5) Patient is asked to seal the lips, difficulty breathing through nose should be noted. One nostril can be occluded and the response noted to the same procedure on the other side. (Fig. 10)

The evaluation of nasal airway patency is complicated, especially when the possibility exists that anisoclasis may clinically appear inadequate but be quite functional physiologically. Lip separation or an open-mouth habit is not an infallible indicator of mouth breathing. Often complete nasal respiration is coupled with dental conditions that cause open-mouth posture. 11

Adenoid Evaluation
The size of adenoids have been evaluated using different methods of assessment:
1) determination of the roentgenographic nasopharyngeal ratio (a lateral cephalometric x-ray),
2) flexible optic endoscopes (Fig. 11),
3) acoustic rhinometry, and
4) direct measurements during surgery.

Direct measurements are considered to be the most accurate because space can be assessed in three directions. 12 A lateral cephalometric radiograph is an added valuable diagnostic tool for the orthodontist in the evaluation of children with upper airway obstructions. 13 (Fig. 12).

Treatment of Nasal Obstruction
1) Adenoidectomy with or without tonsillectomy is indicated if hypertrophied adenoids (and tonsils) are the cause of upper airway obstruction. 14
2) Powered-shaver adenoidectomy, coupled with Endoscopic Visual- ization will assist in achieving adequate removal of ade- nodes particularly high in the nasopharynx. Use of the powered-shaver technique allows for better clearance of obstructive adenoids. The end result is more reliable restoration of nasal patency. 15
3) Septal surgery (rarely indicated in the child), but may be considered in the presence of a marked nasal septal deflection with impaction. Conservative septal surgery in growing patients will not have an adverse effect in dentofacial growth. 16,17,18
4) Maxillary expansion (RME or SAG)—an orthodontic procedure that widens the nasal vault 7,19 (Fig. 15).
5) Crysosurgery or electro-surgery—this is a viable option for patients with vasomotor rhinitis. 20
6) Bipolar Radiofrequency Ablation—this is a very useful surgical instrumentation.
7) Use of nasal sprays.

Conclusion
The effect of adenoids on fa- cal expression, malocclusion and mode of breathing has been a topic of debate and investigation by practitioners in the field for the last one hundred years. A review of the literature exposes several theories.

A healthcare provider with a practice philosophy based on prevention of malocclusion de- velopment cannot ignore the early years of the patient’s growth cycle. By age twelve, 90 percent of craniofacial growth has already oc- curred. This is the age when many practitioners begin ortho- dontic treatment. 21 But this is the age when 80–90 percent of craniofacial growth is complete, so most formation and/or deforma- tion has occurred. To wait until 90 percent of the alveolar bone has occurred, before beginning treatment, is not consistent with a preventive philosophy. Inter- ruptive measures must be initiated sooner.

Early intervention requires an acceptance of a multidiscipli- nary approach to total patient care. An integrated approach to patient evaluation, diagnosis and treatment is most effective. Primary care physicians, dentists, allergists, otolaryngologists and orthodontists must all work together for early preven- tion and management of young patients with increased nasal air- way resistance. 22

After diagnosis, a compre- hensive risk benefit analysis re- garding early intervention must be considered. Although heredi- tary and environmental factors must be considered, the univer- sal goal is the promotion of proper nasal respiration throughout a child’s early years of facial growth.

Figure 14 shows the before and after treatment results of a young girl who had her adenoids removed, then underwent maxil- lary expansion before full-fixed braces. She was treated as a sec- ond opinion against the removal of four premolar teeth.

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References