Assessment of skeletal maturity using the calcification stages of permanent mandibular teeth

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**Introduction:** Knowledge of the growth status of patients is essential to formulate and initiate a precise treatment plan. This study aimed at determining the role of calcification of permanent mandibular teeth for the assessment of skeletal maturity.

**Methods:** A cross-sectional study was conducted using lateral cephalograms and dental panoramic radiographs of 360 patients (ages 7-18 years) equally divided into six groups according to cervical vertebral maturation stages. Skeletal age was determined using Baccetti et al. method and dental age was calculated using Nolla and Demirjian methods.

**Results:** Mean chronological stage at CS5 revealed a significant difference between male and female subjects (p=0.003), which showed that the latter achieved skeletal maturity one year earlier than the former. A significant difference (p=0.007) was found for dental age using Nolla’s stages at CS3, which showed females demonstrated a dental age of 1.4 years less than males. Mandibular canine showed the highest correlation with Demirjian index (DI) in males (rho=0.818) and females (rho=0.833). Mandibular second premolar showed the highest correlation with Nolla’s stages in males (rho=0.654) and females (rho=0.664).

**Conclusion:** Comparisons between sexes revealed that females are skeletally and dentally advanced. The DI indicated stage F and Nolla’s stages identified stages 9, 10 to be indicative of CS2-3 for the mandibular canine and stages F and G and 9-10 for CS2-3 for the first premolars, second premolars and second molars, respectively.

**Keywords:** Cervical vertebrae. Maturity. Age.

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