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Airway dimensions and head posture in obstructive sleep apnoea

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ABSTRACT

The present cephalometric study aimed to describe the antero-posterior diameters of the pharyngeal airway in a sample of 50 male obstructive sleep apnoea (OSA) patients and a reference sample of 103 male students, and to examine the relationship between these diameters and the posture of the head and the cervical column. Subjects were recorded in the cephalometer standing with the head in its natural position (mirror position). Pharyngeal airway diameters were measured at seven levels ranging from the maxillary tuberosity to the vallecula of the epiglottis. The largest difference was observed at the level behind the soft palate where the diameter was 50 per cent narrower in the OSA sample than in the reference sample. Extension of the crano-cervical angle and forward inclination of the cervical column were correlated with an increase in the three most caudal airway diameters in the OSA sample: at the uvula, the root of the tongue, and the epiglottis, but only to increase in the lowest diameter in the reference sample. The findings were considered to reflect a compensatory physiological postural mechanism that serves to maintain airway adequacy in OSA patients in the awake erect posture, most efficiently so at the lowest levels of the oropharyngeal airway.

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