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Interrelationship among somatic and skeletal age protocols of biological maturation in 6 to 10 years old girls

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**INTERRELATIONSHIP AMONG SOMATIC
AND SKELETAL AGE PROTOCOLS OF
BIOLOGICAL MATURATION IN 6 TO 10
YEARS OLD GIRLS**

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BACKGROUND

Variation in size and performance associated with interindividual differences in biological maturation are especially important during the transition into and during adolescence. The more commonly used indicators of maturation include somatic and skeletal age (SA) protocols. The study was aimed to investigate the relationship among indicators of biological maturation.

METHODS

The cross-sectional sample included 166 females aged 6 to 10 years old ($8,1 \pm 1,2$ years) from schools of Lisbon. Data included weight, height, chronological age (CA), SA (Tanner-Whitehouse – TW2), and percent of predicted adult height (PPAH). Subjects were classified as on time, late or early in maturation using the SA-CA difference, and PPAH. On time (average) is a SA within $\pm 1,0$ year of CA; late is a SA behind CA by more than 1,0 year; early is a SA in advance of CA by more than 1,0 year. Percentages of predicted mature height were expressed on z-scores for girls in the University of California at Berkeley Guidance Study: on time (average) is a z-score between -1,0 and +1,0; late is a z-score below -1,0; early is a z-score above +1,0. Kappa coefficient and Spearman correlation were calculated to evaluate the concordance of maturity classifications.

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RESULTS: The occurrences of on time, late or early in maturation using TW2 were 59,6%, 28,3% and 12,1% respectively. PPAH results were 51,2%, 34,9% and 13,9% of on time, late or early in maturation respectively. The agreement between the methods was 55,4%. Kappa coefficient was 0,23 and indicated fair agreement between maturity classifications. Spearman correlation between categories was low (0,35).

DISCUSSION

The somatic maturity method estimates has limitations. Concordance of maturity classifications between SA and PPAH was poor. These results can be generalized to the average population but do not necessarily apply for all ages.

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