# ASSOCIATION OF BIO-IMPEDANCE ANALYSIS AND SOMATOTYPING AMONG HEALTHY RURAL MALE AND FEMALE POPULATIONS

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Body composition measures are considered as risk assessment tools of future development of non-communicable diseases (NCDs). Among these methods Anthropometric indices and body fat analysis are mostly used. "Somatotyping" is another method used to assess body composition.

The objective of current study was to compare the body fat assessment and somatotyping measures among a selected population to determine the association of these parameters and to identify the applicability of somatotypes in risk evaluation of NCDs in Sri Lankan populations.

Thirty female [39 (±5) years] and 20 male [44 (±3) years] subjects, without history of diabetes or other NCDs, living in a rural area of the Polonnaruwa district were recruited for the study. The somatotype was calculated using the "anthropometric method" following the heath-carter anthropometric somatotype instruction manual. Body fat assessment was done using bio-impedance analyser. Statistical analysis was performed using SPSS statistical software package.

Mean somatotypes of females and males were 6.0-4.6-1.4 (endomorphy-mesomorphy-ectomorphy) and 3.6-4.2-1.4 respectively. Among measured parameters, BMI, endomorphy, body fat percentage (BF%) and subcutaneous fat percentage (SF%) were significantly higher in the female group compared to male group and Ectomorphy and skeletal muscle percentage (SM%) were significantly higher in the male group.

Endomorphy (r=0.779, p=0.000), mesomorphy (r=0.858, p=0.000), ectomorphy (r=-0.958, p=0.000) and SF % (r=0.606, p=0.000) showed strong correlations with BMI. Endomorphy showed strong correlations with BF% (r=0.782, p=0.000), SF% (r=0.861, p=0.000) and SM% (r=-0.702, p=0.000). Ectomorphy showed moderate to strong correlations with SM% (r=0.491, p=0.000), BF% (r=-0.579, p=0.000) and SF% (r=-0.727, p=0.000). Mesomorphy showed moderate correlations with BF% (r=0.383, p=0.007), SF% (r=0.480, p=0.001) and SM% (r=-0.307, p=0.034).

According to the outcomes of the current study, endomorphy and mesomorphy are significantly correlated with components of body fat analysis. This indicates the possibility of using somatotypes as an indicator to determine the risk of development of non-communicable diseases.

Keywords: somatotype, bio impedance analysis,