Peak pressure reduction by custom made insoles from three professional groups in the Netherlands

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Introduction Custom-made insoles, to reduce high plantar pressure, are a common intervention in diabetic patients to prevent foot ulceration. The aim of this study was to evaluate the within and between group variation of inshoe plantar pressure, using custom made insoles, constructed according to specific traditions of 3 professional groups. **Methods and subjects** Eleven orthopedic technicians (T), ten orthopedic shoemakers (O) and ten podiatrists (P) participated in the study. Insoles were made to measure for three subjects (B, H, S) with various foot pathologies resulting in high forefoot plantar pressure. By means of Novel Pedar Insole-system®, the 96 pair of insoles were evaluated. All foot pressures were measured in the subject's own (non-orthopedic) shoes. Pressure data were obtained during walking on a treadmill. Subjects individually chose their preferred speed, which was kept the same for all subsequent measurements. The mean peak pressure (MPP) was calculated for each insole. Walking convenience was scored after every trial on a ten-point scale. Every pair was assessed twice during 2 consecutive days, but in reversed order. Per insole 30 steps (15 per day) were used for analysis. Fisher exact test (1-tailed) was used for statistical testing. **Results**

MPP (N/cm^2) and % RR (relative reduction)

	B left		B right		H left		H right		S left		S right	
	MPP	% RR	MPP	% RR	MPP	% RR	MPP	% RR	MPP	% RR	MPP	% RR
No insole	44		38		35		35		47		34	
Technicians	34	23	33	13	30	15	29	16	32	33	27	22
Orth. Shoem.	36	17	33	12	30	16	30	14	35	25	27	21
Podiatrists	43	2	44	-15	34	3	34	2	33	29	29	14

There was no statistically significant difference in MPP's between T and O for any subject (p 0.14). MPP's for both T and O where significantly lower than for P (p 0.006). Only for subject S there was no statistically significant difference in MPP's of the left foot (p 0.09). The overall SD of the MPP's were in T, O, P: 4.2; 4.5; 3.9 resp. The mean scores on walking convenience were in T, O, P: 6.1; 6.2; 5.2 resp. Insoles of both T and O were significantly better appreciated than those of P. **Conclusions** In comparison to podiatrist, insoles of technicians and orthopedic shoemakers resulted in lower mean peak pressure and a better walking convenience. Variation in mean peak pressure was relatively low, lowest among podiatrists and highest for orthopedic shoemakers. Are results suggest that there are differences, with respect to efficacy of plantar pressure reduction, between professional groups.