Tutorial

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COSMETIC ASPECTS OF OROFACIAL MYOFUNCTIONAL THERAPY

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In maxillofacial, craniofacial, plastic and reconstructive surgeries as well as in general orthodontic treatment, one of the principal concerns for patient management is facial esthetic or cosmetic satisfaction. This is manifested by the numerous articles and manuscripts devoted to the topic of cosmesis. Thousands of dollars are paid yearly to practitioners in these and similar disciplines by patients who want a better chin line, less protrusion in the maxillary region, a smaller or less dynamic nose, the elimination of a diastema between the central incisors, fewer wrinkles and numerous additional cosmetic concerns. These professionals generally acknowledge that the need for treatment of many orofacial anomalies may be based on factors other than impairment of physiological functions or the potential loss of function - namely, cosmetic concern (Tedesco, et al. 1983; Tobiasen, 1987; Kapp-Simon, 1986). The orofacial myologist must share this concern for improvement of cosmesis and seek and use techniques to augment the cosmetic goals of related professionals.

One significant but often overlooked aspect of orofacial myofunctional therapy is the clinical role of benefiting the patient esthetically or cosmetically. One might consider this a frivolous concern unless viewed from the context of the impact cosmesis has on many aspects of life. By definition, cosmesis is the art of increasing or preserving beauty in all its psychosocial aspects. Psychosocial adjustment is based on many factors in addition to cosmetic concerns, but as Glass and Starr (1979) report: "Cosmetic appearance is a powerful factor in determining interpersonal attitudes and behaviors" (p. 436).

Cosmetic appearance includes many body form and shape aspects, but the face is of central concern. As Clifford (1973) states, "Central to estimations of physical attraction is facial appearance. Certainly it is through the face that we are identified, and it is the face that is the primary focus of attention in interpersonal relationships... There are those who use facial appearance and expression to reach conclusions about the intellectual status or personality of a person" (p.5).

These prejudicial judgments can be overcome as time and deeper interaction provide the opportunity for an in-depth evaluation of intelligence or personality. Often, however, this is not the case and the facade of facial cosmesis becomes time-locked by the impact of initial judgment. It is unfortunate that this happens, and that humans harbor feelings and prejudices to the extent that the face becomes the essence of the person - as if the essence of a toad were its warts or the essence of a

peach were its fuzz.

Formal studies have shown that reduced cosmetic "beauty" and "attractiveness" are related to judgments of lower intelligence (Barocas and Karoly, 1972; Richman, 1978; Tobiasen et al. 1987), deficient social skills (Goldman and Lewis, 1977), reduced career accomplishments (Dion, Berscheid, and Walster, 1972), the likelihood of being guilty of a crime (Efran, 1974), unrealistic judgments of social acceptability (Richman, Holmes and Eliason, 1985), and having an increased nasal quality in one's speech (Podol and Salvia, 1976). To elaborate on one of the studies, Richman (1978) investigated the relationship between facial appearance in children with orofacial clefts that had been repaired, compared with the accuracy of teachers' ratings of intellectual ability. The "cleft" children, age 9 to 14 years, were divided into two groups on the basis of independent ratings of facial appearance. The two groups did not differ in intellectual behavior or achievement. However, the results of the classroom teachers' estimates of intellectual functioning suggest that teachers rate the intellectual ability of cleft children with more noticeable facial disfigurement less accurately than children appearing as more normal in facial cosmesis. Within the group of cleft children with more noticeable facial disfigurement, teachers underestimated the ability of brighter children and overestimated the ability of less bright children. These results are compatible with studies investigating adult judgments of students' intellectual abilities, behavioral control, and manageability as a function of physical attractiveness. It seems, according to Goldman and Lewis (1977), that attractive children are good, intelligent and well-behaved by contrast with less attractive children.

One significant article on the relationship between facial esthetics and psychosocial adjustment stems from a "State of the Art" assessment on the topic conducted by the National Institute of Dental Research (Stricker, et al. 1979). They addressed five topics as they related to craniofacial disfigurement:

Self-image: Implications and problems associated with body image and self-concept.

