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Postural variation in oropharyngeal dimensions in subjects with sleep disordered breathing: a cephalometric study.

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This radiographic study analysed the changes that occurred in the airway and surrounding structures when subjects with sleep disordered breathing moved from the upright to the supine position. Radiographs of 100 dentate, Caucasian males were examined. Fifty individuals were non-apnoeic snorers and in 50 a diagnosis of obstructive sleep apnoea (OSA) had been confirmed by polysomnography. Radiographs were traced and digitized and comparisons were made of the behaviour of the oropharynx, soft palate, tongue, and hyoid between the two groups. When moving from the upright to the supine position, both OSA and snoring subjects showed a similar pattern of change. The antero-posterior dimensions of the oropharyngeal airway decreased highly significantly ($P < 0.001$) at all levels, with a concomitant reduction in cross-sectional area ($P < 0.001$). The narrowing was most severe behind the soft palate, where the minimum airway reduced by approximately 40 per cent. Behind the tongue, a 20 per cent decrease was seen. The soft palate showed small but significant increases in area, whilst the tongue altered in shape but not in its overall cross-sectional area. In non-apnoeic snorers only, tongue proportion increased ($P < 0.05$). At the same time, the hyoid dropped and moved anteriorly, maintaining a constant relationship with the lower border of the mandible. There were no differences between the non-apnoeic snorers and the OSA subjects in any of the postural changes recorded.

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