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## Lower anterior face height and lip incompetence do not predict nasal airway obstruction

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### ABSTRACT

The controversy regarding nasal obstruction and malocclusion has been largely due to the inability to quantitate nasal airway function and hence objectively determine the mode of breathing. The purpose of this study was to measure the nasal airway resistance of patients before and after rapid maxillary expansion (RME), to compare them to a control group of subjects not receiving RME, and to measure oral/nasal airflow ratios (respiratory mode). An evaluation of the statistical associations between anterior facial height, lip posture, oral/nasal airflow ratios, and nasal resistance was undertaken.

The effects of RME on nasal resistance have been reported elsewhere. We found that variation, for resistance values, was very high, and thus the median response for the group was not an adequate estimation of individual response. In this paper we describe associations between lip posture, lower anterior facial height, and nasal resistance. No significant correlations could be established between respiratory and morphologic features. Lower anterior facial height was greater in the lips apart posture group. However, there was no significant correlation between percent nasality and lower anterior facial height. A small negative correlation ( $r = -0.47$ ) existed between nasal resistance and percent nasality, but this relationship was not linear. Thus, it was not possible to predict percent nasality from nasal resistance data. Furthermore, no correlation was found between the amount of expansion and changes in nasal resistance.

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**KEY WORDS:** Respiration, Airway resistance, Respiratory mode, Lower anterior face height, Lip posture.