

Jordan University of Science and Technology

The relationship between plasma ferritin levels and body mass index among adolescents

Authors: Shattnawi KK, Alomari M, Al-Sheyab N, Bani Salameh A

Abstract: Circulatory Ferritin concentration varies with age, sex, and body composition. Studies that determine the relationship of different body weight measurements with plasma ferritin concentration in adolescents are lacking . A descriptive cross-sectional design was utilized. Data collection involved self-reporting demographics, blood samples, and body composition measures for a sample of 814 healthy Jordanian adolescents. Ferritin deficiency was observed in 55.8% of the study population. Simple linear regression showed that BMI, gender, location, and smoking status 2.5%, 3.9%, 0.4%, and 0.4%, respectively, associated positively with plasma ferritin level ($p < 0.05$). After controlling for gender, location, and smoking status, additional hierarchal multiple linear regression showed that BMI explained 2.2% of plasma ferritin ($p < 0.000$). However, the obesity-stratified hierarchal multiple linear regression, showed that BMI explained 2.1% of plasma ferritin in the overweight and obese (HI) adolescents ($p = 0.02$), but not in the under and normal weight (LO) adolescents ($p = 0.91$). After controlling for gender, location, and smoking status, the ANCOVA showed that plasma ferritin level was greater ($p < 0.000$) in the HI (19.00 ± 13.6) versus the LO (15.20 ± 10.4) obesity group. Our results indicated that normal ferritin level among obese people does not necessarily indicate normal iron storage.