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**COMPRESSION SOCKS AND FUNCTIONAL RECOVERY FOLLOWING
MARATHON RUNNING: A RANDOMISED CONTROLLED TRIAL**

Stuart A Armstrong¹, Eloise S Till², Stephen Maloney³, Gregory Harris⁴

1 - Anglesea Sports Medicine, Hamilton, New Zealand

2 - Albury Emergency Department, Albury, Australia

3 – Monash University Physiotherapy Department, Melbourne, Australia

4 – MP Sports Physicians, Melbourne, Australia

Corresponding Author:

Dr Stuart Andrew Armstrong
Anglesea Sports Medicine
Gate 2, Anglesea Clinic
7-9 Thackeray Street
PO Box 228
Hamilton
New Zealand
drsarmstrong@gmail.com
Ph. +64 211 492 438
Fax +64 7 858 0789

Running Title

Compression socks and recovery

Conflict of Interest:

The authors declare no conflicts of interest.

Abstract:

Compression socks have become a popular recovery aid for distance running athletes. Although some physiological markers have been shown to be influenced by wearing these garments, scant evidence exists on their effects on functional recovery. This research aims to shed light onto whether the wearing of compression socks for 48 hours after marathon running can improve functional recovery, as measured by a timed treadmill test to exhaustion 14 days following marathon running.

Athletes ($n=33$, age = 38.5 ± 7.2 yrs) participating in the 2012 Melbourne, 2013 Canberra or 2013 Gold Coast marathons were recruited and randomised into the compression sock or placebo group. A graded treadmill test to exhaustion was performed 2 weeks prior and 2 weeks following each marathon. Time to exhaustion, average and maximum heart rates were recorded. Participants were asked to wear their socks for 48 hours immediately after completion of the marathon. The change in treadmill times (seconds) was recorded for each participant.

33 participants completed the treadmill protocols. In the compression group average treadmill run to exhaustion time 2 weeks following the marathon increased by 2.6% ($52s \pm 103s$). In the placebo group run to exhaustion time decreased by 3.4% ($-62s \pm 130s$). $P=0.009$. This shows a significant beneficial effect of compression socks on recovery compared to placebo.

The wearing of below knee compression socks for 48 hours after marathon running has been shown to improve functional recovery as measured by a graduated treadmill test to exhaustion 2 weeks following the event.

Key Words

- Randomised Controlled Trial
- Aerobic fitness
- Recovery markers
- Delayed onset muscle soreness