

PUBLISHED CLINICAL REFERENCES

1. **External Leg Compression in the Treatment of Vascular Disease** [Cheryl A. Koch, MD](#) 1997
2. **Fifteen Years of Experience in Treating 2177 Episodes of Foot and Leg Lesions with the Circulator Boot** [Richard S. Dillon, MD](#) 1997

ABSTRACT

Objective. To determine the clinical effectiveness of the end-diastolic pneumatic compression boot and of local antibiotics in treating limb lesions associated with diabetes and peripheral arterial, venous, and neuropathic disease.

Research Design and Methods. Office and hospital data were kept over 15 years on 2177 episodes of leg problems classified by the Wagner method for 1514 legs of 1035 patients largely referred because of failure of standard therapies. The fate of the untreated legs served as a controls when possible.

Results. Healing or improvement of treated legs was seen above that in the literature in all Wagner categories and was significant ($P < 0.001$) compared to the "control" leg, which deteriorated in 38.7% of patients. Significant risk factors against a successful outcome included smoking, inability to walk, increased home distance from the boot center, loss to treatment, hemodialysis, a Wagner 4-5 classification, inoperable iliac occlusions, vascular procedures before or after referral for boot therapy, and an aggressive vascular surgeon. Neuropathy allowed successful treatment of lesions nondiabetic patients could not tolerate. Relapse was significantly more frequent in arteriosclerosis obliterans (ASO) patients with diabetes than without diabetes and in patients with neuropathy than in those with ASO. Diabetes did not affect the relapse rate in stasis disease. The overall percentage of legs having major amputations was low: 2.5% for diabetic legs at the initial treatment episode, 1.6% at the time of a relapse, and 4.1% after seeking treatment elsewhere. For nondiabetic patients, the respective risks were similar: 2.0%, 1.2%, and 2.9%.

3. **Patient Assessment and Examples of a Method of Treatment Use of the Circulator Boot in Peripheral Vascular Disease** [Richard S. Dillon, MD](#) 1997

ABSTRACT

Effective peripheral blood flow is positively related to cardiac output and gravity (part dependent) and inversely related to gravity (part elevated), venous pressure, interstitial fluid pressure, degree of peripheral neuropathy, arteriosclerotic and thrombotic arterial obstructions, and infection. These factors are considered in the operation of the end-diastolic pneumatic boot in the treatment of illustrative patients with lymphedema, venous stasis disease, peripheral arteriosclerosis obliterans, peripheral neuropathy, cellulitis, and osteomyelitis and the failing heart. A method of treatment that includes the use of the boot and the injection of local antibiotics is described.

4. **Circulator boot therapy alters the natural history of ischemic limb ulceration** [Thom W. Rooke, MD](#) 2000
- ABSTRACT**
Despite numerous advances in interventional radiology and vascular surgery, the clinician continues to be confronted with inoperable vascular disease. Previous studies have shown that ulceration associated with a transcutaneous oxygen pressure (tcPO₂) of <20 mmHg is refractory to all attempts at healing. External pneumatic compression for the treatment of peripheral vascular disease has been available for several years, although there is a relative paucity of data regarding its role in clinical practice as well as its efficacy. The objective of this study was to examine the experience with circulator boot therapy in the treatment of ischemic ulcers in the absence of osteomyelitis, and specifically to determine whether such therapy can be of benefit in ischemic limb ulceration associated with a tcPO₂ of <20 mmHg. A retrospective chart review was undertaken of all patients with a lower limb ulcer who, in the absence of osteomyelitis, underwent circulator boot therapy at the Gonda Vascular Center. A total of 98 patients was identified. Two patients died within 1 month of commencing therapy and were not included in further analysis. The tcPO₂ data were unavailable in five patients. Outcome in the patient population was classified as favorable if (1) healing was achieved, (2) the ulcer decreased in size, or (3) the affected limb improved sufficiently to allow successful revascularization. An unfavorable outcome was one where a major amputation was performed or where the ulcer increased in size. Out of a total of 29 patients with a tcPO₂ <20 mmHg at the area of ulceration, 19 had a favorable outcome following circulator boot therapy. Of the remaining 62 patients with a tcPO₂ >20 mmHg, 54 had a favorable outcome. Circulator boot therapy is associated with improved outcomes in limb ulceration due to peripheral vascular disease. Complete ulcer healing as well as preservation of the affected limb can be achieved in most cases.
5. **Treatment of Osteomyelitis in the Diabetic Foot with Systemic and Locally Injected Antibiotics and the End-diastolic Pneumatic Compression Boot) Case Studies** [Richard S. Dillon, MD](#) 1990
- ABSTRACT**
The treatment of 35 patients for 42 episodes of osteomyelitis in the distal lower extremity is summarized and the long-term courses of 3 patients are illustrated in detail. Systemic antibiotics were used both to help control infection in the foot and to prevent septic emboli. The systemic antibiotics were given by both oral and parenteral routes (22 episodes). Local foot treatments included injections of antibiotics into the infected areas of the foot, multielectrolyte-antibiotic foot soaks, and the end-diastolic pneumatic compression boot. X-ray evidence of osteomyelitis was found one to four weeks after it was clinically suspected and was associated with an improvement in the clinical status of the foot. Osteomyelitis was not considered an indication for amputation. The osteomyelitis lesions healed and foot structure and function was maintained.
6. **Management of Soft Tissue Infections in Elderly Persons with Diabetes** [Richard S. Dillon, MD](#) 1987
7. **Successful Treatment of Osteomyelitis and Soft Tissue Infections in Ischemic Diabetic Legs by Local Antibiotic Injections and the End-diastolic Pneumatic Compression Boot** [Richard S. Dillon, MD](#) 1986

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