

A COMPARATIVE STUDY OF CORE MUSCULATURE ENDURANCE AND STRENGTH BETWEEN SOCCER PLAYERS WITH AND WITHOUT LOWER EXTREMITY SPRAIN AND STRAIN INJURY

Amira A. Abdallah, PhD¹

Nabil A. Mohamed, PhD¹

Mostafa A. Hegazy, PhD²

ABSTRACT

Background: Lower extremity sprain and strain injury constitutes a large percentage of lower extremity injuries experienced by soccer players. Yet, very limited data exists on the association between core strength and endurance and this injury.

Purpose: The purpose of this study was to compare core muscle endurance and hip muscle strength between soccer players who experienced non-contact lower extremity sprain and/or strain injury during their season and those who did not. Additionally, the frequency of injury was correlated with core muscle endurance and hip strength, and endurance was used for predicting the risk for injury.

Study Design: Prospective cohort

Methods: Twenty-one (35.59%) athletes experienced non-contact lower extremity sprain and/or strain injury during the season. Fifty-nine male athletes (mean age 20.92 ± 4.08 years, mass 77.34 ± 12.02 kg and height 1.79 ± 0.06 m) were tested. Prior to the start of the season, prone-bridge, side-bridge, trunk flexion and horizontal back extension hold times were recorded for endurance assessment and peak hip abductor and external rotator isokinetic torques for strength assessment.

Results: Prone-bridge and side-bridge hold times were significantly longer in the non-injured players when compared with the times of the injured players ($p=0.043$ & 0.008 for the prone-bridge and side-bridge, respectively). There were significant negative correlations between the frequency of injury and both prone-bridge ($r=-0.324$, $p=0.007$) and side-bridge ($r=-0.385$, $p=0.003$) hold times. Logistic regression analysis revealed that side-bridge hold time was a significant predictor of injury (OR=0.956, CI=0.925-0.989).

Conclusion: Soccer players with non-contact lower extremity sprain and/or strain have less core endurance than non-injured players. Reduced core endurance is associated with increased incidence of injury. Improving side-bridge hold time, specifically, may reduce the risk for injury.

Level of evidence: 1b

Keywords: Core endurance; hip strength, soccer; sprain and strain injuries

CORRESPONDING AUTHOR

Mostafa Afifi Hegazy, PhD

Assistant Professor

Southwest Minnesota State University

1501 State St. Marshall, MN 56258

E-mail: mostafa.hegazy@smsu.edu

(507) 537-6243

¹ Cairo University, Giza, Egypt

² Southwest Minnesota State University, Marshall, MN, USA

Conflict of interest: The authors have no conflict of interests to disclose regarding the content of this manuscript.