

## **Abstract**

### **Intermittent Foot and Calf Compression. A Novel Way to Treat Intermittent Claudication**

A.N. Nicolaidis

Imperial College School of Medicine, St. Mary's Hospital, UK

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Blood flow in the popliteal artery is approximately 120ml/min in the horizontal position. This is reduced to 50ml/min in the sitting position because of the veno-arteriolar reflex. The veno-arterial reflex consists of arteriolar vasoconstriction and it is elicited by any increase in venous pressure in excess of 40mmHg.

The application of intermittent foot or calf compression in the sitting position lowers venous pressure and abolishes the veno-arterial response which in turn lowers peripheral resistance and thus produces an increase in blood flow. During intermittent compression the popliteal arterial flow is increased from 50ml/min to 100ml/min. The optimum stimulus has been determined as a brief (3 seconds) foot compression at 80/100mmHg followed by calf compression after a delay of 1 second at a rate of three cycles/min. The daily use of such a device for 3-4 hours at home in the sitting position stimulates the development of a collateral circulation, increasing the ankle pressure. The claudication distance has been shown to double in a controlled study using intermittent foot compression and to increase 2.5 time in a randomized controlled study using the optimum stimulus of intermittent foot and calf compression.