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Using Y-balance test as a predictor tool for evaluating non-contact injuries in University league football players: A longitudinal study

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Introduction:

Background: Football is a sport with strong rivalry, and participants are susceptible to different contact and non-contact sports injuries in the sporting process. In any elite sport, screening players using different scientific tools comprises an important part of injury prevention strategies. The YBT was found to be a predictive tool for non-contact injury. However, the use of criteria from these tests to predict injuries has not been substantiated and should be further investigated.

Aim of the study: to determine 1) the predictors for injury among athletes using baseline balance measures, number of matches, and minutes of physical activity; 2) the cutoff scores for predictors of injury including baseline balance measures, number of matches, and minutes of physical activity; 3) the clinical prediction rules for predicting injury in this population.

Methods:

Study design: The study is a longitudinal prospective study. The study was carried out at the Department of rehabilitation sciences in the College of Applied Medical Sciences, Shaqra University.

Participants: In this study, healthy athlete subjects were recruited. The sample size in this study was 39 young players who were students at Shaqra University from 18 to 25 years of age.

Instrumentation: The Y Balance Test™ Kit was used at baseline in this study, which is a device comprised of a central plastic plate to which three tubes were attached in three directions: the anterior, posteromedial, and posterolateral reach directions. The reaching direction is named in orientation to the stance limb

Procedures: Each participant performed the YBT once before starting the league.

After the university league football players finished their tournament, we contacted them and asked the following questions related to the evaluation of non-contact injuries that happened after the tournament: How many matches have you played? How long is the average game time you played? Do you do stretching and warm-up before the match? How many minutes per week do you do physical activity? Did you have muscle spasms or fatigue after the match? Did you get injured during a match or training? Injury Location and description were taken and documented.

Statistical analysis: We used IBM SPSS for Mac version 25.0 and STATA for Mac version 14.1

Result:

A total of 39 young student football players were included in this study. The prevalence of injury was 17.95% among this population. The mean age was 20.28 years, and the mean BMI was 23.83 Kg/m2.

Factor	OR (95% CI)	p-value
Total YBT score	0.94 (0.88, 0.99)	0.047
The number of matches	2.78 (1.26,6.17)	0.012
Minutes of physical activity	0.98 (0.96, 1.00)	0.065

Variables	AUC (95% CI)	Cut-off score (sensitivity, specificity)
Number of matches played	0.80 (0.61, 0.98)	≥ 2 (85.71%, 65.62 %)
Physical Activity	0.76 (0.60, 0.92)	≤ 90 (87.50%,42.86 %)
Posterior Medial Reach	0.79 (0.60, 0.98)	≤ 97.89 (87.50 %,71.43 %)
Posterior Lateral Reach	0.75 (0.54, 0.96)	≤ 92.88 (90.62 %,57.14 %)
Clinical prediction rules	0.88 (0.76%, 0.97%)	≥ 3 (57.14%, 93.75%)

Conclusion:

In conclusion, our study provides evidence for the potential utility of YBT as a predictor tool for evaluating non-contact injuries in university league football players. Specifically, players with a lower posteromedial and posterolateral reach distance may benefit from targeted injury prevention programs to reduce their injury vulnerability.

By identifying players with lower YBT scores who are at higher risk for injury, the number of matches played, and minutes of physical activity, targeted interventions can be implemented to address functional movement deficits and potentially reduce injury risk.

References:

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