



TITLE: Effect of Blood Flow Restriction Training with Rehabilitation Program in Athletes with Chronic Ankle Instability: A Randomized Placebo-Controlled Trial

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ABSTRACT (upto 300 words)

Blood flow restriction (BFR) training with low-load resistance has been advocated as an alternative approach for improving muscle strength in clinical musculoskeletal rehabilitation patients. However, the effectiveness of combined BFR with traditional rehabilitation (R) on muscle strength and functional performance in athletes with chronic ankle instability (CAI). The present study aimed to evaluate the effectiveness of a 4-week of traditional rehabilitation with and without BFR on muscle strength, cross-sectional area (CSA), and measures of functional performance in athletes suffering CAI. A total of 16 collegiate athletes with CAI participated in this study. They were randomly assigned to the BFR+R group (n=8) or the R group (n=8). Both groups underwent supervised rehabilitation 3 times weekly for 4 consecutive weeks. In addition, the BFR+R group was applied with a cuff around the proximal thigh at 80% of arterial occlusion pressure in addition to conventional rehabilitation program, while the R group received the sham BFR only. Before and after 4 weeks of intervention, isokinetic muscle strength, CSA, Y-balance, and side hop test (SHT) were measured. Following a 4-week intervention, the BFR+R group displayed significantly improvements in muscle strength of ankle plantarflexor and evertor, CSA of fibularis longus, and SHT time performance compared with prior

training and the R group ($p<0.05$). However, there was non-significant difference observed on dynamic balance between groups. The present finding indicated that a 4-week of combined traditional rehabilitation with BFR is more effective in improving muscle strength and functional performance compared with the traditional rehabilitation alone.

BIOGRAPHY (upto 200 words)

Phurichaya Werasirirat has completed her PHD at the age of 37 years from Chulalongkorn University, Thailand. She is the lecturer of Physical Therapy Division, Faculty of Allied Health Sciences, Burapha University, Chonburi, Thailand. She is the author of research based publications that have been related blood flow restriction training in athletes and innovated assistive devices for ambulation. She has successfully applied blood flow restriction training in athletes with chronic ankle instability and mentoring rehabilitation programs for athletes with injuries, early developed smart wheeled walker for prevent falling in older adults.

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