عنوان مقاله:

Development and validation of a simple equation to fat mass and percentage of body fat in children and adolescents

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خلاصه مقاله:

Background: The purpose of this study was to development and validation of a simple equation to fat mass (FM) and percentage of body fat (PBF) in children and adolescents.Methods: Participants were ۴۰۴ (۱۷۶ boys and ۲۲۸ girls) children and adolescents (۵ to۱۸ years old) that were randomly divided into Derivation (n = ۲۷۹) and Validation (n= ۱۲۵) groups. FM and PBF were measured by Bioelectrical Impedance Analyzer. Based on demographic variables retrieved from the Derivation group, ۱۰ FM and ۱۰ PBF predictive equations were developed using multiple regression. Finally, the most accurate model (using the coefficient of determination (R^2)) was chosen and then validated on the validation group.Results: The best equations of FM and PBF, which were derived from demographic characteristics, were :FM (kg) = Weight (Kg) x ۰.۱۵ + BMI x ۱.۵۳ + Sex x ۳.۴۰ - Age (years) x ۰.۳۷ - ۲۶.۲۰; where sex = ۱ for male and ۰ for female. R=۰.۹۷, R^2=۰.۹۴, standard error of the estimate = ۳.۷۴ Kg.PBF (kg) = ۰.۳۱ x Height (cm) – Weight (Kg) x ۰.۵۹ + BMI x ۲.۹۸ + Sex x ۶.۱۷ - Age (years) x ۰.۷۶ - ۵۲.۸۴; where sex = ۱ for male and ۰ for female. R=۰.۹۰, R^2=۰.۸۲, standard error of the estimate = ۴.۸۸ Kg.Conclusions: Our predictive equations accurately predicted FM and PBF using simple parameters (Height, Weight, BMI, sex and age) in children and adolescents.

کلمات کلیدی:

percentage of body fat, Fat Mass, predictive, equation, children, adolescents

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