

Measurement Tables for Overweight and Obese Portuguese Children

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Abstract

The main goal of this paper is to analyze the different children's measurements tables used by institutions of education, retail and apparel industry, aiming children's and youth in Portugal, comparing them with the body dimensions of Portuguese children with overweight and obesity, generated in a study using 3D body scanning technology - Kinect Body Imaging (KBI). This study is part of a PhD research project in the Department of Textile Engineering at University of Minho (Portugal), which has as general objective the development of a methodology of pattern design, using a reliable measurements table to supply the needs of this growing niche of the population. The period for data collection involved 6 months, starting in June 2016 and ending in November 2016 and was held in public and private schools of the first cycle of elementary education, located in the cities of Braga, Guimaraes and Vila Nova de Famalicao, in the north of Portugal. Throughout the research it was intended to analyze all the ages collected from 2-12 years, but it was verified that the images generated by KBI of children under 5 years were of poor quality due to the difficulty of keeping the children in a defined static position during acquisition. Thus, in order to avoid compromising the results, a cutoff point of the sample was performed, with the withdrawal of the children under 5 years old. From the sample of 816 children, 155 were excluded, remaining 661 for data analysis. From the weight and height collected, the percentile curve and the body mass index (BMI) of the 661 children was determined. The classification of nutritional status in: low weight, normal weight, overweight and obesity, followed the criteria proposed by the World Health Organization (WHO) was also done for the sample. Data was statistically analyzed and the results are presented aiming the development of a children's measurements table of to be used by the industry for design of clothes according to the variations of age and proportion of the body of overweight and obese children, respecting their anthropometrics and ergonomic needs.

Keywords: 3d body scanning, anthropometric data collection, measurement table

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