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Review Article

Dentistry Section

Enhancing Facial Aesthetics with Muscle Retraining Exercises-A Review

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ABSTRACT

Facial attractiveness plays a key role in social interaction. 'Smile' is not only a single category of facial behaviour, but also the emotion of frank joy which is expressed on the face by the combined contraction of the muscles involved. When a patient visits the dental clinic for aesthetic reasons, the dentist considers not only the chief complaint but also the overall harmony of the face. This article describes muscle retraining exercises to achieve control over facial movements and improve facial appearance which may be considered following any type of dental rehabilitation. Muscle conditioning, training and strengthening through daily exercises will help to counter balance the aging effects.

Keywords: Aging, Facial aesthetics, Stress, Smile

INTRODUCTION

When a patient desiring aesthetic intervention enters a clinic, the dentist should consider not only the chief complaint but also evaluate the adjacent teeth, the soft tissues and the overall harmony of the face. A beautiful smile radiates health and self-confidence [1]. However, an attractive smile should be the goal of aesthetic dentistry, keeping in mind the limitations of aesthetic dentistry. As rightly stated by Eagly et al., aesthetics has little effect on the perceptions of honesty, virtue or general emotional adjustment [2]. Unfortunately, in our modern competitive society, a pleasing appearance often depicts the difference between success and failure in both our personal and professional lives. Like it or not, we live in a beauty conscious society [3] and because the mouth is one of the focal points of the face, it should come as no surprise that the smile plays a major role in how we perceive ourselves, as well as in the impressions we make on the people around us [4].

The maintenance of a firm face that is the privilege of youth and becomes the symbol of physical health, vigour and efficiency associated with that period of life, whereas older individuals usually exhibit sagging and wrinkles [5]. The sagging of the face that cannot be totally explained through the phenomenon of gravity indicates that facial muscles are not used to their full capacity. Most people opt for quicker and easier methods like face lift surgeries or botox, not realising what such procedures hold in store for them. Muscle conditioning, training and strengthening through daily smile exercises helps to counter balance the aging effect of gravity and disuse [6]. Gibson developed the smile exercise program in 1989 as a teaching program to develop and control facial muscles to improve a smile [1]. This article describes muscle retraining exercises to achieve control over facial movements and to improve facial appearance, which should be considered following any type of dental rehabilitation.

MUSCLE RETRAINING EXERCISES

Muscle retraining exercises can be grouped as Smile exercises, Facelift exercises, Lip exercises and exercises to strengthen the mandibular shapes.

SMILE EXERCISE

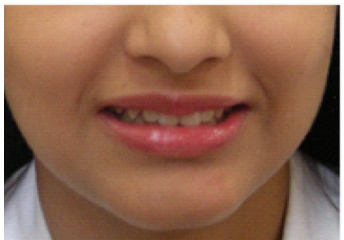
The first basic exercise consists of producing a voluntary smile that will bring into action the muscles involved in the movements of retraction and elevation of the oral structure [7]. In this isotonic exercise, the muscles are taken repeatedly through their entire range of movement. This exercises performed while sitting or standing, with the help of a hand mirror. It has been advocated by Gibson that within a few days,when practicing five times a day,complete control of the different levels of smile can be achieved. One has to keep in mind that various degrees of smile will be automatically produced and play a key role in an individual's attractive power. The strengthening of the involved muscles that has naturally taken place during this exercise will be developed in using fingers as weights [6].

a) Have the face and lips in repose and the mind psycho logically positive to slightly increase the contraction of the elevators [Table/Fig-1].

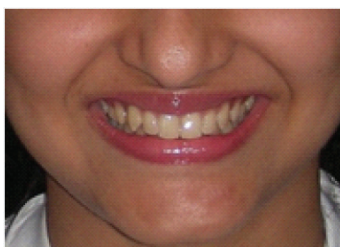
b) Begin to smile; stretch the corners of the mouth laterally keeping the lips in slight contact and maintain this position for 10s [Table/Fig-2].

