

EDITORIAL – OROFACIAL MYOLOGISTS AND SLEEP APNEA

I appreciate this opportunity to express my opinions about a possible role for orofacial myologists in providing services for sleep apnea and other sleep-related conditions. As most orofacial myologists know, professionals from a variety of fields have begun to solicit the services of orofacial myologists in the treatment of sleep apnea.

With specific regard for speech-language pathologists who are also trained as orofacial myologists, the American Speech-Language and Hearing Association (ASHA), has a policy against SLPs working with sleep apnea. This policy dates back to 1993, and is included in the knowledge and skills document that ASHA developed for those SLPs who desire to work with orofacial myofunctional disorders. As Chair of that ASHA committee, and as ASHA's consultant over many years for orofacial myology issues, I can state with confidence that ASHA recognizes that there is a lack of an appropriate data base to demonstrate that orofacial myology procedures can be applied appropriately to sleep disorders.

It has not been firmly established that the problems associated with sleep apnea have a common base with tongue posture and functions. Whether the procedures associated with orofacial myology are appropriate for sleep-related problems remains an open, unresolved issue. Until there is a clearly defined role for SLPs who possess adequate specialty training with OMDs, those who desire to provide services for sleep apnea should consider therapy to be *experimental*.

A well-documented data base is needed to support and defend orofacial myologists working with sleep apnea. In my opinion, *any such experimental therapy should be done under the direction and responsibility of a physician associated with a sleep lab*, rather than by individual dentists and physicians who have a special financial interest and agenda with sleep apnea problems.

A study from Brazil is often quoted and used as a justification for SLPs to participate in oral and pharyngeal muscle exercise therapy with sleep apnea. The article: *Effects of oropharyngeal exercises on patients with moderate obstructive sleep apnea syndrome*, was written by Brazilian physicians Guimaraes, Draget, Genta, Marcondes, and Lorenzi-Filho, and published in the American Journal of Critical Care Medicine, 2009, May 15, 179 (10), 858-9. This article has been circulated widely and referenced often by orofacial myologists. In my opinion, this article has many flaws.

After carefully reading this article, I was left with a lack of information as to what actually occurred with the small sample (15 in the control group, 16 in the experimental group) of patients with moderate sleep apnea who exhibited positive changes in their sleep pattern and neck circumference. The patient pool for the control and experimental groups was not well described, characterized, or matched. There was no evidence that the source of apneic episodes for the groups was related to tongue and mandibular position, a lack of tonicity of the tongue or palate, lateral pharyngeal walls, or the position or function of the soft palate. In other words, there was no evidence provided for the view that working to "strengthen" or otherwise "tone" the tongue, soft palate and lateral pharyngeal walls would address the locus of the problem; that is, not all sleep apnea problems are due to some issue with the tongue or palate. Other studies have identified a problem of collapsibility of the pharynx as a feature characterizing many patients with sleep apnea.

In my opinion, orofacial myologists and those dentists interested in sleep apnea should **discontinue use of the term muscle "tone" in any context**, until such times that appropriate instrumentation for actually measuring muscle tone is clinically available. *Muscle tone* is actually defined as the resistance offered by a resting muscle to passive stretch or palpation. As currently used inappropriately by many orofacial myologists, **descriptions of "low tone" are misleading and based inaccurately on visual observations only**, rather than representing measurable responses of muscles to passive stretch. A more **descriptive term of "tone", if evaluated correctly, would be "reduced muscle tone" since "low tone" carries a false implication that the problem is below whatever structure is being discussed**.

The use of the hyoid bone as a marker is a simple and very useful way of documenting tongue position in a variety of situations and conditions, including sleep apnea. A lateral cephalometric x-ray film would clearly document this and many other presenting features of patients with sleep disorders. The adaptive changes in hyoid position following mandibular setback surgery explain why patients do not experience choking or other airway problems when the area of the oral cavity is reduced. As well, a vertical change in hyoid position reveals how the tongue effectively adapts to oral cavity size modifications from events such as extraction of teeth in some patients for orthodontic treatment purposes. Some clinicians have claimed incorrectly that extractions retract the tongue and can lead to sleep apnea. This naive view ignores the ability of the tongue to adapt vertically to any change in the oral environment, including the changes in tonsillar mass experienced in childhood as the tonsils compete for space with the tongue. The lateral cephalometric x-ray film provides useful data to elucidate these and other patient features.

