

Effects of stunting on body composition, biological age, and muscle strength of Maya and Ladino children in Guatemala | Varela-Silva,1M Sogut,1,2L Mansukoski,1L Millan-Fernandez,1,2,3S Monserrat,1B Bogin

Stunting (very low-height-for-age) is an indicator of chronic malnutrition and its nefarious effects linger for life. With this study we test the hypotheses that: (i) stunted children in Guatemala have less muscle mass, delayed biological age (assessed by estimation of bone age), and lower values of muscle strength than on-stunted children; (ii) stunted children have higher subcutaneous fat accumulation than non-stunted children even when the Body-Mass Index is within the normal range for age and sex; and (iii) being Maya exacerbates the negative effects of stunting. Objective measures of height, weight, bone age, hand grip strength, arm circumference, and skinfold thickness were obtained in N53985 children (n52972 Maya children, and n51013 Ladino children), ages 16-16 years old from Guatemala. Longitudinal, annual assessments of these children were conducted between 1979 and 1999. The Maya showed the lowest values for height, muscle mass, and handgrip strength when compared with Ladino children. The Maya were also more delayed in bone age. Being stunted showed a stronger negative effect on muscle mass and handgrip strength than ethnic group (Maya vs Ladino). The impact of stunting on subcutaneous fat storage was non-linear and varied by sex and year of measurement