



Changes in head posture after rapid maxillary expansion in mouth-breathing girls: a controlled study.

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The influence of respiratory function on craniofacial development and head posture has been demonstrated previously. This study evaluated the effect of rapid maxillary expansion (RME) on nasopharyngeal airway adequacy, head posture, and facial morphology in children with nasal obstruction. Fifty-five girls (8-15 years of age) who needed maxillary expansion, showed reduced nasopharyngeal airway adequacy (pm-Ad 2), and were subjectively assessed as mouth breathers were allocated randomly into 2 groups. The 23 subjects in the first group were treated with RME, and the 22 subjects in the other group were followed about 8 months before beginning therapy and became untreated controls. Dental casts and lateral skull radiographs exposed in natural head position were obtained at the first visit and 6 months later for all subjects. In the girls under active treatment there was a statistically significant increase of pm-Ad 2 ($P < .0001$), a significant increase of the cervical lordosis angle ($P < .0001$), a flexion of the head ($P < .0001$), and a decrease in the craniocervical angulation ($P < .0001$) (paired t-tests). No significant changes were seen in the control group. The correlation coefficients indicated a mild correlation between pm-Ad 2 distance and craniocervical angulation (SN/OPT angle) ($r = 0.61$ at $P < .001$). RME is capable of increasing nasopharyngeal airway adequacy in girls, and this leads to a decrease in craniocervical angulations. The clinical importance of these results is yet to be clarified.

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