

Commentary: Myofunctional and dentofacial relationships

By Robert Rubin, DMD

For many orthodontists the word "myofunctional" brings to mind that period in the 60s when referring patients to speech pathologists for correction of tongue thrust was common. The work of Straub, Hanson and others provided a rationale for the frequent failure of orthodontics to permanently correct anterior openbites. Lip and tongue exercises were prescribed to promote the sequence of muscular contractions which accompany a "proper" swallow. Some cases improved; many did not. Of the ones that improved it was impossible to determine if normal maturation was responsible, or if correction of the occlusion was the real reason for success by providing a new environment for the tongue. Proffit, Subtelny and others have shown that tongue thrust is a normal developmental variant that frequently disappears with age.

In recent years the correction of long face with anterior openbite in adults with the LeFort surgical procedure has strengthened the notion that providing a normal environment for the tongue is the best way to end tongue thrust.

The authors of Myofunctional and dentofacial relationships revisit the subject to determine whether specific myofunctional variables were associated with dentofacial development.

The experiment is well-designed, using professionals from three fields to measure occlusion, skeletal factors and functional areas. One niggling criticism: The authors measure total face height from soft tissue nasion to menton. Bony nasion is not easily discernable through soft tissue. The depth of the concavity at the root of the nose is similarly difficult to determine in young children.

The authors devised a clever way to assess resting mouth posture, recording it at three intervals in a five minute period while the subjects were viewing a film. Were children with upper respiratory infections such as the common cold excluded from the sample? The authors do not say.

The finding that open-mouth posture was correlated with a narrower maxilla and larger anterior facial height is supportive of the theory that nasal airway compromise is an important cause of the Long Face Syndrome (LFS).

That there were no other significant correlations tends to relegate myofunctional therapy to a minor role in orthodontics. Open-mouth posture is most commonly associated with partial or complete obstruction of the nasal airway. Allergic rhinitis is considered to be perhaps the major cause of obstruction in children. Long-standing mouthbreathing can be difficult to correct even after the airway obstruction(s) are removed. Conceivably, myofunctional therapy could be helpful in restoring nasal breathing in such cases.

The authors refer to open-mouth posture as an example of inappropriate oral muscle behavior. If the cause of the posture is nasal airway compromise, the behavior is highly appropriate. It promotes survival!

In the final section the authors suggest that the problem of retention in orthodontics could be ameliorated if, for example, muscular forces of the tongue were balanced after fixed appliances are removed. How to do this is not stated, but the implication is myofunctional therapy directed toward the lips. The suggestion may be a good one, but it is not supported by the findings in the study.

McCoy and others have reported a higher incidence of Class III malocclusions in patients with open-mouth posture. The incidence of Class III in this population is 4.5% which is higher than most other demographic studies. While the authors deny significant correlation to skeletal findings it would be interesting to see the raw data.

This is an interesting paper that contributes to our understanding of the dynamics between hard tissue and the surrounding spaces and soft tissue. Observing them on an annual basis could be a useful longitudinal study.