

**CASE STUDY AND LITERATURE REVIEW: TREATMENT OF NON-HEALING LOWER EXTREMITY ULCERATION WITH A NEW FORM OF PROGRESSIVE, RAPID, PNEUMATIC COMPRESSION.**

Nancy D. Shebel, RN, BSN, CVN, RVT, MHA; Duane Amundsen, MD, FACS; and Ed Arkans, M.Eng.

General Surgery/Section of Vascular Surgery, Kaiser Permanente Medical Center, Panorama City, CA, USA

*Presented at the Society For Vascular Nursing Symposium  
June 1998, Washington DC*

The department of vascular surgery at the Kaiser-Permanente Medical Center at Panorama City is treating a 37 year old insulin dependent diabetic male with unreconstructable severe distal peripheral arterial disease (PAD). He has chronic kidney failure, is blind in one eye, and his left leg was amputated below the knee in June 1996. The right foot later developed similar non-healing ulceration patterns. Amputation of the right leg was expected despite best standard care. The vascular surgeon decided to try a recently introduced intermittent pneumatic compression (IPC) device, ArtAssist®\* in an attempt to save the leg, so the patient could become ambulatory when fitted with a prosthesis.

A literature review was undertaken before using the device. The review revealed intermittent pneumatic compression (IPC) of the calf has been shown as far back as 1961 to increase blood flow in the foot. A medical home care device, ArtAssist® is the first IPC device specifically designed to maximize arterial blood flow in arteriopathies. Physiological studies conducted in several academic centers have shown dramatic increases in both skin perfusion and volumetric arterial flow. Claudication ranges have been at least doubled with documented improvements in ankle brachial indices (ABI).

ArtAssist® was used to treat this patient in a limb salvage attempt. Compression was applied 60 minutes T.I.D. The ulcer was healed within 11 months. This first case of limb salvage in this institution is encouraging and suggests that this form of therapy may be valuable in accelerating healing of ulcers in addition to applications in patients with unreconstructable PAD for intermittent claudication and rest pain.

\*ArtAssist® model AA-1000 (ACI Medical, San Marcos, CA, USA)