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## The association between the frontal sinus morphological variations and the cervical vertebral maturation for the assessment of skeletal maturity

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**Introduction:** The assessment of skeletal maturity is important for planning dentofacial orthopedics or orthognathic surgery for the treatment of different skeletal malocclusions. Cervical vertebral maturation is widely used method to evaluate skeletal maturity of patients undergoing orthodontic treatment. In the past decade, another method is being proposed which is based on frontal sinus morphology. So, the aim of this study is to evaluate the association between frontal sinus morphological variations and cervical vertebral maturation for the assessment of skeletal maturity.

**Method:** Lateral cephalograms of 252 subjects aged 8-21 years were collected from the dental clinics of AKUH. The sample was divided into six groups based on cervical vertebral maturation stages. The frontal sinus index was calculated by dividing frontal sinus height and width and the cervical vertebral maturation stages were evaluated on the same radiograph. Data were analyzed using SPSS (version 19). Kruskal-Wallis test was applied to compare frontal sinus index at different cervical stages and Post hoc Dunnett t3 test was applied to compare frontal sinus index between adjacent cervical stage intervals in males and females. A p-value of  $\leq 0.05$  was considered as statistically significant.

**Results:** The frontal sinus height and width were significantly associated with the individual cervical vertebral maturation stages in males and females. However, frontal sinus index wasn't significantly associated with the individual cervical vertebral maturation stages in males and females.

**Conclusion:** Frontal sinus index cannot differentiate between pre-pubertal, pubertal and post-pubertal adolescent growth stages therefore; it cannot be used as a reliable maturity indicator.

### Biography

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