EQUIPMENT DEVELOPMENT FOR TESTING HUMAN CHARACTERISTICS OF CHULALONGKORN UNIVERSITY STUDENTS

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Different populations differ anthropometrically and physically. These human data are vital to equipment design process as criteria for dimensioning and adjustability of equipment. In fact, priority given to user characteristic data is very low. This is probably because designers do not know the significance of these criteria or, as it is the most probable cause in developing countries like Thailand, insufficient human data are avilable.

The objectives of this research were: 1) to develop and test static strength device, i.e., a load cell with digital display, 2) to develop human characteristic database such as anthropometry and static muscle strength of various muscle groups using a group of Chulalongkorn University students.

One-hundred males, age between 17-25 years, volunteered to be subjects for the experiment at Ergonomic Research Laboratory, Department of Industrial Engineering, Faculty of Engineering, Chulalongkorn University. All subjects were Chulalongkorn University student and they were strong and healthy.

Results were statistically analyzed using SAS Programming Package to determine correlation between body dimensions and correlation between static strength of various muscle groups. The means and standard deviation of each data group were also reported.

Benefit of this research brings the development of static strength test device for human. The device is efficiently workable with low-construction costs. Furthermore, human characteristic database of Chulalongkorn University student group is developed in terms of anthropometric and strength data.