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# FINDINGS OF USING A METHODOLOGY FOR DESCRIBING THE MORPHOLOGY OF THE HUMAN FOOT FOR FOOTWEAR APPLICATIONS

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At the 1996 ITAA conference, a methodology for describing the morphology of the human foot for footwear applications was presented (Sokolowski, 1996). The methodology consisted of the following six steps that were proposed to obtain and analyze 3-D and 2-D human foot data: (1) subject identification and selection, (2) preparation of subjects for casting, (3) casting, (4) cast completion, (5) sloper development and (6) sloper analysis.

Since the original presentation, the six step methodology was further developed and tested to describe 3-D and 2-D human foot morphology. Through the use of the methodology, the findings repeatedly supported the idea that there are problems with current foot morphology descriptions for footwear and that footwear should not be sized in a linear manner. Of all the research findings, the ones discovered through the sloper analysis phase were most revealing. Based upon the slopers (A-X) that were developed and analyzed for a range of sizes, the only section of the foot found to follow current linear grading methods used to manufacture footwear was the medial forefoot (sloper section D). All other sections of the foot were determined through linear regression analysis to be non-linear. The sole of the foot particularly showed to have no linear relationship between sizes, suggesting that little difference between sizes for the sole should occur. Results like this could be beneficial to a footwear manufacturer, because they could save time and money by decreasing the number of molds to construct footwear soles and/or functional mid soles like ones with air and gel bladders.

Sokolowski, S. L. (1996). Methodology to describe the morphology of the human foot. Proceedings of the International Textiles and Apparel Association, Banff, Canada, p. 53.