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Is the Gök Atlas Sufficiently Reliable for Forensic Age Determination of Turkish Children?

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Abstract: Aim: We investigated whether the contemporary use of the Gök Atlas method is sufficiently reliable for forensic age estimations of Turkish children. Materials and Methods: Plain radiographs of 248 females and 298 males between 11 and 22 years of age were taken. Paired sample t-tests, Pearson correlation coefficients, and linear regression were used to determine the differences and model the relationships between mean skeletal (bone) age (BA) and mean chronological age (CA), using SPSS 11.5 statistical software. Results: In all cases, the CA and BA scores were significantly different and showed high correlation ($P < 0.05$). The regression model was significant ($P < 0.01$). According to age groups, the BA was greater than the CA for all age groups by 0.09-3.10 years for boys and 0.44-3.05 years for girls, and this difference was significant for all age groups >14 years for boys and for those 11-18 years of age for girls. The standard deviation of the difference between BA and CA for boys between 11 and 18 years of age and for girls between 11 and 20 years of age was >1 year. Conclusions: We found a large discrepancy between CA and BA according to the Gök Atlas. This discrepancy may be significantly misleading, especially in criminal liability cases.

Key Words: Age estimation, bone age, Gök Atlas method, skeletal maturation, Turkish children

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