

## Venous hemodynamic characteristics of pneumatic compression devices

Proctor MC et al (2001). *Journal of Vascular Technology*; 25(3): 141-145

### Overview

This was an independent study undertaken by the University of Michigan Hospital. The purpose of this research was to determine if there are differences in the peak systolic velocity, mean velocity or peak volume flow associated with compression cycles or sleeve lengths of marketed pneumatic compression devices.

### Design and methodology

- 15 healthy volunteers with normal lower extremity ultrasound examinations, evaluated 9 different pumps and 12 sleeves from 5 different suppliers
- There were 3 different compression cycles:
  - rapid graduated compression (RGC)
  - graduated compression (GC)
  - intermittent compression (IC)
- Foot garments as well as leg compression garments were evaluated
- Subjects completed a device evaluation form immediately following each test, the scores of which were used to rank the devices
- Data was analysed from 2 perspectives:
  - To determine if sleeve length or type of compression cycle was associated with significant differences in haemodynamic outcomes
  - To determine if haemodynamic outcomes were different between individual manufacturers products

### Results

The type of compression cycle and length of sleeve were not significantly associated with differences in the haemodynamic outcomes. Individual brands however do differ in terms of the haemodynamic profiles that they deliver.

The subjects evaluated the devices and concluded that the calf length sleeves were less likely to interfere with movement. When products were ranked according to manufacturer, ArjoHuntleigh products scored best on 3 particular points: lowest amount of noise, least interference with relaxation and the feel of the fabric next to the leg.

### Conclusion

Both compression cycle type and length of sleeve showed no significant differences in haemodynamic outcome in terms of peak systolic velocity, mean velocity or peak volume flow.