

THE EFFECT OF BRACING AND BALANCE TRAINING ON ANKLE SPRAIN INCIDENCE AMONG ATHLETES: A SYSTEMATIC REVIEW WITH META-ANALYSIS

Rachel Bellows, PT, DPT, OCS¹

Christopher Kevin Wong, PT, PhD, OCS²

ABSTRACT

Background: Ankle sprains are common musculoskeletal injuries in the athletic population that have been addressed with prevention strategies that include bracing and balance training. Many authors have examined ankle sprain incidence after bracing or balance training in athletes at different levels of competition and in various sports. No systematic review has analyzed the results of both interventions.

Purpose: The purpose of this review was to compare the effect of balance training and bracing in reducing the incidence and relative risk of ankle sprains in competitive athletes, with or without prior injury, across different sports.

Design: Systematic review, with meta-analysis

Methods: A literature search of four databases was conducted for randomized control trials that reported ankle sprain incidence published from 2005 through 2016. Included articles studied high school, college, or professional level athletes with or without a history of a prior sprain, who received bracing or balance training as an intervention compared to a non-intervention control group. Methodological study quality was assessed by two reviewers using the PEDro scale, with scores ≥ 5 considered moderate quality. Group incidence and relative risk were determined to assess the preventative effect of bracing or balance training compared to control.

Results: From 1832 total citations, 71 full-text articles were reviewed, and eight articles were included in the study. Methodological quality of the available evidence contained in the systematic review was moderate. Five studied the effect of balance training, two studied the effect of bracing, and one studied the effect of bracing and balance training compared to the control condition. In all eight studies, athletes in the control condition did not receive any intervention. Athletes who wore braces had fewer ankle sprains ($p = 0.0037$) and reduced their risk of sprains by 64% ($RR = 0.36$) compared to controls, based on analysis of 3,581 subjects. Athletes performing balance training had fewer ankle sprains ($p = 0.0057$) and reduced their risk by 46% ($RR = 0.54$) compared to controls, based on analysis of 3,577 subjects.

Conclusion: The findings of the current systematic review and meta-analysis support the use of bracing and balance training to reduce the incidence and relative risk of ankle sprains in athletic populations. Clinicians can utilize this information to educate their patients on wearing a brace or performing balance training exercises to decrease the risk of an ankle sprain.

Level of evidence: Level 1a

Keywords: Athlete, ankle sprain, balance training, bracing, incidence, prevention

CORRESPONDING AUTHOR

Rachel Bellows, PT, DPT, OCS

Stanford Health Care

450 Broadway Street

Redwood City, CA 94063

E-mail: rbellows18@gmail.com

¹ Stanford Health Care, Ortho-Sport Physical Therapy, Redwood City, CA, USA

² Neurologic Institute, Columbia University, New York, NY, USA.

The authors have no conflicts of interest to disclose. No funding was used for the completion of this review.