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## Association of lip posture and the dimensions of the tonsils and sagittal airway with facial morphology

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### ABSTRACT

The specific contribution of enlarged tonsils or adenoids to craniofacial growth remains unknown, and there is no agreement in the literature as to the significance of lip posture. This study assessed the separate associations of lip posture, sagittal airway size, and tonsil size with selected cephalometric measures. Clinical and cephalometric data of 207 children who presented for evaluation of tonsil and/or adenoid problems were evaluated. Multiple linear regression was used to assess the linear relationship between each of the three parameters and the cephalometric dependent variables. Open lip posture, reduced sagittal airway, and large tonsils were each associated statistically with a characteristic but different skeletal configuration. This association was proportional. Specifically, a more open lip posture was associated with a more backwardly rotated face and larger lower facial height. Reduced sagittal airway size was associated with *en bloc* backward relocation of the maxilla and mandible. Because the sella-nasion dimension shortened proportionally, the SNA and SNB angles were not affected. Larger tonsils were associated with more forward relocation and rotation of the maxilla and mandible and increased SNA and SNB angles. Because each of the three parameters was associated proportionally with a different craniofacial morphology, it is concluded that lip posture, sagittal airway size, and tonsil size represent three different and unrelated phenomena with respect to their effects on craniofacial growth and form.

**KEY WORDS:** Airway, Adenoids, Tonsils, Cephalometry, Craniofacial growth, Pharynx, Vertical dimension.

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