

Treatment of obstructive sleep apnea syndrome by rapid maxillary expansion

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The precise role of maxillary constriction in the pathophysiology of obstructive sleep apnea (OSA) is unclear. However, it is known that subjects with maxillary constriction have increased nasal resistance and resultant mouth-breathing, features typically seen in OSA patients. Maxillary constriction is also associated with alterations in tongue posture which could result in retroglossal airway narrowing, another feature of OSA. Rapid maxillary expansion (RME) is an orthodontic treatment for maxillary constriction which increases the width of the maxilla and reduces nasal resistance. The aim of this pilot study was to investigate the effect of rapid maxillary expansion in OSA. We studied 10 young adults (8 male, 2 female, mean age 27 +/- 2 [sem] years) with mild to moderate OSA (apnea/hypopnea index-AHI 19 +/- 4 and minimum SaO₂ 89 +/- 1%), and evidence of maxillary constriction on orthodontic evaluation. All patients underwent treatment with RME, six cases requiring elective surgical assistance.

Polysomnography was repeated at the completion of treatment. Nine of the 10 patients reported improvements in snoring and hypersomnolence. There was a significant reduction in AHI (19 +/- 4 vs 7 +/- 4, $p < 0.05$) in the entire group. In seven patients, the AHI returned to normal (i.e., = < 5); only one patient showed no improvement. **These preliminary data suggest that RME may be a useful treatment alternative for selected patients with OSA.**