

THE EFFECT OF BALANCE TRAINING ON RATE OF PAIN, MUSCLE FORCE AND BALANCE PERFORMANCE IN BOTH FEET OF ANKLE SPRAIN PATIENTS

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Study design: Cross-sectional study

Objectives: To examine the interaction between the ankle sprain, muscle force and foot dominance and balance training rehabilitation.

Background: About 40% of subjects with a history of ankle sprain experience postural instability. However, the interaction between ankle sprain, proprioceptive performance, balance training and dominant and non-dominant foot are unclear.

Methods: Twelve patients with bilateral ankle sprains divided into right and left sprain groups, and 21 healthy controls were studied. Pain was determined by questionnaire. An electronic tensiometer was used to measure the plantar flexor and dorsi flexor maximum isometric muscle force. Standing stability was measured as the time (sec) standing on one foot. Patients underwent a two month balance training rehabilitation program and were retested. A mixed design repeated measure analysis of variance was applied for statistical analysis.

Results The rehabilitation program reduced pain by 87% ($p=0.01$) in both sprain foot groups. Muscle force was decreased in both sprain foot groups by 40% (right) and 45% (left) and increased to normal levels with rehabilitation. ($p=0.01$). Balance control was affected in both legs of injured subjects but did not significantly improve with rehabilitation.

Conclusion: Ankle sprain significantly affects the postural stability and balance performance on both the injured and non-injured feet of the subject. Balance training is recommended for rehabilitation in addition to their regular physiotherapy after pain is decreased. It is hypothesized that improvements in postural stability after balance training may reduce the risk of reoccurrence of the injury, especially on those who are involved in exercise and sport activities.

Keywords: stability, balance training, ankle sprain.