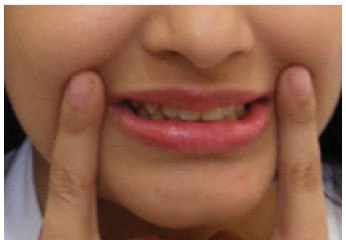
c) Expand the smile slightly laterally and upward to expose the edges of the teeth, control the parallelism of the corners of the mouth and maintain this position for 10s.

d) Increase the muscle tension, displaying a larger number and amount of teeth and exhibiting a lateral expansion of the cheeks

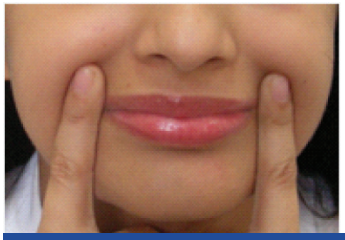
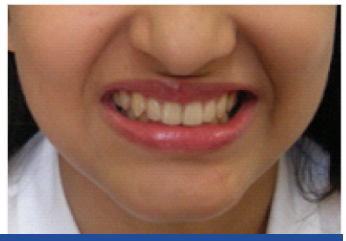


[Table/Fig-1]: Face and lips in repose
[Table/Fig-2]: Expand the smile slightly to expose the edges of the teeth

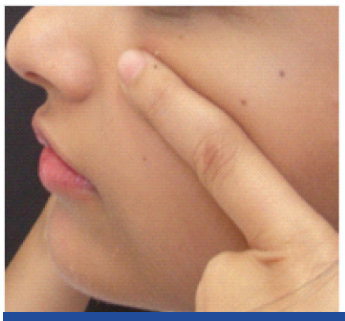




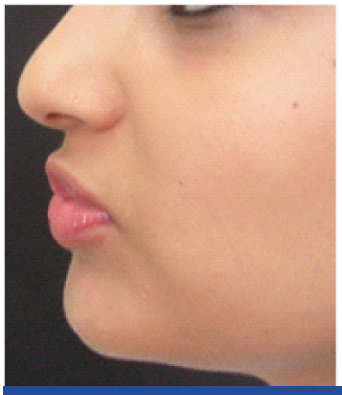
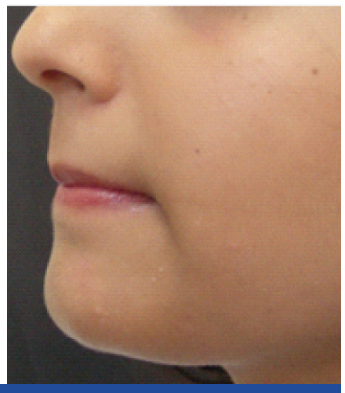
[Table/Fig-3]: Full smile to increase muscle tension
[Table/Fig-4]: Full smile while maintaining finger pressure

[Table/Fig-5]: Stretch the corners of the mouth while maintaining finger pressure
[Table/Fig-6]: Wrinkle up the nose




[Table/Fig-7]: Face lift exercise
[Table/Fig-8]: Lip exercise with mouth slightly open

[Table/Fig-9]: Lip exercise with lower lip forward to contact the upper lip
[Table/Fig-10]: Inversion of upper and lower lip

and observe that the relaxed lower part of the orbicularis oris follows the retraction and elevation of the corners of the mouth to cover the mandibular teeth. Keep this position for 10s [Table/Fig-3].

e) Give full tension to the muscles predominantly laterally, paying attention not to expose gingival tissue with the exception of the interdental papilla. Keep this position for 10s.

f) Slowly relax and maintain one half of the teeth visibility. Maintain this position for 10s.

g) Continue relaxing, just keeping the edges of the maxillary anterior teeth visible and maintain for 10s.

h) Go back to the initial position maintaining a slight tension of the elevators for 10s. Relax.

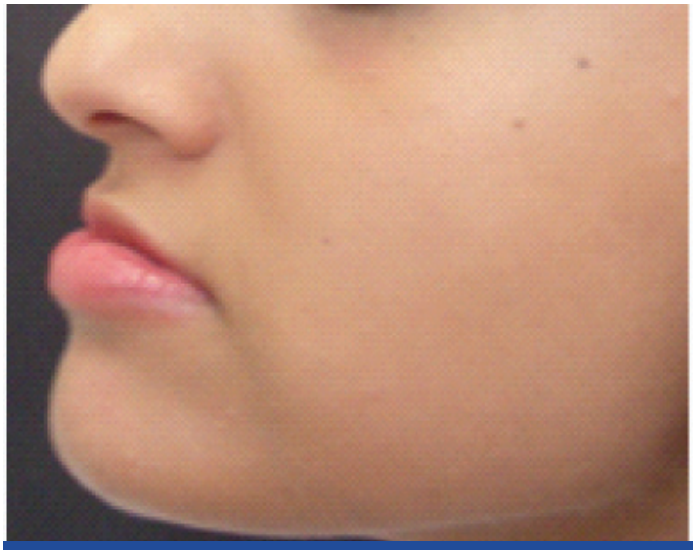
i) Form a full smile and maintain this smile with finger pressure at each corner [Table/Fig-4].

