BACKGROUND:

Three atlases—the GOK, the Greulich-Pyle (GP), and the Tanner-Whitehouse (TW3)—are used frequently for age determination in Turkey. The purpose of this study was to evaluate the applicability of these three methods related to the skeletal age assessment for Turkish adolescents.

MATERIALS AND METHODS:

The conventional roentgenograms of the left hands and wrists, elbows, shoulders, and pelvises of 333 healthy Caucasian children (164 females, 169 males) who fit the study and the criteria of each atlas were obtained. The mean differences (+/- standard deviation [S.D.] in years) between the chronologic age (CA) and the skeletal age (BA), which were obtained by using each age estimation method, were calculated and tested using t-test.

RESULTS:

For girls, the most accurate method was the TW3 (mean differences (d): -0.21 (p<0.05)), following by the GP (d: 0.66 (p<0.001), and the GOK (d: 2.99 (p<0.001)). For boys, the most accurate method was the GP (d: -0.02 (p>0.05)), followed by the TW3 (d: -0.18 (p<0.05)) and GOK (d: 1.05 (p<0.001)).

DISCUSSION AND CONCLUSIONS:

Results show that the TW3 (for girls) and the GP (for boys) methods are more appropriate than the GOK atlas for estimating the BA. GOK could be used for boys aged 11-14 years but it should not be used for girls.