 men's teams (N=530 players) from 1-3. division clubs in the eastern region of Norway were included. The players were tested in the early pre-season (Jan-March 2004) and screened by both self-assessment and testing. The self-assessment consisted of a questionnaire, which included injury history and FAOS score (3). FAOS evaluates ankle function through five sub-scores; quality of life, pain, symptoms, sports function and activities of daily living. The testing included a balance test for each leg and was performed both on the floor and on a balance mat. The player was instructed to stand on one foot with the leg straight, and the other leg bent 90° in the knee (figure 1). He was also instructed to keep his arms crossed, with each hand resting on the opposite shoulder. All tests were performed without shoes and scored in five categories (supranormal, normal, slightly abnormal, abnormal and severely abnormal) (4). All ankle sprains causing time loss from practice or games were recorded by the team physical therapist during the subsequent season.



Figure 1. The two different balance tests; on the floor and on a balance mat.

Results

There were 65 new ankle sprains during the season, affecting 50 players. The injury risk was higher among athletes with a history of previous injury (OR:1.92, $p=0.045$) (figure 2). We observed no relationship between the balance test results (floor, balance mat) and previous injury history or the risk of a new ankle sprain.

The players with a history of ankle injury got a highly significant lower FAOS score on all five FAOS subscores. However, there was no significant differences between the players according to new ankle injuries.

There was no relationship between FAOS subscores and balance test results.

The inter-tester agreement between repeated tests was moderate (N=104, kappa: 0.41).

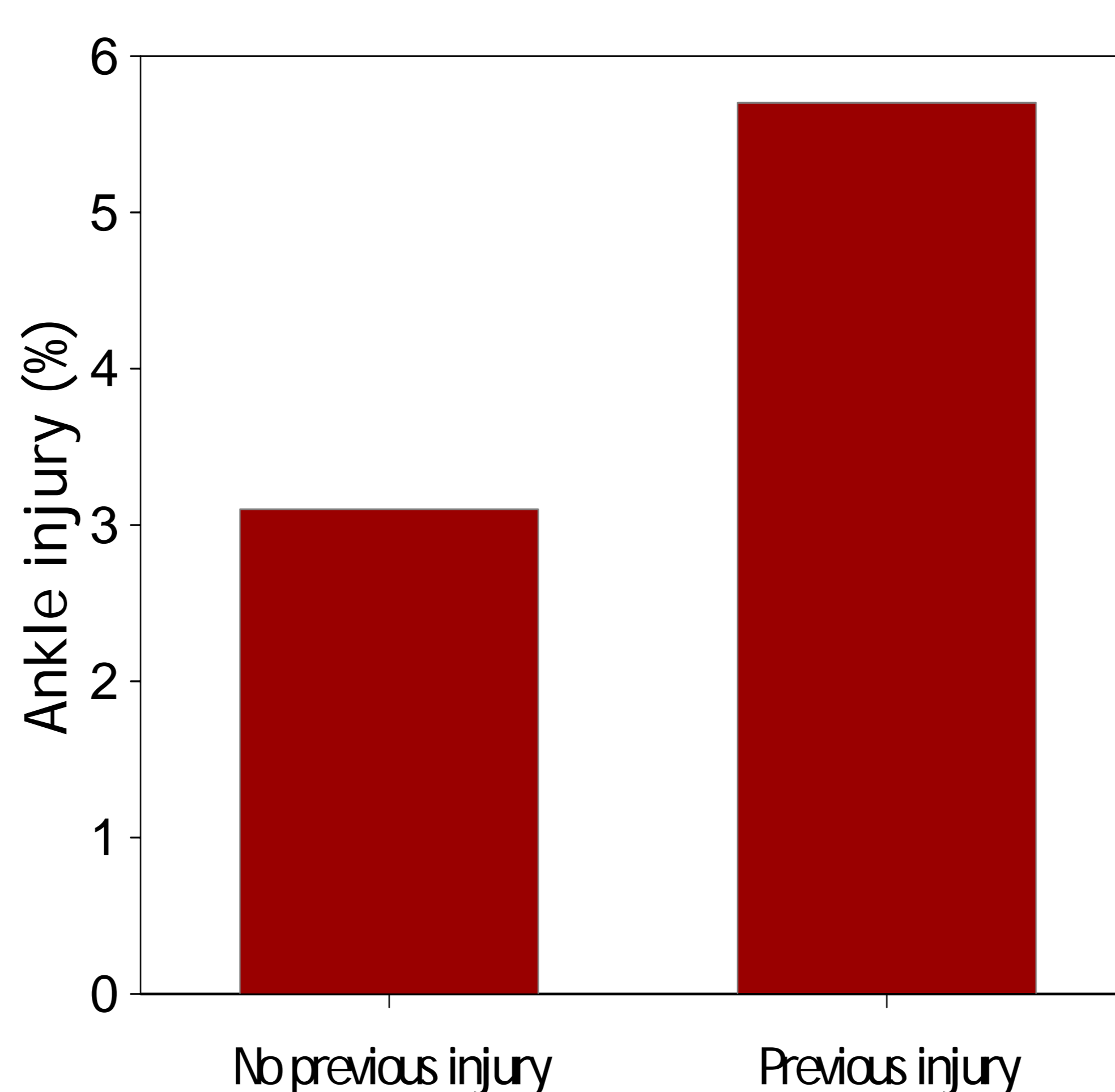


Figure 2. Risk of injury in per cent per season among ankles with or without a history of previous injury.

