MAC Moves Blood.

Peer-Reviewed Evidence

Scan for Full Text

Original Research

ABSTRACT

Background:

A study published by a premier international vascular journal using Doppler ultrasound to measure and compare common femoral vein response to mechanical compression found that **efficacy of industry-leading devices in moving blood varied in a group of subjects with diverse leg sizes.**

Methods:

This novel method of evaluating compression efficacy is directly based on femoral vein response and thus validates the indication for moving blood.

Results:

The MAC System was **the only device to achieve the target peak flow velocity over baseline in every BMI group.** MAC also had a significantly faster rise time to peak flow than all other comparison devices.

Both corded and cordless devices were included in the study giving further indication that not all squeezes are the same in terms of femoral vein response.

Conclusions:

Commonly used intermittent pneumatic compression (IPC) devices require bladders and tubes that compress the leg at a slower rate. The movement of air using millimeters of mercury (mmHg) to gauge pressure has historically been the standard to which a compression's efficacy is measured.

The MAC System's mechanism of compression involves an alternative means of squeezing by using a motorized system that remains in place on the lower leg before, during and after ambulation. MAC provides adaptive forces to give a more consistent external mechanical compression without air.[1]

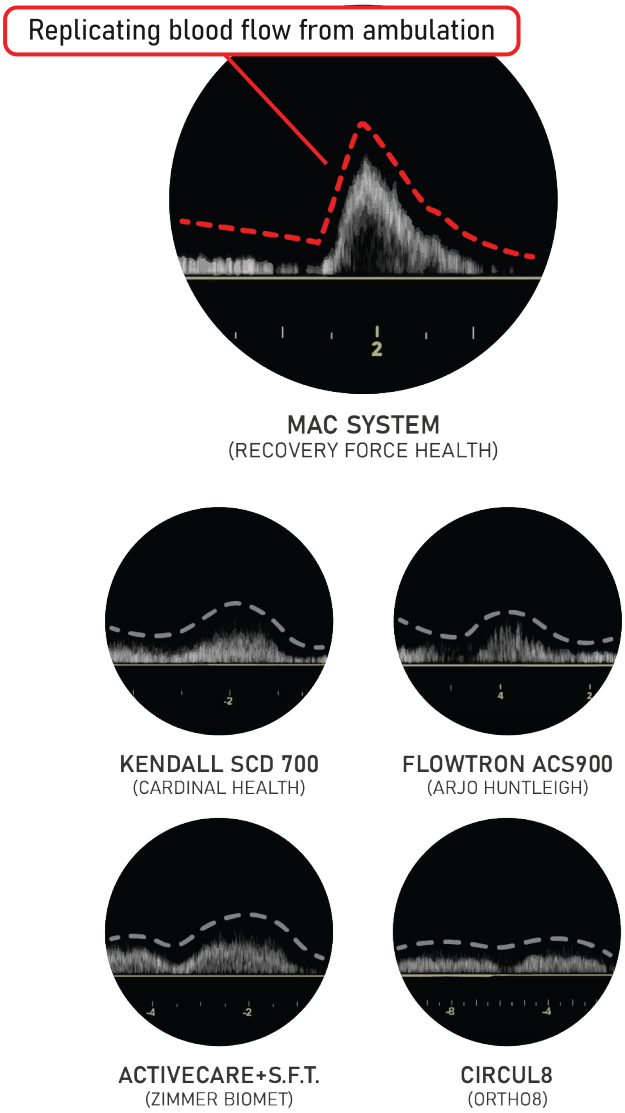

Table 1 shows the mean peak flow velocity for each device by BMI group. Target values highlighted in green and values below in red.

Table 1: Mean Peak Flow Velocity over Baseline by BMI Group

BMI Group	N	MAC System	Kendall SCD 700	Arjo Huntleigh Flowtron ACS900	ActiveCare +S.F.T	Circul8
Under 18.5	2	3.8	2.7	2.3	2.3	1.9
18.5-24.9	5	4.1	2.8	5	3.3	1.8
25-29.9	7	4.2	3.8	5.6	2.8	2.1
30+	6	5.3	3.7	5.5	2.8	1.8

(1) Nicos Labropoulos, Karen K. Giuliano, Alfonso J. Tafur, Joseph A. Caprini, Comparison of a nonpneumatic device to four currently available intermittent pneumatic compression devices on common femoral blood flow dynamics, Journal of Vascular Surgery: Venous and Lymphatic Disorders, 2021