Original Article

Relationships Between Dental and Skeletal Maturity in Turkish Subjects

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Abstract: The aim of this study was to investigate the relationships between the stages of calcification of various teeth and skeletal maturity stages among Turkish subjects. The samples were derived from dental panoramic and hand-wrist radiographs of 500 subjects (215 males and 285 females). Calcification of the mandibular canines, first and second premolars, and second and third molars was rated according to the system of Demirjian. To evaluate the stage of skeletal maturation of each hand-wrist radiograph, nine ossification events were determined according to the systems of Björk, and Grave and Brown. Statistically significant relationships were determined between dental calcification and skeletal maturity stages according to Spearman rank-order correlation coefficients. Correlations between dental development and skeletal maturity ranged from .490 to 0.826 for females and .414 to .706 for males (P<.01). The second molar showed the highest correlation and the third molar showed the lowest correlation for female and male subjects. For both sexes, root formation of the canine as well as the first premolar was completed in the majority of the subjects at the MP3Cop, PP1Cop, RCop stages. Because of the high correlation coefficients, this study suggests that tooth calcification stages from panoramic radiographs might be clinically useful as a maturity indicator of the pubertal growth period. It is appropriate to put these skeletal and dental maturation relationships into daily orthodontic diagnostic practice, when treating a Turkish patient. (Angle Orthod 2004;74:657–664.)