j) Close the smile halfway with a finger resisting the pull and hold pressure for 10s.

k) Try to close the smile completely with a finger resisting, having the lips trying to make contact in the middle part and maintain for 10s. Relax.

l) Reverse this exercise and place the fingers laterally at the corners of the mouth, slightly resisting muscle pull.

m) Maintain the pressure and try to expand the smile laterally and maintain for 10s [Table/Fig-5].



[Table/Fig-11]: Mandibular strengthening exercise

n) Expand the smile, reducing finger pressure.

o) Relax.

FACE LIFT EXERCISES

The sagging of the face, the effacement of lip contour, and the deepening of the naso-labial fold is a result of the loss of muscle tonicity [8]. The conditioning of the muscles will be achieved by means of two different exercises. The first one will be focused on its angularis branch that terminates at the wings of the nose for one part and onthe anteriorpart of the upper lip for the other. The second will condition the orbitalis branch that terminates in the upper lip, where its fibres integrate with the orbicularis. It involves the participation of the caput zygomaticum and caninus and will contribute to the maintenance of the lip level and tooth visibility. These two exercises have to be performed following the smile exercises, thus strengthening the infraorbital musculature. The results become visible in varying degrees after a period of 3 to 5 mnth, greatly depending upon the diligence of their daily application [6].

a) Have the mouth slightly open and flare the nostrils of the nose.

b) Wrinkle up the nose as far as possible and relax the upper lip [Table/Fig-6].

c) Slowly draw the upper lip upward as high as possible and maintain for 10s.

d) Concentrate on the upper lip and slowly bring it down. Relax.

e) Have the mouth slightly open. Apply the middle, index, or annular fingers under the eye on the cheekbone and relax the upper lip [Table/Fig-7].

f) Curl the lip slowly up and maintain for 10s.

g) Curl up the lip as high as possible, maintaining the finger pressure, and keep this position for 10s.

h) Return slowly to the initial position. Remove the fingers and relax.

LIP EXERCISE

This exercise, increases the blood flow, and contributes to give a more natural and live colour to the fleshy portion of the lip [6].

a) Have the mouth slightly open, with the upper and lower lips relaxed [Table/Fig-8].

b) Bring the lower lip forward to contact the upper lip [Table/Fig-9].

c) Turn the upper and lower lip inward and exert pressure. Relax [Table/Fig-10].

STRENGTHENING THE MANDIBULAR SHAPE

To maintain facial harmony it is advisable not only to focus attention on the muscles exerting a lifting motion but, also to strengthen and condition the muscles and the skin of the mandibular area.This movement, which involves temporalis, external pterygoid, digastric, mentalis, platysma and the lower part of the orbicularis oris, will fight a double chin and prevent aging grooves in the lower part of the face.These exercises have been selected to cover most of the activity of the facial muscles and to maintain a harmonious facial composition. After the first month following rehabilitation, during which the recall system maintains motivation, one should not expect patient to consume as much time in the home care programme. Most of the time it will be restricted to oral hygiene and smile and face lift exercises that are sufficient as long as the action exerted on muscles during the initial phase of treatment has been positive [6].

a) Keep teeth and lip slightly closed.

b) Separate the teeth as much as possible without separating the lips.

c) Bring the mandible slowly and continuously forward [Table/Fig-11].

d) Stretch the lower lip in an upper direction and maintain for 5s in this position.

e) Come back slowly to the initial position, bringing back lip and mandible.

f) Relax and breathe.

