

**BALANCE TRAINING USING THE 'PODIATRON' BALANCEMASTER (A MECHANISED ROTATING PLATFORM)**

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**PURPOSE:** To determine if the BalanceMaster, a commercially available rotating platform, is useful in the training and rehabilitation of balance in normal and injured subjects.

**RELEVANCE:** Balance, both static and dynamic, is important in functional and recreational activity. It deteriorates with age and following musculo-skeletal injury<sup>1</sup> and impairment of balance is associated with falling especially in an aging or injured population. Little research to date has addressed specific training methods/programmes.

**SUBJECTS:** Two groups of subjects were assessed. Group 1 comprised of 13 (7 male) healthy normal subjects Group 2 of 10 (4 male), healthy subjects with a history of chronic unilateral ankle sprain were assessed.

**METHODS AND MATERIALS:** Following ethical approval and written consent, unilateral balance (one-legged standing), as determined by postural sway, was measured and the effect of a six week training programme considered. Unilateral measurements were recorded using the Cosmogram (version 8.0) force platform (Churchill Medical) in the dominant/nondominant (group 1 or uninjured and injured limb (group 2) prior to and following a 6 week balance training programme. The duration of training was 20 minutes, three times per week and involved the patient maintaining balance on the 'Podiatron' mechanised rotating platform. The speed and inclination of the platform was progressively increased. The (i) anterior-posterior (AP), (ii) medial and lateral (ML) excursion and (iii) the total pathway length were recorded.

**ANALYSIS:** Statistical analysis was conducted using the Student's paired t-test.

**RESULTS:** Significant differences were seen post training in both groups (see table below).

<i>Healthy Subs n=13</i>	<i>Pre-Training (Dom)</i>	<i>Post- Train' (Dom)</i>	<i>Pre-Training (Ndom)</i>	<i>PostTrain' (Ndom)</i>
Max AP	22.0	20.0***	22.73	20.69***
Max ML	23.0	21.4***	23.44	21.72***
Path length	551	532**	569	552***
<i>Injured Subs (n=10)</i>	<i>Pre-Training (Uninjured)</i>	<i>Post-Train (Uninjured)</i>	<i>Pre-Training (Injured)</i>	<i>Post-Train (Injured)</i>
Max AP	21.6	18.9***	23.0	21.5*
Max ML	23.6	19.9*	23.8	19.7*
Path length	566	548**	605	583***

P<0.05, \*\*P<0.01, \*\*\*P,0.005

**CONCLUSION:** These findings are encouraging and show that training using the *Podiatron* BalanceMaster to be useful in improving balance, as measured by postural sway. Further study is needed to investigate (i) the physiological mechanisms responsible for improvement; (ii) the effect on more strenuous dynamic, functional and recreational activities and (iii) the duration and training protocol.

Ref: <sup>1</sup>.Holder-Powell HM& Rutherford O. Arch Phys Med Rehabil 2000;81:265-8

More detail on the clinical relevance of the tiny improvements in sway observed. Are these statistically significant differences clinically important. Was there any difference between the degree of improvement in normals and injured?

I would suggest the use of confidence intervals rather than p values and state if parametric testing was appropriate with such small samples.

Identify age range of subjects

In table define ML/AP