By contrast, the Brazilians had no pre-treatment morphological descriptions of the patients used in their study sample, nor did the results of their study reveal anything about why the patients improved who underwent some very simplistic speech therapy techniques. By **"simplistic", I point out the highly questionable experimental task of repeating vowels intermittently and continuously as a way of "exercising" the soft palate and pharyngeal muscles**. Were the tongues, palates and lateral pharyngeal walls "strengthened" as a product of therapy?

Were **these structures shown to be lacking in “tone”** prior to treatment? If so, how was that determined? The point is made here of a lack of adequate pre and post-treatment descriptions of the patients structures that were the focus of therapy. Also, tasks described as *isotonic* and *isometric*, envisioned to strengthen or tone muscles, were ill-conceived and contrary to accepted knowledge. These limitations leave one wondering about the possible mechanisms involved that account for the changes reported in patients who underwent some speech therapy drills?

Another questionable association involving the exercises used in the study is their implied impact on the tongue, palate, and lateral pharyngeal walls. The so-called speech therapy drills were very generic, with no specific relationship to anatomy. The therapy drill of holding the tongue tip against the spot is the exception here, but, as mentioned, no measures of pre- and post-treatment were made of any parameters of the tongue, velum, and lateral pharyngeal walls.

The procedures in this study intended to influence soft palate activity involved attempts to strengthen the muscles of velopharyngeal (VP) *closure*. This would neither be effective nor indicated because, in an opposite manner, snoring and sleep apnea are related to the inability of keep the VP port *open*, not closed. Therefore, theoretically, the exercise should focus on muscles that *open* the VP mechanism and keep it open during sleep, rather than muscles that aid in VP closure.

It has been well established by speech pathologists/scientists working in cleft care that exercises to strengthen or lengthen the velum are not effective, and yet, some clinicians continue to make claims of their unique ability to influence the velum. Such unsupported and historically inaccurate claims and the obvious lack of understanding about the role of the soft palate in keeping the airway open during sleep leads me to the conclusion that *our field of orofacial myology is not yet mature enough to wade headlong into therapy with sleep related problems.*

While I support the notion that the field of orofacial myology is an evolving process that should involve participation in the multidisciplinary problems of current interest, caution is needed when clinicians advocate for services where they have sparse training, or where there is little well-supported information available about the particular conditions of interest.

A secondary problem is the lack of sufficient education about how to generate research protocols and analyze studies that may, on the surface, appear to be supportive of the role of myofunctional therapy, whereas upon closer view, they lack sufficient validity to embrace the enthusiasm expressed. There is a great need within the field of orofacial myology to calibrate clinicians to adequately evaluate the claims made by some who would draw us to their agendas. In my opinion, we have a long way to go before embarking on therapy strategies that may not be well founded in theory or practice. An article on how to gather data for clinical research is included on the list of articles on ***Dr. Bob's Clinical Pearls***. In summary, I feel that only those orofacial myologists who have received extensive specialty training with orofacial myofunctional disorders should be involved in any experimental oropharyngeal muscle exercise therapies with sleep apnea patients. In addition, any such experimental therapy should be supervised by a physician who is associated with a sleep lab and would assume responsibility for the conduct of therapy.

Therapy protocols should be carefully developed and implemented, and detailed documentation should accompany any therapies provided. At a minimum, the pre-treatment morphological characteristics of sleep apnea patients should be documented as per physiologic recordings, and both a lateral and frontal cephalometric x-ray study should be a routine part of every diagnostic workup with sleep-disordered patients. The study discussed above fails to achieve these minimum standards of patient documentation.

I urge caution for any orofacial myologists who desire to work with sleep apnea patients. At present, the treatment of sleep apnea is not within the scope of practice for orofacial myologists. One simple question points out the paucity of expertise with sleep apnea and snoring: *What you would do with the soft palate?* So far, the claims of what can be done, and the goals of therapy described for the velum, are totally incorrect and lacking in basic information about the functional capabilities and therapy shortcomings of working to influence velar activities.

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