



Anthropometric Study among Chilean Older Adults

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Description

One of the major and most important changes that have experimented modern society correspond to the increase of life expectancy and consequent ageing of the population. This important change impacts all the aspect of society. Accordingly, in Chilean population, the life expectancies have increased 16 years in the last 45 years and currently correspond to 80.5 at birth and 24.4 years at 60 years old. Probably one of the main issues regarding the progressive ageing of the population is public health. Much evidence indicates that despite the increase in life expectancy, some of the population during the additional years of life, lack good health in many cases. The general health status of an individual is the consequence of the cumulative effects of the improvements and impacts during the complete people life span. Additionally, the World Health Organization (WHO) state that there are severe inequities in the general state of health during ageing. In this context, it is imperative that the general environment could generate improvements that overcome, rather than reinforce, these inequities. This general aim represented both challenges and opportunities. In this context the WHO established in 2015 the 2030 AGENDA for continued development, aiming for the decade 2020 to 2030 to be the decade of the healthy ageing. One of the main instructions of the WHO indicates that the government should invest in the development of environmental improvements that potentiate an adequate Healthy Ageing.

Improvements in Mobility

According to the WHO organisation, Healthy ageing corresponds to the maintaining of the functional ability that enables wellbeing in older ages. The functional ability is related to the functional capabilities to meet their basics needs, to learn and make decisions, to build and maintain relationships, to contribute to society and maintain mobility. To achieve this objective and completely achieve the objective of having a population with healthy ageing the WHO commission establishes a series of actions that should be implemented. Among the most important priorities established are collecting better data regarding healthy ageing and promoting the research that could address the future needs of older people. In summary, there is an important need for new products and innovations in public health policies that could support the growing ageing population. Particularly important is the development of new products, specifically oriented to maintain the functional capabilities of the elderly population. In this

context, for the development of new products one of the main adversities to overcome is the lack of specifying anthropometric characterization. An adequate anthropometric characterization is essential for the development of higher quality products. Particularly it has been supported that the newer industrial organisation's that want to overcome the new special needs of the population would extremely require more quality, time and better cost. Anthropometric studies are essential for this objective.

Bioelectrical Resistance

Additionally, the globalization and the subsequent electronic commerce has increased this necessity to specify anthropometric studies from different regions and countries. The process of the incorporation of the antropometric information in the design of new products it is related to boost usability, durability and higher productivity and lowering negative effect in the users. This kind of approach has been already performed for infant and childhood products, an anthropometric study were funding by the European Union and established the parameters and recommendations for the specific industry (Euro-hand feet). Interestingly nowadays no detailed studies or database characterise the anthropometric status of the elderly population. Another study has measured some anthropometric parameter and co-relate with equations for the prediction of the weight and weight progression in younger and older adults (<60 and >60). Additionally, anthropometric validation has been used for prediction of the bioelectrical resistance as an assessment of the nutritional status. In another study were develop theory equations, based on anthropometric measures, predict the body fat index. Interestingly the Body fat index it is associated to the onset of several important pathologies and syndromes in the elderly like Alzheimer and cognitive failure. In summary the exact measure of antropometric variables in the elderly population it is essential for adequate development of health policies, health services and products design. In our study, we assess several anthropometric variables to characterize a population of elderly adults ranging from 60 to 80 years of age. During the development of the anthropometric characterization process, It was evident the poor performance of the original somatotype classification. To further optimize the somatotype assignation in elderly patients, it was performed a methodology of Principal Component Analysis (PCA) and further hierarchical cluster for the definition of a somatotype-cluster. Interestingly with this analysis, we define a new set of variables that are a better predictor of the clustering process.

The population submitted to the study included older adults ranging from 60 to 80 years old. The older adults that participate in the study were members of public ageing clubs located in the city of Talca in the Region of Maule, Chile. The following selection criteria were applied to the members of public's geriatric clubs. It is essential to clarify that the old clubs and centres in the Maule regions correspond to public and integrative social communities, organized by the self-community and are representative of the average 60 to 80 years old population. For this study were excluded the elderly that are not capable of performing daily activities without help or those that present pathologies in the locomotor or vestibular apparatus, that involve any compromise of self-functioning. The circumference of the Thigh, Leg length, Leg circumference, popliteal height. Also, was measure the following variables height, body mass, four skinfolds four skinfolds (triceps, subscapular, supraspinal, and medial calf); two bone breadths (bi-epicondylar humeral and femoral) and two limb girths (arm flexed

and maximum tensed. or the characterisation of the somatotype, the anthropometric variables of the patients previously measure were used, following the Heath and Carter methodology. During the performance of the anthropometric study was strictly follows the recommendation of the International Society for the Advanced of Ki anthropometry. The evaluation was performed with the older adults in

bare feet and wearing light clothes. All measures were performed by the first author at least three times, and the median of the three individual measures was calculated. The study was performed in several sessions in the old clubs and centres in the Maule region, Chile. After the performance of the anthropometric study were stored in an electronic file, and submitted to analysis.