Interpersonal Relationships: The role that the face and component parts play in the judged attraction of the self, and the effect on attitudes and behavior of others.

Sociocultural Factors: Factors pertaining to relationships between persons, standards of behavior, values and other aspects of culture that determine whether craniofacial malformations are viewed as a disability.

Epidemiology: The capabilities of current indices (limited to malocclusions) to predict degree of handicap.

Research Methodology and Opportunities: Research methods that appear to offer promise in assessing malocclusion and craniofacial disfigurement.

Several of the conclusions obtained by this panel relate to the topic of this article. For example, it was determined that dental malocclusion or craniofacial malformation appear to have a direct bearing on personality structure and attitudes toward one's self-concept, appearance and behavior. They conclude that a poor self-image may not result from malocclusion or craniofacial malformation alone, but also may be a function of our society which attaches a stigma to those who are different. The victim of any malformation may receive a negative social message, and the result may be self-devaluation in some aspect. Furthermore, physical attractiveness, or lack of it, can affect the development and maintenance of interpersonal relationships with peers, family, friends and other people significant to the person being considered.

Physical perceptions of the face can also affect personality judgement on the basis of one significant trait. Some physiognomic traits are more salient to the judgment involved, meaning they have a more powerful effect on personality impressions than do nonsalient physiognomic attributes. The lips, chin, jaw, mouth and eyes all seem to be more salient than specific aspects of the dentition. Stricker et al. (1979) conclude in this "State of the Art" report that psychosocial sequelae of craniofacial disfigurement may have as great an impact on patients as the strictly physical aspects of the problem. They recommend the following considerations: (a) Satisfactory measures of physical attractiveness, and their use in studies to explore the role of craniofacial features in over-all physical attractiveness, must be developed and utilized. (b) Valid metrics for assessing the severity of craniofacial anomalies, including both physiological and behavioral measures, must be established. (c) Studies should be done that determine, among other things, patient self-perceptions and the perceptions of others toward patients with craniofacial anomalies.

In a unique study testing the effects of dental abnormalities on judgments of social attractiveness, black and white photographs of a child judged either attractive or unattractive were altered to change only the dental structures. The following dental conditions were tested for the attractive and unattractive child: Normal incisors, prominent incisors, a missing lateral incisor, and severely crowded incisors with a unilateral repaired cleft lip. Altering only the dental structure resulted in judgments by peers and lay adults indicating that children with normal dental appearance would be judged as more attractive and described as friends, more intelligent, and less likely to behave aggressively (Shaw, 1981). This study confirms the notion that, at least initially, humans are judged by others as possessing characteristics of a psychosocial nature on the basis of cosmetic factors that have little or no relationship with the trait being judged.

In another study investigating dental cosmesis, children judged faces with normally occluded and evenly spaced

ed dentitions that were severely affected by dental caries as more desirable than caries-free, maloccluded dentitions (Gochman, 1975).

Dental attractiveness has been found to be related to friend selection among schoolchildren. Lucker and Graber (1978) tested 400 schoolchildren, ages 9 to 13 years, on a series of tests to evaluate perceptions of their own physical attractiveness, including the children's teeth and associated facial structures. In addition, each child received a comprehensive orthodontic evaluation to classify his or her dentofacial type. These researchers found that perceived dental attractiveness did not always correlate with the orthodontically determined state of occlusion. They also found a positive correlation between the choice of friends, and how each subject of the friendship group perceived his or her dentofacial attractiveness. Lucker and Graber concluded that the choice of friendship groups among schoolchildren was related to dentofacial type perception.

