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Original Research

Systematic Review of Postural Control and Lateral Ankle Instability, Part I: Can Deficits Be Detected With Instrumented Testing?

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Abstract

Objective: To answer the following clinical questions: (1) Is poor postural control associated with increased risk of a lateral ankle sprain? (2) Is postural control adversely affected after acute lateral ankle sprain? (3) Is postural control adversely affected in those with chronic ankle instability?

Data Sources: PubMed and CINAHL entries from 1966 through October 2006 were searched using the terms *ankle sprain, ankle instability, balance, chronic ankle instability, functional ankle instability, postural control,* and *postural sway*.

Study Selection: Only studies assessing postural control measures in participants on a stable force plate performing the modified Romberg test were included. To be included, a study had to address at least 1 of the 3 clinical questions stated above and provide adequate results for calculation of effect sizes or odds ratios where applicable.

Data Extraction: We calculated odds ratios with 95% confidence intervals for studies assessing postural control as a risk factor for lateral ankle sprains. Effect sizes were estimated with the Cohen d and associated 95% confidence intervals for comparisons of postural control performance between healthy and injured groups, or healthy and injured limbs, respectively.

Data Synthesis: Poor postural control is most likely associated with an increased risk of sustaining an acute ankle sprain. Postural control is impaired after acute lateral ankle sprain, with deficits identified in both the injured and uninjured sides compared with controls. Although chronic ankle instability has been purported to be associated with altered postural control, these impairments have not been detected consistently with the use of traditional instrumented measures.

Conclusions: Instrumented postural control testing on stable force plates is better at identifying deficits that are associated with an increased risk of ankle sprain and that occur after acute ankle sprains than at detecting deficits related to chronic ankle instability.

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Patrick O. McKeon, PhD, ATC, CSCS, and Jay Hertel, PhD, ATC, FACSM, contributed to conception and design; acquisition and analysis and interpretation of the data; and drafting, critical revision, and final approval of the article.

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