DISCUSSION

Smiling is one of the most expressive nonverbal forms of communication. It conveys a range of emotions,from embarrassment through happiness to the most ecstatic joy [9]. Smiles are generally divided into two categories Standard smiles, which use the muscles surrounding the mouth and Genuine or Duchenne smile which engages the muscles surrounding both mouth and eyes [10]. Smiling is made possible by the muscular action not only of the lips but also of the perioral muscles [11]. Duchenne noted that the emotion of frank joy is expressed on the face by the combined contraction of the zygomaticus major muscle and the inferior portion of the orbicularis oris muscle. The first muscle obeys the will but the second is put into play only by the appropriate emotion. Fake joy cannot provoke the contraction of the latter muscle [12]. Tara Kraft in her thesis states that the activation of facial muscle can influence a person's emotion. She also states that we not only smile because we are happy but smiling can actually make us happy. Although, many researchers agree that facial muscle manipulation and exercises can produce positive emotion and can buffer the effects of stress [13]. Though dental aesthetics implies the restoration of the dento-facial environment, facial muscles that are a part of its constitutive elements should receive their due attention in order to build up the patient's facial muscle and self confidence.

A patients profile inevitably varies throughout the course of his or her life because of changes in the soft tissues [14]. These include the lips, which unlike the nose and chin are subject to an inevitable flattening process with age [15]. Aging is a worldwide phenomenon. Data in the United States show an increased use of aesthetics services by older adults. Individuals who may be contemplating plastic surgery such as facelifts, botox or laser skin resurfacing are also contemplating a smile makeover [16]. However, a radical change in appearance can cause a degree of physiologic trauma. The most desirable results are achieved through subtle surgical corrections. Although, the risks involved being scarring, discolouration, hematoma, injury to nerves and not to forget the high cost [17]. Regular facial and smile exercises can help combat the effects of age, gravity and disuse without making the patients go through rigorous surgeries.

Muscle retraining techniques can form a natural part of the range of activities of a dental office and conform to the philosophy that the profession does not restrict the interest and competence to the dento-gingival unit but extends them to the oro-facial environment [6]. Muscle retraining techniques that are aimed at putting back in action muscles which for any reason have lost their full range of activity and undergone atrophic changes totally fulfil these requirements. Muscle retraining exercises advocated by Gibson in his smile power institute states that practising the exercises for a few days, five times a day, can achieve complete control and range of motion in one's smile [18]. However, one should keep in mind that improvement will only be obtained if the programmed aging process that throughout life erodes the integrity of the orofacial unit has not gone too far.

Dong et al., investigated the effect of smile exercises in 29 subjects and explained Gibson's smile exercise method [1]. Gibson stated that the smile exercise should be done for 3 min every day for 30d. He asserted that there should be a noticeable difference by the end of this period and did not encourage exercising beyond 30d. However, they found that while Gibson's smile exercises are effective, the effects are durable only as long as the smile exercises are continued. Persistent motivation and follow up are important for successful smile exercise [18]. Dong et al., concluded that successful smile exercise would be even more effective if not only muscles were stretched but emotions were exercised.They suggested new direction of research into the relationship between neurologic states and dental aesthetics [1]. In a study conducted by Sharmila Sarin, of the British Psychological Society, assessed the satisfaction with appearance before and after dental treatment. She suggested that dentists need the support of health psychologists to enhance patient's satisfaction with their appearance before they embark on dental aesthetic procedures [19]. According to Kraft and Pressman smiling actually influences the physical state. And that smiling during brief stressors can help to reduce the intensity of the body's stress response, regardless of whether a person actually feels happy [10].

The advantages of these exercises are that it increase blood flow and contributes to give a more natural and live colour to the face. The exercises help to lessen the vertical lines of the face but do not remove wrinkles completely. The exercises fight double chin and prevents aging grooves in the lower part of the face. However, the exercises require progressive training. Impact of this therapy requires control to perform exercises with efficiency and requires patient diligence to perform exercises for 3-5 mnth daily [6].

CLINICAL SIGNIFICANCE

The muscle retraining exercises enables harmonious facial composition, helps to counter balance the aging effect and enhances muscle function. The exercises form a natural part of the range of activities of a dental office and conforms to the philosophy that the dental profession does not restrict its interest and competence to the dentogingival unit but extends them to the orofacial environment.

CONCLUSION

Age old adages have suggested smiling to be not only an important non verbal indicator of happiness, but also wishfully promote smiling as a panacea for life's stressful events. A smile is a uniquely human gesture that is unlike the grimace of lower primates. People are concerned with their joyful smile, the way they feel about it, and its effect on other persons.

In integrating the muscle retraining techniques in the framework of the daily home care program, we can ascribe to quickly build up the patients facial muscle and confidence. It is an active process and the patient must be encouraged to do the exercises to get full satisfactory effect. This exercise program should be considered following any type of dental rehabilitation.

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