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[Body composition by simple anthropometry, bioimpedance and DXA in preschool children: interrelationships among methods].

[Article in Spanish]

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Abstract

OBJECTIVE: To examine the interrelationships of body composition variables derived from simple anthropometry, bioelectrical impedance (BIA) and dualenergy X-ray absorptiometry (DXA). **POPULATION, MATERIAL AND METHODS:** A total of 230 healthy preschool children (118 males and 112 females) age 4-6 years, attending a day care center, were examined to determine body mass index (BMI) and waist circumference (WC). Percentage of body fat content (%BF) was predicted by BIA (Maltron BF- 900) and DXA (Lunar DPX-L, pediatric software).

RESULTS: BMI and WC did not show significant differences among sex, while %BF by BIA or DXA did. BIA measures were lower than DXA s ($p < 0.0001$). Correlation between BIA vs. anthropometric methods and WC vs. DXA were moderate (Pearson $r = 0.43$ to 0.53), whereas the other correlations were strong ($r = 0.71$ to 0.83). However Bland Altman comparison showed wide limits of agreement between BIA and DXA; BIA significantly underestimated %BF as determined by DXA ($p < 0.0001$).

CONCLUSION: The methods used to estimate body composition in healthy preschool children highly correlated. However, the Bland Altman procedure suggests that BIA and DXA should not be used interchangeably.

[An Esp Pediatr.](#) 1999 Jun;50(6):587-93.

[Growth and the assessment of body composition in children treated with the growth hormone].

[Article in Spanish]

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Abstract

OBJECTIVE: The objective of the present work was to analyze the variations in corporal composition of children treated with growth hormone.

PATIENTS AND METHODS: Nineteen patients, 8 girls and 11 boys, with growth retardation were studied. The mean age of these children was 8.6 years with a range of 4 to 13 years. Growth hormone (GH) secretion was evaluated by using clonidine and insulin stimulation to evaluate the presence of classic and partial deficits of GH. The integrated 24-hour GH concentration was evaluated in the children with neurosecretory dysfunction of GH and with biologically inactive GH. IGF-I and IGFBP3 levels were also studied. Bio-electric impedance was measured with a corporal composition analyzer (Maltron BF 905). The software used, taking into account the weight and height of the children and employing Lukaski's equation, give the following information: impedance in Ohms, Lean mass and fat mass in percentage and Kg, corporal water in liters and percentage, basal metabolism, ideal water and ideal fat. The auxological data were obtained with precision instruments. Analysis of variance (ANOVA) was used to determine if differences existed between the parameters studied at baseline and at 3, 6, 9 and 12 months of treatment. The correlation between the resistance index and total corporal water was calculated, as well as between tricipital skinfold thickness and corporal fat.

RESULTS: The patients experienced an increase in lean mass (not significant = NS), an increase in corporal water ($p < 0.01$), a decrease in the percentage of fat (NS), a decrease in tricipital and subscapular skinfolds ($p < 0.05$ and NS, respectively), an increase in the perimeter of the arm muscle (NS), an increase in basic metabolism (NS) and a decrease in electrical impedance (NS). The resistance index had a linear relationship with total body water ($r = 0.9$) and tricipital skinfold with corporal fat ($r = 0.8$).