Abstract:

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Bone Age Determination by Ultrasound (BAUS): Validation in Brazilian Students

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Aiming to compare BAUS and classic Greulich-Pyle radiographic bone age (BARx) we evaluated 494 students (F:250; M:244), age range 6-17y; height and BMI between ±2 SDS. BAUS was performed employing the SonicBone Medical device and BARx was done using a portable Rx device. BARx was established after reading of 3 experienced investigators (2 pediatric endocrinologists and 1 radiologist), and the final BA was established after review and concordance of at least two investigators. A significant correlation between BAUS and BARx was identified both in girls (r=0.921; p<0.0001) and boys (r=0.915; p<0.0001). A significant correlation was also detected between chronological age (CA) and BA methods (BAUS: r=0.95 and BARx: r=0.94, p<0.0001). The mean(SD) values of the difference BARX-BAUS was 0.04(1.0)years and -0.01(1.1)years for girls and boys, respectively. Differences between both methods were predominantly detected in girls>$13y and boys>$14y, with R= 0.68 and 0.71, and BARx-BAUS were 0.1(0.9)years and -0.1(1.0)years, respectively for girls and boys. We concluded that there is a significant positive correlation between BARx and BAUS, indicating that BAUS is a safe and practical method of bone age determination, with potential clinical applicability.