

# The role of physical fitness in the relationship between nut consumption and body composition in young adults

Garrido-miguel M.  
Martinez-vizcaino V.  
Fernandez-Rodriguez R.  
Martinez-ortega I.A.  
Hernandez-castillejo L.E.  
Bizzozero-peroni B.  
Ruiz-grao M.C.  
Mesas A.E.

## Abstract

The main objective of this study was to estimate the association between nut consumption and body composition-related measures and to examine whether this relationship is mediated by cardiorespiratory fitness (CRF) and the muscle strength index (MSI) in young adults. A cross-sectional study involving college students ( $n = 354$ ) aged 18–30 years from a Spanish public university was conducted. Body composition and fitness components were assessed using standard methods. Nut consumption was evaluated using a Food-Frequency Questionnaire. ANCOVA models were used to assess the mean differences in physical fitness and body composition by nut consumption categories. Hayes's PROCESS macro was applied for mediation and interaction analyses adjusted for the main confounders. Young adults with high nut consumption ( $\geq 5$  portions of 30 g/week) showed significantly higher values of physical fitness components and fat-free mass and lower values of adiposity-related measures than their peers in the lowest categories of nut consumption ( $< 1$  portion/week) ( $p < 0.05$ ). No significant interaction between CRF and nut consumption on body composition was found. In the mediation analysis, CRF and MSI acted as full mediators of the relationship of nut consumption with fat-free mass and waist circumference/height index. Otherwise, CRF and MSI partially mediated the relationship between nut consumption and body mass index and percent of fat mass. Finally, nut consumption, per se, does not appear to have a significant impact on body composition indicators because these associations have been shown to be partially (for BMI and %BF) or entirely (for ratio WC/height and fat-free mass) explained by CRF and MSI. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

## Author keywords

Adiposity; Fitness; Mediation; Nuts; Obesity; University students