A STUDY ON ANTHROPOMETRIC MEASUREMENT OF THE FOOT AMONGST UNDERGRADUATE STUDENTS

ABSTRACT

Background: The foot anthropometric data provides highly important information for anatomist, forensic scientist, physical anthropologist, health science, sports science & medical science professionals and also footwear industrial personals. The appropriate use of foot anthropometry data may aid in individual identification, assessment of health status, comfort and safety. The anthropometric variations not only depend on genetic inheritance, but also differs based on environment, geographical demarcations, ethnicities and cultures. Though some of the foot anthropometric studies are carried out in Malaysian population, but still a comprehensive foot anthropometry data among undergraduate students in Malaysia is limited.

Objectives: This study attempts to find the foot anthropometric data's of the undergraduate students with the following objectives:

- To study the difference in the foot dimensions between right and left foot of each gender.
- To study the difference in the foot dimensions between male and female.
- To find the relationship of foot dimension with height.
- To find the relationship of foot dimension with body weight.
- To study the relationship of foot dominance with genders.

Methods: The study included 227 undergraduate students of AIMST University. Their age ranged from 18-25 years, with Malaysian citizenship. The data collection procedures followed were in accordance with the ethical standards of AIMST University committee. A total of ten parameters taken were the height, weight, dominant foot, foot length, arch length, foot breadth, heel breadth, heel-ankle circumference, mid-foot circumference and metatarsophalangeal joint circumference. All the measurements were carried out using

standard equipment, techniques and procedures. All the data were analyzed with SPSS trial version 22. The socio-demographic data and the foot dimensions of the participants were described with descriptive analysis. The Independent T-test was used to analyze the differences between right and left foot dimension for each gender. The simple regression analysis was used to find out relationship between foot dimension and height or body weight. The chi-square test was used to figure out the relationship between foot dominance and gender.

Results: The results showed that there were differences of some of the foot dimensions between right and left foot of each gender and there was a significant difference of foot dimensions between both genders. Moreover, a significant correlation was found between all foot dimensions with height and weight, but no association between gender and the dominant leg.

Conclusion: The study showed a significant bilateral foot asymmetry and sexual differences for some parameters among undergraduate students with majority of them presented with the right foot dominance. The study showed a strong relationship between stature and body weight with foot dimensions. There was no association between foot dominance with gender. The anthropometric data obtained in this particular study will not only help to establish the individual profile of the university student but also it will be of great value in practical applications and for further studies in this field.