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MEETING ABSTRACT

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# The effect of rollover footwear on pain, disability and lumbar posture in patients with low back pain

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## Background

Low back pain (LBP) is one of the most common musculoskeletal disorders [1]. Exercise therapy is often advised [2,3] but requires a significant time commitment, can rely on equipment or health professionals and risks low compliance. As an alternative or adjunct, shoes with a curved sole profile are thought to produce beneficial changes in ankle, knee, hip and back position and posture [4]. Therefore, the aim of this preliminary study was to investigate the effect of rollover footwear on pain, disability and lumbar posture in patients with lumbar pain.

## Material and method

21 patients (age: 35.5±1.4 years) with LBP (pain distal to the buttocks that centralized with extension) were randomly assigned to a rollover footwear and lumbar extension exercise group (n=11) or a lumbar extension exercise only group (n=10). Baseline and 4 weeks post intervention measures were pain (visual analog scale), disability (Oswestry LBP disability) and lumbar posture when standing barefoot (as described by Forghany et al [4]).

Participants attended six appointments of 30 minutes duration over 4 weeks. Exercise consisted of 3 sets of 10 repetitions of extension exercises. Participants in the shoe and exercise group walked in rollover footwear [Perfect Steps] as often as possible over the 4 weeks (but at least 30 minutes each day).

## Results

Participants in both groups showed significant decreases in pain levels and disability after four weeks. Participants in the shoe and exercise group had significantly greater decreases in pain (p=0.04) and demonstrated 11.8% greater reduction in disability, but this did not reach statistical significance (p>0.05) (Table 1). The radius of lumbar curve was decreased in both groups when standing barefoot after 4 weeks, but not significantly (p>0.05) and there was no significant difference in the change in the radius of lumbar curve between two groups (p>0.05) (Table 1).

## Conclusion

This result suggests that the rollover footwear could be part of a treatment protocol for greater reduction in

**Table 1 Mean and amount of change in pain, disability and lumbar posture in exercise only, and exercise and shoe groups.**

	Pain			Disability			Lumbar Posture (cm)		
	Pretest	4 weeks	change	Pretest	4 weeks	change	Pretest	4 weeks	change
Exercise	7.1±1.6	4.8±2.1 <sup>a</sup>	-%31.5	36.9±10.5	26.3±9.5 <sup>a</sup>	-%27.8	26.2±13.9	22.2±10.5	-%15.3
Exercise + shoe	7.3±1.8	3.0±2.0 <sup>a</sup>	-%58.9 <sup>b</sup>	29.8±5.3	18.0±5.9 <sup>a</sup>	-%39.6	20.1±11.9	17.5±5.6	-%12.9

<sup>a</sup> P <0.05 (within group). <sup>b</sup> P <0.05 (between group).

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pain level in patients with LBP. However, the effects on lumbar biomechanics and association with changes in pain and disability remain unclear and requires further investigation.

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