

Physical Growth and Biological Maturation of Children and Adolescents: Proposed Reference Curves

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Background/Aim: The study of physical growth variables in terms of chronological age and biological maturation may provide a common reference point to reflect on the occurrence of body dimensions in and between individuals. The objectives of this study were as follows: (a) verify if the observed gender differences in the variables of physical growth by chronological age are confounded by physical maturation, (b) compare physical growth patterns with the reference of the Centers for Disease Control and Prevention (CDC)-2012, and (c) develop regional curves to assess physical growth in terms of biological maturation. **Methods:** Researchers studied 3,674 children and adolescents. Weight, standing height, and sitting height were measured. Biological maturation was determined by using the age of peak velocity growth. Body mass index (BMI) was calculated. Growth variables were compared with the CDC-2012 reference. Percentiles were calculated by the LMS method. The students differed in weight and BMI when compared to the reference individuals. The differences in weight, standing height, and BMI between both genders are more pronounced when they are aligned with biological age rather than chronological age. **Conclusion:** Weight and BMI differ from the reference. Furthermore, the assessment of the physical growth trajectory should be analyzed in terms of biological maturation. The proposed regional curves may be used in and applied to clinical and epidemiological contexts. © 2017 S. Karger AG, Basel.

Adolescents

Biological maturation

Children

Curves

Growth

adolescent

adult

age

Article

body height

body mass

body weight

child

child growth

controlled study

cross-sectional study

descriptive research

female

growth rate

human

human experiment

male

maturation

priority journal

school child

sex difference

sitting

standing

young adult

adolescent development

Brazil

child development

reference value

sex factor

Adolescent

Adolescent Development

Body Height

Body Mass Index

Body Weight

Brazil

Child

Child Development

Cross-Sectional Studies

Female

Humans

Male

Reference Values

Sex Factors