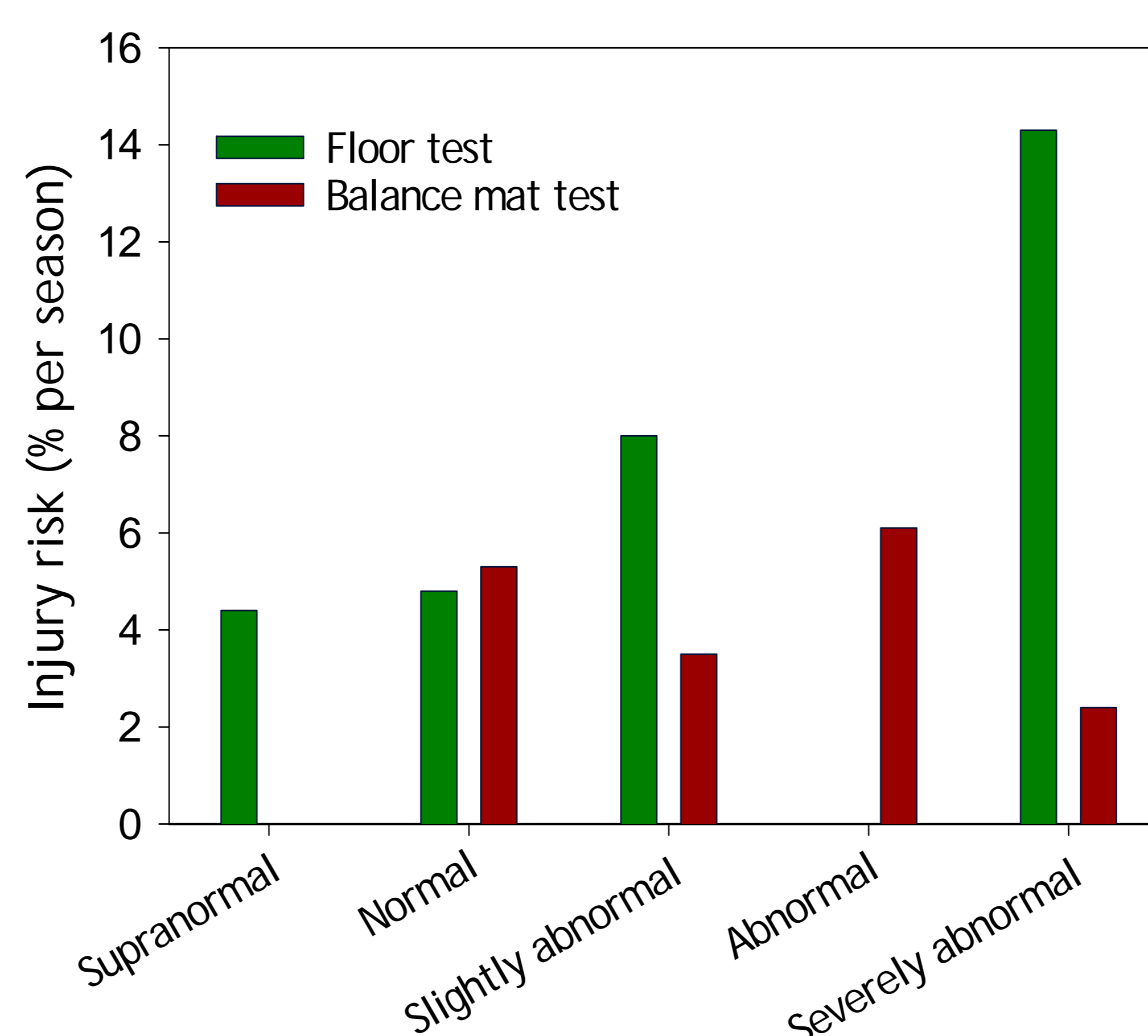


Figure 3. Risk of injury in percent per season related to the preseason test score for the two different balance tests.

Discussion

Of the three screening instruments tested, only history of previous ankle injury was a significant predictor for a new ankle injury.

The balance test performed on the floor showed a ceiling effect, where most of the players in this cohort managed to reach the maximum score. However, the few players scoring low on this test were more likely to have a history of previous injury and a lower function score. The balance test performed on the balance mat showed a wider variation, but there was no difference between ankles with and without a history of previous injury. Also, the intertester reliability for these tests was moderate, which can partly explain why the balance tests can not identify ankles with an increased risk of injury.

The FAOS function score also showed a ceiling effect in this cohort. Although there was a highly significant reduction in function scores in athletes with previous injuries, the difference was small and the functional scores could not be used to predict injury in this group of athletes.

However, using a simple question regarding history of previous ankle injuries, we were able to identify players with a two-fold increased risk of injury. These data are similar to a recent report from Icelandic elite football (5), but in contrast to professional football in Norway (6). Bracing and neuromuscular balance training has proven useful to prevent recurrence of ankle sprains (1,2). The present data could therefore be used to target such preventive measures at individuals with an increased risk.

Conclusions

A simple balance test or an ankle function score could not identify individuals who are more prone to sustain a new ankle injury in this cohort of football players. However, athletes with a history of previous injury had a two-fold increase in injury risk.

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