It seems apparent that patients seeking orthodontic care frequently are more concerned about appearance of the dentition and facial esthetics than about functional or dental health concerns. Tedesco et al. (1983) tested the hypothesis that orthodontic treatment is strongly related to an individual's perceptions of the extent to which the dental and facial appearance deviated from sociocultural norms. To test this hypothesis, it was necessary to develop a valid and reliable measure that provided an objective assessment of relative dental-facial attractiveness that was independent of an evaluation of functional impairment. Photographs of children were rated for dental-facial attractiveness by lay and orthodontic judges. These judgments were compared statistically with an assessment of severity of malocclusion by means of an orthodontic treatment index that assessed the severity of the malocclusion. The results indicate that children seeking orthodontic treatment were perceived as significantly less attractive than children not seeking treatment independent of malocclusion severity. It was also found that lay judges seemed to be more sensitive than orthodontic judges to the attractiveness factor, adding further documentation to the critical nature of cosmetic judgment as a basis for seeking orthodontic treatment.

If dentofacial cosmesis is so important in psychosocial judgment, what then is the perfect face? Apparently, David Hume (1711-1776) was correct when he stated, "Beauty in things exists in the mind which contemplates them," a statement paraphrased by Margaret Wolfe Hunderford when she said, "Beauty is in the eye of the beholder" (Bartlett, 1980). So what do the beholders of the human face have to say about criteria of beauty? Lines, Lines and Lines (1978) had 347 participants (including dental students, oral surgeons, orthodontists, dental hygienists, and lay persons) rate seven series of five facial profile silhouettes. Choices regarding the various silhouettes in the series were determined as best choice for male and female profiles using specific criteria. This study is similar to the one by Barrer and Ghafari (1985) to assess esthetic judgments of various methods of treating Class II, Division I dental malocclusions. The

specific findings of these two studies with regard to desirable profile ratings are not so important to this article as is the fact that so much time and effort were extended to determine profilemetric esthetics. These two studies constitute treatises in which beauty in the eye of the beholder moves from art to science.

The orofacial myologist must consider the importance of cosmetic factors when treating myofunctional disorders. More attention should be given to the modification of tongue and lip resting postures for cosmetic benefit. Lowe et al. (1985) report the orthodontic benefits of normal tongue and other soft tissue postures. Myofunctional therapy to improve tongue and lip resting postures will also add cosmetic benefit.

Mode of Respiration, Facial Growth, and Orofacial Cosmesis

The nasal cavity exists in humans to accommodate respiration and olfaction. Numerous clinical conditions have been described that compromise the nasal cavity in its respiratory functions. The article by Riski in this journal special issue reports some of these associations. In addition to the organic factors reported by Riski, many persons breathe with an open-mouth posture as though nasal obstruction exists - when in fact the nasal airway is not compromised. All of these organic or functional breathing patterns are manifested by an open-mouth posture. The mandibular elevators (masseter and temporalis muscles) relax, the jaw drops, the lip musculature (orbicularis oris) assumes an open posture and the tongue rests low and forward, often against or between the anterior dentition. The challenge for the orofacial myologist is to sort out organic impairment from poor posturing habits.

Before any treatment for airway interference, a thorough physiologic study of breathing mode should be done as advocated by Riski. Open-mouth postures generate concern from the points of view of general and dental health, facial growth and cosmetic ramifications. Hairfield et al. (1987) conclude that nasal breathing, because of the increased valving potential of the nasal cavity, acts as a respiratory brake during expiration possibly to allow adequate time for gas exchange at the alveoli level. Certainly a breathing posture must be managed prophylactically as recommended by Rubin (1980), Ballenger (1985), and Shaw and Lancer (1987). This can be done by diet training, allergy prevention and elimination, appropriate nasal hygiene and teaching children not to deposit foreign objects in the nose.

The orofacial myologist must recognize the presence of an open-mouth posture and determine whether it appears based on some organic obstruction. When such an organic basis is apparent, it is appropriate to refer to a medical professional for management. This professional may be an otolaryngologist, allergist, or general practitioner. Rubin (1985) feels the orthodontist is uniquely qualified to monitor respiratory postures. When the orthodontist observes a patient developing an anterior face height that is abnormal because of nasal airway obstruction, a similar consultation with colleagues in pediatrics,

otolaryngology and allergy would be appropriate in order to promote normal respiration for normal facial growth.

