

THE EFFECT OF NOVEL ANKLE-REALIGNING SOCKS ON DYNAMIC POSTURAL STABILITY IN INDIVIDUALS WITH CHRONIC ANKLE INSTABILITY

Takumi Kobayashi, PT, PhD¹

Kota Watanabe, MD, PhD²

Toshikazu Ito, PT, PhD¹

Masashi Tanaka, PT, MS¹

Masahiro Shida, PT, MS¹

Masaki Katayose, PT, PhD²

Kazuyoshi Gamada, PT, PhD³

ABSTRACT

Background: A dynamic postural stability deficit has been suggested to be present in individuals with chronic ankle instability (CAI). Interventions to improve postural control in individuals with CAI have been reported, but they required a long period of and compliance with interventions.

Purpose: To examine the effect of novel ankle-realigning socks on dynamic postural stability in individuals with CAI using the star excursion balance test (SEBT).

Study Design: Case-control study.

Methods: Twenty-eight control and 22 subjects with CAI (who were tested in both barefoot and with socks) were enrolled. The weight-bearing ankle dorsiflexion range of motion (DF-ROM) and SEBT were measured in the control group, the barefoot CAI group, and the CAI with socks group. In addition, subjective ankle instability during SEBT was measured using a visual analog scale (0 - 100).

Results: DF-ROM was $48.3 \pm 7.4^\circ$ in the control group, $43.3 \pm 8.0^\circ$ in the barefoot CAI group, and $45.7 \pm 6.8^\circ$ in the CAI with socks group. DF-ROM was significantly less in the barefoot CAI group than in the control group. The SEBT scores were significantly less in the barefoot CAI group than in the control group in all directions. The SEBT score was significantly larger in the CAI with socks group than in the barefoot CAI group in the posteromedial, posterior, and posterolateral directions. In addition, there were no significant differences between the control group and the CAI with socks group in six directions.

Conclusion: Wearing the novel ankle-realigning socks immediately improved dynamic postural stability as measured by the SEBT and subjective ankle instability in individuals with CAI.

Level of Evidence: Level 3b

Keywords: chronic ankle instability, dorsiflexion range of motion, lateral ankle sprain, star excursion balance test

¹ Hokkaido Chitose College of Rehabilitation, Department of Rehabilitation, Chitose, Hokkaido, Japan

² Sapporo Medical University, Department of Physical Therapy, Sapporo, Hokkaido, Japan

³ Hiroshima International University, Department of Rehabilitation, Higashi Hiroshima, Hiroshima, Japan

Conflict of Interest: This novel socks used in this study were provided by the company owned by Kazuyoshi Gamada. Other authors declare that there are no conflicts of interest related to this study.

CORRESPONDING AUTHOR

Takumi Kobayashi

Hokkaido Chitose College of Rehabilitation

2-10 Satomi, Chitose, Hokkaido, 066-0055

Japan

Telephone-number: +81-123-28-5331

Fax-number: +81-123-28-5335

E-mail: kobatakku@chitose-reha.ac.jp