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Indication:	Patients with diabetes mellitus
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Surgeons:	Arne Nagel, Dieter Rosenbaum
Tested shoes:	VACOdiaped, VACOdiaped plus[1], DARCO light, "Health Shoe"

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Vacuum cushioned removable cast walkers reduce foot loading in patients with diabetes mellitus

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Summary:

The purpose of this study was to investigate the pressure-relieving effects of two vacuum orthoses (VACOped Diabetic & VACOpedes Diabetic) in patients with diabetes mellitus. Twenty patients: 13 females & 7males, average age 56,4 +/- 15,7 years. Disease duration was 12,8 +/- 12,1 years. They presented with plantar callosities, but no ulceration.

Method & Materials:

Plantar pressure distribution was measured with sensor insoles during walking in two different VACO-orthoses, a postoperative shoe and a common "Health Shoe".

Results:

Significant differences in plantar pressure distribution were found between the four walking conditions. The contact area increased in the midfoot with the vacuum orthosis (up to 45,1%).

→ **Maximum force & peak pressures showed a significant decrease under the rearfoot and forefoot** and increased in the midfoot area during walking **with both vacuum orthoses (VACOped Diabetic & VACOpedes Diabetic)!**

→The VACOdiaped revealed equal pressure relief under the forefoot and significantly lower rearfoot pressures compared to the post-operative shoe DARCO light.

The vacuum orthosis demonstrated a comparable pressure relieving efficacy under the forefoot to post-operative shoes.

Conclusion:

→ For patients using a VACOped Diabetic or the VACOpedes Diabetic the maximum force & peak pressures showed a significant decrease under the rearfoot and forefoot and they significantly benefited re-distribution of plantar pressure and the roll-over process.

Full Text Link:

https://pubmed.ncbi.nlm.nih.gov/19321342/

[1] *Old versions are called VACOdiaped and VACOdiaped plus*
New Versions are called VACOped Diabetic and VACOpedes Diabetic