



© Kamla-Raj 2017

Taylor & Francis
Taylor & Francis Group

Anthropologist 28(3): 139-146 (2017)

DOI: 10.1080/09720073.2017.1335718

Standardization of Foot Sizes of Patients with Diabetic Foot Ulcer through Anthropometric Survey

**R. Priyadharshini^{1*}, G. Saraswathy¹, Gautham Gopalakrishna¹, B. N. Das¹ and
Vijay Viswanathan²**

*¹Shoe and Product Design Centre, CSIR – Central Leather Research Institute,
Sardar Patel Road, Adyar, Chennai 600 020, Tamil Nadu, India*

*²M. V. Hospital for Diabetes and Diabetes Research Institute, No. 4,
West Mada Church Street, Royapuram, Chennai 600 013, Tamil Nadu, India
E-mail: ^{1*}<priya28dharshini@gmail.com>, ²<drvijay@mvdidiabetes.com>*

KEYWORDS Cluster Analysis. Diabetes Complication. Foot Dimension. Standard Sizes

ABSTRACT Plantar pressure off-loading at ulcer site is one of the therapeutic interventions for healing diabetic foot ulcer (DFU). Due to peripheral neuropathy and vascular disease, the foot anatomy of patients with diabetes is significantly different from that of normal persons. Presently, the therapeutic footwear or other off-loading devices for patients with DFU are customized which will ultimately delay the treatment intervention. The objective of the present paper is to derive standardized foot anthropometric data for patients with DFU to use as a reference for developing pressure off-loading devices. The measurement of foot dimensions for 100 patients with DFU and 52 age matched control subjects were recorded using 3D laser foot scanner and statistically analysed using SPSS software. By regression analysis, the significant difference and correlation between normal and patients with DFU were studied. By using cluster analysis, 3 average sizes for male and 3 average sizes for female that can accommodate seventy percent of patients with DFU had been derived. Development of pressure off-loading devices based on the derived sizes and trial with patients are on-going projects of this study.