Specific Management Techniques

The primary concern of this article is the role of the orofacial myologist and related health professionals in altering open-mouth postures for cosmetic benefit. Often, a patient is referred to an orofacial myologist who evaluates and determines, among other things, that the patient has an open-mouth posture with lips open, jaw relaxed, and the tongue placed low and forward near or against the teeth. Independent of therapy directed toward altering any swallowing dysfunction, the orofacial myologist must be concerned about breathing and tongue-resting postures. Once medical management has provided the potential for closed-mouth respiration, the orofacial myologist can use cosmesis as one of the significant motivators for therapeutic change.

An instant camera can provide a remarkable tool for helping patients realize the importance of closed-mouth respiration from a cosmetic perspective. By using before and after photographs, patients can be given information about the benefits of closed-mouth breathing from general and dental health and cosmetic points of view. It has been the experience of many orofacial myologists that patients seldom consider how significantly one's looks can be improved by merely assuming a closed-mouth posture. Behind the closed lips, the tongue should be resting away from the dentition in the rugae area of the anterior palatal arch. This improvement in orofacial muscle status, particularly the tongue posture, can provide cosmetic as well as orthodontic benefit (Lowe, et al. 1985).

The elimination of the lingual-dental resting postures often found in patients with an orofacial myofunctional disorder is a significant concern to professionals treating such patients. Barrett and Hanson (1978) have analyzed the 24-hour force totals of data reported by Lear and Moorrees (1969) regarding lingual and buccal pressures acting on the maxillary and mandibular dentition. They determined that more than 88 percent of daily time can be spent with the tongue in a resting posture against the oral structures. Although Lear and Moorrees' data indicate these resting pressures are slight (0.3 to 0.8 gm/cm² for one subject), the significant amount of time in such resting postures can provide a significant cumulative force. Lowe et al. (1985) reported a significant correlation between a forward tongue-tip resting posture and the presence of anterior open bite, excessive overjet, a steep mandibular plane and an increased gonial angle. Thus, the proper resting postures of the tongue and lips can provide an orthodontic as well as cosmetic benefit.

Recommended Steps in Cosmetic Aspects Of Therapy

1. Take instant-camera photographs of the patient in a typical open-mouth resting posture, followed by photographs in a closed-mouth resting posture. For the second photograph, instruct the patient to place the tongue on the roof of the mouth, put the teeth close

together barely touching, and close the lips naturally. Show the difference between the two views. Discuss the improved look of the latter photograph. Discuss what research information is available about sociocultural judgments made on the basis of cosmesis. Explain to the patient that although cosmesis has no relationship with intelligence, friendliness, good behavior or desirability of companionship, everyone should want to look his or her best, and that a closed-mouth posture can be contributory.

2. Encourage patients to observe the orofacial habits of their peers in school, at work, and other social contacts. Have them notice how often their friends sit with their mouth open, tongues forward and lips apart. Have them visualize how much better they would look with their lips together. Have patients use the visualization of another person with an open-mouth rest posture as a signal to check their own posture. Encourage them to view their friends in this manner for the purpose of improving their own oral habits, and not from the point of view of being critical of others.

3. The orofacial myologist should elaborate on the fact that improved orofacial cosmesis is not the main reason for working on respiratory postures. However, teaching patients that improved cosmesis can result from such a simple effort is an important aspect of orofacial myofunctional therapy.

SUMMARY

Improved cosmesis through orofacial therapy can become an important consideration in the treatment process. One is reminded of the limerick by Anthony Euwer, often quoted by Woodrow Wilson:

As a beauty I am not a star
Others are more handsome by far;
But my face, I don't mind it,
Because I'm behind it;
It's the people in front that I jar.

Less "jarring" will be done by the face with improved breathing and tongue-resting postures. When one looks better, or even feels as though this is true, it is easier to be more confident in psychosocial relations. It has been said, "You cannot lead a cavalry charge if you think you look funny riding a horse." Perhaps this is true. It can also be said that feeling confident about one's looks can develop confidence in social presentations. Orthodontists, craniofacial and plastic surgeons, psychologists, psychiatrists, oral surgeons and other professionals understand this principle very well. Orofacial myologists can benefit from this same understanding in the treatment of their patients.

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