

Pneumatic compression; Fast and furious?

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Introduction

At the EWMA in London in 2024 we introduced a novel adaptable pneumatic compression device (APCD) and presented a study concerning the proof of principle of this novel device.

The study suggested a promising role for the treatment of CVD and especially venous leg ulcers in an outpatient setting, as the device can be easily operated by the patient itself. The reusable pneumatic compression device is able to distribute an accurate pressure over the enclosed lower leg. The APCD consists of a single air chamber, which can be folded around the leg.

The amount of pressure inside can be pre-set with a pressure sensor by the physician between 10 and 100 mm Hg with intervals of 10 mm Hg. When pressure declines the patient can easily re-adjust this to the pre-set value using a manual air pump.

Methods

Nowadays we are dealing with a growing demand for healthcare as a result of an increasing and aging population. But, whilst the demand increases, the number of available healthcare workers decreases. This leads to an increasing request for fast and cost-saving alternatives.

In addition, in today's world, we are very aware of environmental impact, therefore new alternatives should be as environmentally friendly as possible. We evaluated properties concerning time, costs and environmental impact of the APCD.

A total of 42 experienced homecare nurses took part in this study. They were asked to perform both the application of the APCD and that of a two-layer bandage of their preference, both two times.

The application time for each leg and compression technique was measured. All actions concerning the application were included in this time measurement. As a secondary outcome we collected the waste of the bandages for a usage duration of 6 weeks.

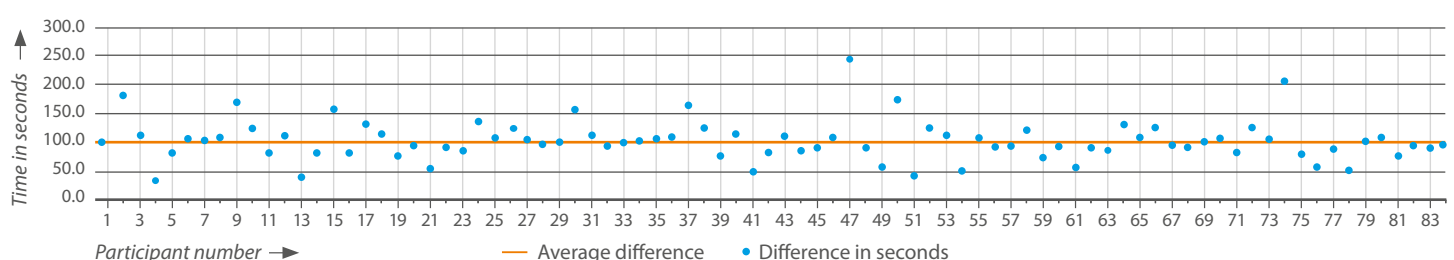
Outcomes

The average application time of the two layer bandages was 154 seconds, compared to 53 seconds for the application of a APCD. This means that on average, **the APCD can be applied 3x faster** than two layer bandages.

It does not require any strength or experience in order to don the APCD, which makes it possible for patients and family to use the APCD themselves. This saves a lot of valuable time for healthcare workers. Besides, it also saves a lot of waste and costs as the **APCD can be used for six months**, whereas most bandages are single use.

The novel APCD is a safe and promising alternative for classical compression therapy using bandages. However, further investigations are necessary to confirm the effects during daily activities in patients.

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Graph: application time difference



PNEUMASOX

COMPRESSION THERAPY

THE BENEFITS OF PNEUMASOX

- Easy application by nurses and home care workers.
- No skill or strength required for use. Ideal for self-care by patient.
- Can be worn with shoes.
- Saves care time and cost as specific bandaging skill (and dressing changes) are not required.
- Reusable (machine washable).
- Comfortable, due to evenly distributed pressure.
- Adjustable compression (10 - 100mmHg)
- Suitable for venous ulcer cruris (also in the malleolus area).

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