

Plantar pressure repeatability data analysis for healthy adult based on EMED system

ABSTRACT

This paper presents the repeatability data analyses and discusses the selection of the appropriate type of plantar pressure measurements for the EMED system with regards to Pressure Level Values (PLV) over the touch insole area of healthy adults. In this research, a participant with age 28 years old has been chosen as a sample to measure under foot pressure, it is conducted the test 20 times and took part in four types of plantar pressure clinical assessments, Dynamic (normal walking), Dynamic with load (normal walking, carrying 1.5 Kg), Static (Standing test), and Static with load (Standing, carrying 1.5 Kg). The analysis is implemented using a new approach of recognizing the measurements into 7 different levels of pressure that assigned with 7 colors by considering the image processing algorithm. Variance Coefficient (VC) check is adopted for the statistical analysis and the selection decision. The results highlighted that the overall pressure levels in dynamic with load category have a better variance as compared with three other categories of plantar pressure on this type of repeatability test. In conclusion, EMED system can be considered as an effective instrument to record plantar foot pressure measurements in such type of analysis.

Keyword: Plantar pressure system; EMED; Repeatability; Variance coefficient