Publication:	International Orthopaedics (SICOT) (2017) 41:239-246
Purpose:	Off-loading in diabetic foot syndrome, Comparison of different devices
Location/year:	Bad Abbach, Medical Center University of Regensburg, D 2017
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Test persons:	20 patients with DFS and 10 healthy probands

Off-loading strategies in diabetic foot syndrome - Evaluation of different devices

Jürgen Götz, Mario Lange, Silvia Dullien, Joachim Grifka, Gernot Hertel, Clemens Baier, Franz Koeck

Objectives:

The purpose of this study was to assess the value of different offloading devices compared to walking in barefoot condition and in normal shoes both in healthy subjects and in patients with diabetes and neuropathy.

Material and Methods:

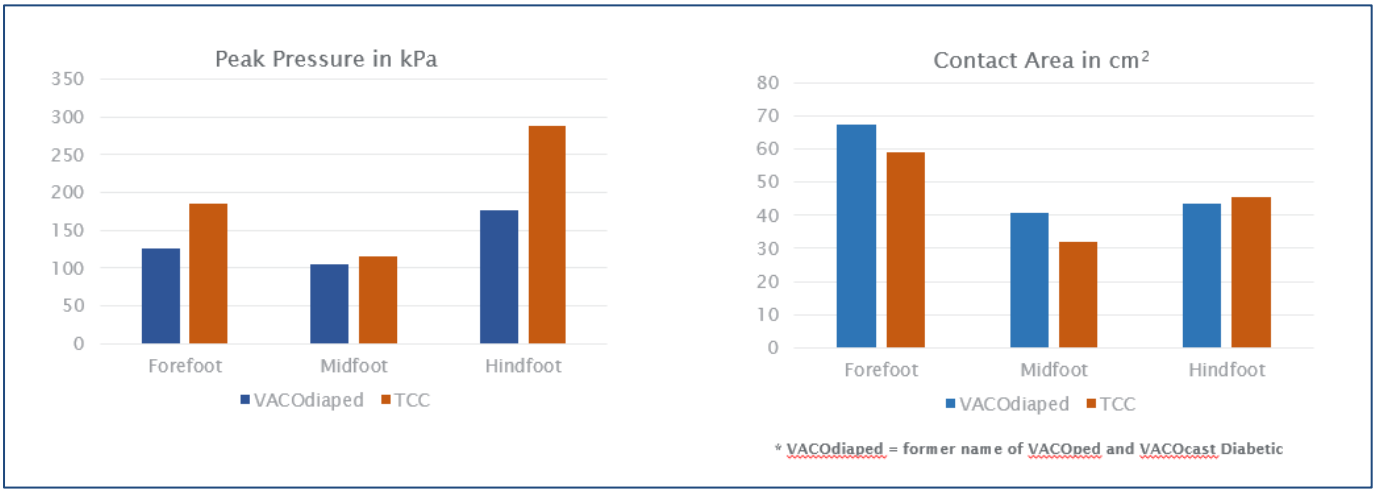
Pedobarographic examination was performed with:

- **20 patients** with Diabetes and peripheral neuropathy
- **Devices tested:**
  - Post-op shoe "Hannover", Fior&Gentz
  - Aircast Diabetic Pneumatic Walker
  - VACOdiaped (OPED Diabetic cast walker)
  - Total Contact Cast (TCC)
  - Standard shoe "Cascadia 4", Brooks
  - Barefoot
- Walking Distance of 10 meters, patients were asked to walk in comfortable walking speed

Results:

Comparison of Offloading Patterns

In 20 patients with diabetic neuropathy while walking



"The most effective reduction of force was achieved by TCC (75%) and VACOdiaped (64,3%) with the VACOdiaped resulting in the most homogenous distribution of forces all over the foot."

P. 244: "*Summarizing all orthotic devices, **peak pressure** was most affected by the VACOdiaped. Similar to the results of maximum force, the VACOdiaped presented the **most homogeneous distribution of peak pressure** among the sole with **peak pressure in forefoot and hindfoot being lower than those of the other devices.**"*

P. 245**:** "*Accordingly it can therefore be concluded, that the VACOdiaped was the orthosis with the **least impairment of gait pattern**, with the **greatest reduction of peak force in the forefoot** and with an adequate reduction of the other measured parameters….The TCC showed the clearest decrease of maximal force and force-time integral in the forefoot…"*

"*All four orthoses could prove their functionality. The **results** of the VACOdiaped regarding **peak pressure**, **maximum force** and **force-time integral** as well as the homogeneous distribution of the measurement parameters were **superior** compared to the other devices tested*."

"*It also must be mentioned that it is not possible to measure shear forces with the standard pedobarographic system*."

Conclusion:

"*A customized device like the TCC is still the most proven offloading device. However, a removable cast walker being based on vacuum pads and a cushioning sole, provides better results concerning force distribution*."