

Accuracy of body mass index cutoffs for classifying obesity in Chilean children and adolescents

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Objective: To determine the accuracy of two international Body Mass Index (BMI) cut-offs for classifying obesity compared to the percentage of fat mass (%FM) assessed by Dual-Energy X-ray Absorptiometry (DXA) in a Chilean sample of children and adolescents; **Material and Methods:** The subjects studied included 280 children and adolescents (125 girls and 155 boys) aged 8 to 17 years. Weight and height were measured. The BMI was calculated. Two international references (IOFT and WHO) were used as cut-off points. The %FM was assessed by DXA. The receiver operating characteristic (ROC) curve was used to assess the performance of BMI in detecting obesity on the basis of %FM; **Results:** A high correlation was observed between the %FM measured by the DXA and the Z-scores of IOTF and WHO scores in the Chilean adolescents separated by sex ($r = 0.78-0.80$). Differences occurred in both references (IOFT and WHO) in relation to the criteria ($p < 0.001$). Both references demonstrated a good ability to predict sensitivity (between 84% and 93%) and specificity (between 83% and 88%) in both sexes of children and adolescents; **Conclusions:** A high correlation was observed between the Z-score of the BMI with the percentage of fat determined by the DXA. Despite this, the classifications using the different BMI cut-off points showed discrepancies. This suggests that the cut-off points selected to predict obesity in this sample should be viewed with caution. © 2016 by the authors; licensee MDPI, Basel, Switzerland.

Body Mass Index

Chile

Cut-off points

DXA

Obesity

accuracy assessment

body mass

child health

fat

obesity

adolescent

anthropometric parameters

Article

body height

body mass

body weight

child

Chilean

controlled study

cross-sectional study

diagnostic accuracy

diagnostic test accuracy study

disease classification

dual energy X ray absorptiometry

female

human

major clinical study

male

obesity

percentage of fat mass

predictive value

receiver operating characteristic

sensitivity and specificity

standard

body composition

Chile

obesity

photon absorptiometry

prevalence

reproducibility

sex difference

Chile

Absorptiometry, Photon

Adolescent

Body Composition

Body Mass Index

Body Weight

Child

Chile

Cross-Sectional Studies

Female

Humans

Male

Obesity

Prevalence

Reference Standards

Reproducibility of Results

Sex Factors