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Title: Prediction of Body Composition for Indian Population using Bio Electrical Impedance Analysis.

Abstract

Body composition analysis (BCA) is necessary to yield data about normal growth, maturity, and longer life. By measuring body composition, a person's health status can be more accurately assessed. Bioelectrical impedance analysis (BIA) is a commonly used method for estimating body composition which actually determines the electrical impedance, or opposition to the flow of an electric current through body tissues which can then be used to calculate an estimate of body composition. The objective of the study was to develop prediction equations for Fat free mass (FFM) and Total body water (TBW) for Indian subjects based on Bio electrical measurement of weight, age, sex, height and Impedance Index. The multiple regression analysis of the data is carried out with the help of statistical software R version (2.9.2) which is useful for multiple regression analysis and easy handling of the data. The present thesis embodies the researches carried out by testing hypothesis of prediction equation obtained from Maltron-II Bio Electrical Impedance Analyzer on Indian subjects who participated or volunteered in the study. Their clinical data were included to carry out various studies based on the work plan.

Thesis is based on the following work plan:

- Study the various multi-compartment models from the parameters of body obtained through Matron-II BIA Analyser.

- Test the validity of results obtained through these multi-compartment models with that obtained through BIA analyzer.

- To obtain prediction equation of these subjects using linear multiple regression analysis using (R 2.9.2) software and test the validity of results obtained through BIA analyzer.

- Test and develop the Resting Energy Expenditure equation for Indian subjects.

- Test the validity of results through Bio Electrical Impedance Analyser.

The study carried out for this thesis is based on the sectional study carried out in different chapters. A brief layout of the chapter and Introduction is given at the beginning of each chapter and then chapter is divided into a number of sections. Tables, Figures used and equation developed have been numbered chapter wise. These prediction equation developed is the first BIA prediction equation for TBW and FFM for Indian subjects. The predicted TBW and FFM of each individual are very close to the one measured through instrument. Besides this, the information regarding the dietary habits of Indian subjects will give the pharmaceutical companies a chance to explore the change in body composition of Indian subjects before and after drug therapy. It will also provide coaches and researchers, the initial information regarding the general trends in the health status of Indian subjects so that they can formulate individualized training program and provide them with information about the suitable energy needs of the body so that they can achieve desirable body weight and composition.