## Association of Body Composition Parameters with Lower Limb Strength and Upper Limb Functional Capacity in Quilombola Remnants

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Abstract : In Brazil, projections of population aging follow all world projections, the birth rate tends to be surpassed by the mortality rate around the year 2045. Historically, the population of Brazilian blacks suffered for several centuries from the oppression of dominant classes. A group, especially of blacks, stands out in relation to territorial, historical and social aspects, and for centuries they have isolated themselves in small communities, in order to maintain their freedom and culture. The isolation of the Quilombola communities generated socioeconomic effects as well as the health of these blacks. Thus, the objective of the present study is to verify the association of body composition parameters with lower and upper limb strength and functional capacity in Quilombola remnants. The research was approved by ethics committee (1,771,159). Anthropometric evaluations of hip and waist circumference, body mass and height were performed. In order to verify the body composition, the relationship between stature and body mass (BM) was performed, generating the body mass index (BMI), as well as the dualenergy X-ray absorptiometry (DEXA) test. The Time Up and Go (TUG) test was used to evaluate the functional capacity, and a maximum repetition test (1MR) for knee extension and handgrip (HG) was applied for strength magnitude analysis. Statistical analysis was performed using the statistical package SPSS 22.0. Shapiro Wilk's normality test was performed. For the possible correlations, the suggestions of the Pearson or Spearman tests were adopted. The results obtained after the interpretation identified that the sample (n = 18) was composed of 66.7% of female individuals with mean age of 66.07 ± 8.95 years. The sample's body fat percentage (%BF)  $(35.65 \pm 10.73)$  exceeds the recommendations for age group, as well as the anthropometric parameters of hip ( $90.91 \pm 8.44$  cm) and waist circumference ( $80.37 \pm 17.5$  cm). The relationship between height  $(1.55 \pm 0.1m)$  and body mass  $(63.44 \pm 11.25$ Kg) generated a BMI of  $24.16 \pm 7.09$ Kg/m2, that was considered normal. The TUG performance was  $10.71 \pm 1.85$ s. In the 1MR test,  $46.67 \pm 13.06$ Kg and in the HG  $23.93 \pm 7.96$ Kgf were obtained, respectively. Correlation analyzes were characterized by the high frequency of significant correlations for height, dominant arm mass (DAM), %BF, 1MR and HG variables. In addition, correlations between HG and BM (r = 0.67, p = 0.005), height (r = 0.51, p = 0.004) and DAM (r = 0.55, p = 0.026) were also observed. The strength of the lower limbs correlates with BM (r = 0.69, p = 0.003), height (r = 0.62, p = 0.01) and DAM (r = 0.772, p = 0.001). In this way, we can conclude that not only the simple spatial relationship of mass and height can influence in predictive parameters of strength or functionality, being important the verification of the conditions of the corporal composition. For this population, height seems to be a good predictor of strength and body composition.

**Keywords :** African Continental Ancestry Group, body composition, functional capacity, strength **Conference Title :** ICGG 2017 : International Conference on Geriatrics and Gerontology **Conference Location :** Barcelona, Spain **Conference Dates :** August 17-18, 2017