

The effect of medical elastic compression stockings with different slope values on edema. Measurements underneath three different types of stockings.

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BACKGROUND: Medical elastic compression stockings are widely used in venous diseases. Their effects on the venous system have been shown in the past. Up to now, little is known about the slope or stiffness factor of stockings.

OBJECTIVE: To evaluate the effect of different slope and stiffness factors of medical elastic compression stockings on the venous system.

METHODS: Examinations were carried out in 29 legs of 25 different patients (12 men, 13 women) with a mean age of 66.0 years. All patients were known with chronic venous insufficiency. On all these patients three different elastic medical compression stockings were tested; one with a low slope, one with a high slope, and one with a low slope but a higher pressure at the ankle. The tests were carried out by determining capillary filtration rate (CFR) with air-plethysmography (APG) while wearing the stockings.

RESULTS: The mean value of the CFR without wearing a stocking was 4.65 ml/min (SD = 1.68), with Compriform (low slope, 30 mmHg) the mean CFR was 3.54 ml/min (SD = 1.22), with Bellavar (high slope, 30 mmHg) a mean CFR of 3.15 ml/min (SD = 1.17) was found, and the mean CFR related to Fast-fit (low slope, 34.5 mmHg) was 3.02 ml/min (SD = 1.12). There is a highly statistically significant difference in CFR between no stockings and wearing a stocking (paired Student's t-test; $P < 0.01$). Regarding the individual stocking, there is a highly statistically significant difference in CFR between the Compriform and the other two

stockings (paired Student's t-test; $P < 0.01$). Between Bellavar and the Fast-fit the difference was not statistically significant.

CONCLUSIONS: There is a statistically significant difference in CFR, and consequently in the development of edema, between not wearing an elastic compression stocking and wearing an elastic compression stocking. There is also a statistically significant difference in CFR between elastic compression stockings with the same compression, but a low slope profile and a high slope profile. Stockings with a low slope, but a higher compression may perform as well as stockings with a higher slope but a lower compression in reducing the CFR. In patients with a strong tendency to develop edema it may be advisable to prescribe stockings with a high slope profile.

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