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### Original Research

## Systematic Review of Postural Control and Lateral Ankle Instability, Part II: Is Balance Training Clinically Effective?

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### Abstract

**Objective:** To answer the following clinical questions: (1) Can prophylactic balance and coordination training reduce the risk of sustaining a lateral ankle sprain? (2) Can balance and coordination training improve treatment outcomes associated with acute ankle sprains? (3) Can balance and coordination training improve treatment outcomes in patients 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 the influence of balance training on the primary outcomes of risk of ankle sprain or instrumented postural control measures derived from testing on a stable force plate using the modified Romberg test were included. Studies had to provide results for calculation of relative risk reduction and numbers needed to treat for the injury prevention outcomes or effect sizes for the postural control measures.

**Data Extraction:** We calculated the relative risk reduction and numbers needed to treat to assess the effect of balance training on the risk of incurring an ankle sprain. Effect sizes were estimated with the Cohen d for comparisons of postural control performance between trained and untrained groups.

**Data Synthesis:** Prophylactic balance training substantially reduced the risk of sustaining ankle sprains, with a greater effect seen in those with a history of a previous sprain. Completing at least 6 weeks of balance training after an acute ankle sprain substantially reduced the risk of recurrent ankle sprains; however, consistent improvements in instrumented measures of postural control were not associated with training. Evidence is lacking to assess the reduction in the risk of recurrent sprains and inconclusive to demonstrate improved instrumented postural control measures in those with chronic ankle instability who complete balance training.

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**Conclusions:** Balance training can be used prophylactically or after an acute ankle sprain in an effort to reduce future ankle sprains, but current evidence is insufficient to assess this effect in patients with chronic ankle instability.

**Keywords:** [ankle sprains](#), [chronic ankle instability](#), [injury prevention](#), [stabilometry](#)

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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