

# **A Novel Portable Muscle Pump Activator System (MPA) FlowAid FA 100 to enhance venous return and stimulate arterial blood flow in the extremities, a preliminary study**

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## **Goals and Objectives**

The main etiologies of lower limbs chronic wounds are venous insufficiency and arterial insufficiency. Multiple pharmacological, conservative and invasive techniques are available to try and reverse the vascular insufficiencies. FlowAid FA 100 is a portable electro muscular device that activates the natural calf muscle pump. It enhances the venous return by activating the musculature and by producing a peristaltic wave, distal to proximal. It enhances the arterial flow by elevating the metabolic demands of the contracting muscles causing vasodilatation and by formation of new blood vessels in the chronic stimulated muscle. The goal of this study was to evaluate the effects of the FlowAid FA 100 device on arterial blood flow and venous return in the lower limbs.

## **Purpose**

To evaluate the effects of FlowAid FA 100 on arterial flow, venous return and pain reduction.

## **Methods**

Ten arterial insufficiency patients and 5 venous insufficiency patients were recruited. The FlowAid FA 100 device was activated for 120 minutes over the calf muscles. Transcutaneous pO<sub>2</sub> (T<sub>cp</sub>O<sub>2</sub>), thermal imaging, laser Doppler flowmetry, calf circumference and pain reduction was measured during the treatment and 1 hour later.

## **Results**

All patients showed increased blood flow with 30% more than the baseline. Toe T<sub>cp</sub>O<sub>2</sub> increased by 50% and the toe temperature raised by 2-3° C. The calf circumference decreased by 6% and the patients with chronic pain experienced marked pain reduction.

## **Discussion / Conclusion**

FlowAid FA 100 is a novel technology with a potent ability to enhance venous return and stimulate arterial blood flow by using the native musculature - vascular systems. It may be beneficial in treating patients with chronic wounds due to vascular problems.