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Influence of Minor Amputations at Plantar Pressure Distribution in Charcot Foot

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Obective: To study the changes in plantar pressure distribution in Charcot foot in case of rocker-bottom, medial convexity, and dorsal prominence deformities in presence of minor amputations**.** **Methods:** 42 patients with Charcot foot were separated in four groups: patients with rocker-bottom and medial convexity without amputations (gr.1, n=24) and with amputations of big toe, 2nd, 3rd, or 5th toes (gr.2, n=5), patients with dorsal prominence without amputations (gr.3, n=7) and with amputations of big toe (gr.4, n=6). Pressure distribution measurements were carried out with emed-at 25 system (novel, Munich). **Results and Conclusion**: The results are given in table 1. Minor amputations in patients with rocker-bottom and medial convexity result in increase of contact time under the heel, central and lateral metatarsal heads. Significant changes in pressure distribution were found in patients with dorsal prominence and amputations of big toe. Amputations of big toe cause the increase of loading and contact time under central metatarsal heads. To make the weight bearing more stable lateral loading shift takes place.

Table 1. Mean (SD) results for pressure data (PP-peak pressure, kPa, MP-mean pressure, kPa, MF-maximum force, N, FTI-force-time integrals, %BW*s, CT-contact time)

	FTI		CT, %ROP	CT, ms		
	MTH2	MTH3	MTH5	Hindfoot	MTH4	MTH5
Gr.1	6.0 (3.0)*	7.2 (4.0)*	73 (11)	866 (300)	971 (244)	905 (251)
Gr.2	8.7 (4.2)*	11.4 (3.6)*	80 (5)	1101 (318)	1130 (299)	1074 (293)
	PP			MP	MF	FTI
	MTH2	MTH3	MTH5	MTH2	MTH5	MTH5
Gr.3	236 (87)*	277(105)*	204 (192)*	115 (36)*	50 (33)*	4.1 (2.9)*
Gr.4	430 (216)*	408 (146)*	375 (180)*	158 (61)*	81 (29)*	6.4 (2.4)*
	CT, %ROP		CT, ms			
	MTH2-4	MTH5	MTH2	MTH3	MTH4	MTH5
Gr.3	85 (4)*	78 (6)*	894 (165)	918 (152)*	905 (142)*	840 (130)*
Gr.4	89 (4)*	85 (5)*	1024 (209)	1063 (207)*	1066 (220)*	1012 (216)*

* $P<0.001$, in other cases $P<0.005$