Effect of cognitive task (dual task) on postural control in patients with chronic ankle sprain

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Abstract:

Background and aim: Chronic ankle instability (CAI) is a current disability that can affect on activity daily living of the patients. Many studies have indicated postural control deficits in these patients; but the effect of a dual task on postural control has not been examined yet.

Materials and methods: Postural stability in CAI patients and healthy subjects was measured using the Force Plate. Eight positions concluded two different stances (double & single) with closed or opened eyes. All positions concurrently were done with a cognitive task. Anterior/posterior (Rfa) and medial/lateral (Rsw) mean sway quantified static postural stability.

Results: Mean sway significantly increased in patients in the anterior/posterior (single and double leg stance) and medial/lateral (single leg stance) directions ($P<0.05$). While performing a dual task anterior/posterior mean sway decreases within the patients group on the impaired leg stance ($P<0.05$). No difference is seen in the healthy subjects.

Conclusion: Postural control deficits were identified in participants with chronic ankle instability. In view of the fact that a cognitive task resulted in decreasing displacement of center of pressure in patients, this method may identify as an examination and a plan of treatment for affecting on ankle stabilizing factors.

Key Words: Postural Control, Information Processing, Ankle Sprain, Force Plate, Dual Task.

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