Exploring the role of exercise in conjunction with compression therapy in patients with venous ulcers: initial observations on a feasibility study

Markos Klonizakis¹, Garry Tew², Sue Kesterton¹, Emma McIntosh¹, Anil Gumber¹, Jonathan Michaels³, Helen Crank¹
¹Sheffield Hallam University
²University of Northumbria
³University of Sheffield

AIM: To assess the microcirculatory effects of an intervention combining exercise and compression therapy in patients with lower-limb venous ulcers.

METHODS: This was an NIHR-funded, randomised-controlled, assessor-blinded, feasibility trial with two parallel groups. Thirty five adults, receiving lower-limb compression for a lower-leg venous ulcer, were randomly assigned to receive usual care (compression only) or usual care plus a 12-week supervised exercise programme. Participants in the exercise group were invited to undertake three, 60-minute sessions of supervised exercise per week. Each session involved a combination of treadmill walking, upright cycling and strength and flexibility exercises for the lower limbs. Participants were assessed before randomisation and 3 months after randomisation. Endothelially-dependent and -indendependent microvascular perfusion and reactivity were assessed using Laser Doppler fluximetry and iontophoresis of acetylcholine chloride (ACh) and sodium nitroprusside (SNP) respectively.

RESULTS: Statistically significant improvements were observed in endothelially-dependent, ACh-induced microvascular reactivity between groups, with measured cutaneous vascular conductance (CVC) being superior in the exercise group.

CONCLUSIONS: Our findings suggest that exercise offers important microcirculatory benefits to a lower-leg, venous-ulcer population. However, the practical challenges of implementing the intervention call for design modifications.