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Jillian M. Gordon, Mark Rosenblatt, Manisha Witmans, Jason P. Carey, Giseon Heo, Paul W. Major, Carlos Flores-Mir (2009) Rapid Palatal Expansion Effects on Nasal Airway Dimensions as Measured by Acoustic Rhinometry. The Angle Orthodontist: Vol. 79, No. 5, pp. 1000-1007.

Review Article

## Rapid Palatal Expansion Effects on Nasal Airway Dimensions as Measured by Acoustic Rhinometry A Systematic Review

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### Abstract

**Objective:** To evaluate available information on the effects of rapid maxillary expansion on nasal airway minimal cross-sectional area and volume, as measured by acoustic rhinometry.

**Materials and Methods:** An electronic database search was conducted. Based on abstracts/titles, articles were initially selected; then full articles were retrieved and were further sorted according to secondary, more stringent criteria. References from selected articles were hand-searched for potential missed publications. Clinical trials using acoustic rhinometry on subjects undergoing rapid maxillary expansion therapy were included. Syndromic or medically compromised patients and absence of an untreated control group were reasons for exclusion. Selected studies thereafter were evaluated methodologically.

**Results:** Only four articles reached final selection, and their overall methodology scores were low, limiting the applicability of results. After rapid maxillary expansion, three of four studies found statistically significant increases in minimal cross-sectional area, and two of three studies reported statistically significant increases in nasal cavity volume as compared with control groups. It appears that any increase is less stable if a traditional technique is used on patients who have passed their peak growth spurt.

**Conclusions:** Although some increases in nasal dimensions have been reported, the changes in nasal volume were small and should not be presented to patients as a clinically significant indication for therapeutic maxillary expansion.

**Keywords:** [Systematic review](#), [Rapid maxillary expansion](#), [Acoustic rhinometry](#), [Nasal airway dimensions](#)

Accepted: October 2008;

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An International Journal of Orthodontics and Dentofacial Orthopedics


A Publication of the Edward H. Angle Society of Orthodontists and  
the EH Angle Education and Research Foundation

Volume 79 (5)

November 2009

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