

THE IMPACT OF BIOESTHETICS ON THE FACE, SMILE AND TEETH

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Bioesthetics: The Study of Beauty in Life
Bioesthetics in dentistry examines the three compositions of dental, dentofacial and facial in order to transform oral functional and esthetic problems into beautiful, natural-looking smiles.

Today, successful functional and esthetics dentistry requires a thorough understanding of natural, unworn-tooth morphology and tooth positions, and how this relationship influences the dentofacial and facial compositions. If we understand function, we can understand objective esthetics, enabling us to apply the two conjointly.

This article discusses the concept of bioesthetics and how this discipline, coupled with a thorough understanding of the interrelationships between function and objective esthetics, can result in successful rejuvenations which are not only functionally correct, but esthetically pleasing.

Dental Bioesthetics

Bioesthetics focuses on all three compositions, with the goal of maximizing the anterior guidance and verticalizing the posterior segment. This results in a minimization of the influence of condylar guidance on the morphology of the posterior teeth. The occlusal scheme is accomplished in two ways: 1. proper axial inclination of anterior teeth, and 2. correct overbite and overlap. This facilitates the disclusion of the posterior teeth with the condyles in centric relationship. It also is acceptable to re-establish vertical dimension. The positioning and design of the anterior segment and its relationship to the posterior segment will be developed to enhance this premise.

Compositions

The three compositions of dental (or teeth), dentofacial (pertaining to the teeth and lips) and the facial are directly correlated. As shown in Figures 1 and 2, compositions are like a hologram: the part is the whole and the whole is the part.

Facial Composition

Dentists are hard-tissue plastic surgeons.

When we begin rejuvenating the dental composition, we must start with an examination of the facial composition. The facial composition should be designed from an esthetic objective, as well as an esthetic subjective perspective, to create beauty.

As shown in Figure 1, the client is a brachyfacial type, characterized by a diminished lower-facial height. In addition, there has not been compensatory eruption of the maxillary apparatus to compensate for the wear on the dentition. This pathology has resulted in a hypertrophy of the mandibular sling muscles, contracting to their origin and creating a rhomboid appearance of the musculature. Because of the occlusal wear, the dentofacial composition does not fit the "golden proportion" profile for facial esthetics. This occlusal wear causes the mesial-distal width of the anterior teeth to become smaller. By increasing the length and width of the anterior-posterior teeth, tooth morphology, dental facial and facial esthetics have been restored. Note the visual tension in the musculature within the facial composition. Figure 2 shows that this tension has been relaxed. The rhomboid appearance in the lower facial composition has been replaced with a triangular appearance of the musculature. The dentofacial and dental compositions now are in "golden proportion" to the face.

As shown in Figures 3 and 4, by improving function by restoring vertical dimension, the mouth's appearance has been altered to be not only more functionally correct, but esthetically pleasing, too. This effect was accomplished by repositioning the occlusal plane and placing the condyles in centric relations. As shown in Figures 5 through 8, the maxillary and mandibular teeth were lengthened. This, in conjunction with proper vertical dimension and the establishment of the proper occlusal plane, created beauty from an inner and outer reality.

Dentofacial Composition

The smile is the most effective way an

individual conveys emotions. Our goal should be to enhance this aspect for our patients. In Figures 9 and 10, the roll of the vermilion border is inward and appears thin. The maxillary central incisors ideally should support the maxillary and mandibular vermilion border. By lengthening the maxillary central incisors to 12 mm (Figure 6), a proper roll of the vermilion border of the lip has been established. Bioesthetics expands the dental composition into three planes—frontal, horizontal and vertical—which now are combined in harmony with the facial and dental composition.

Dental Composition

When we design an overall makeover, we must stay within the boundaries of objective bioesthetic principles. In Figure 7, the vertical overbite of central incisors averages about 4 mm, with 2-3 mm horizontal central overbite. The canines are in tight 1/2 to 1 mm. The maxillary central incisors, now lengthened, and the canines are positioned about the same vertically. The lateral incisors are shorter, both cervically and incisally. The lateral incisors, being 1 mm shorter, allow room for the mandibular canines in protrusive movement. There is a half-tooth size difference between the maxillary and mandibular teeth. The canine axial inclination needs to be towed towards the mesial to position the canines for optimal canine guidance (Figure 11). Figure 8 depicts sharp cusps of the posterior teeth to verticalize the occlusion, which enhances posterior guidance. This setting provides support for the lips, protrusive and canine guidance to facilitate disclusion of at least 2 mm of the posterior teeth.

Conclusion

Function and objective esthetics are inter-related. We can introduce creativity to the compositions, but this artistic license must be within bioesthetic-principle boundaries.

This case was completed in 1991. Figure 7, taken in late 1993, shows that the treatment provided is as solid then as it was at time of completion. By incorporat-

ing both esthetic and functional principles, my patient will benefit for years to come.

Slide Legend

Figure 1—A diminished lower-facial height with tension and rhomboid appearance of the mandibular sling musculature.

Figure 2—A relaxation and triangulation of the mandibular sling musculature. Dynamic radiance of the facial composition has occurred.

Figures 3 and 4—When re-establishing the vertical dimension in the design of the facial height, the dental composition must be taken into consideration.

Figures 5 through 8—The central incisors have been lengthened 5 mm with unsupported porcelain, by placing porcelain veneers on all the maxillary and mandibular anterior teeth. The vertical dimension was changed 5 mm, with the condyles in

centric relationship to facilitate verticalization of the posterior segment to support the anterior segment.

Figure 9—The lower teeth clearly are more prominent. The maxillary teeth need to be lengthened and widened to fit into the “golden proportion” of the smile.

Figure 10—By designing the maxillary and mandibular length and width of the anterior segment with proper canine placement, and also with respect to the negative later-

al space (buccal corridor), an esthetic smile has been created.

Figure 11—If the canine enamel wears, the first premolar would be the first tooth to assist with lateral disclusion. The second premolar would be the second tooth to assist with lateral disclusion. This diminishing of tooth size creates the graduation effect as we progress posteriorly. Also note the anterior segment being tipped labially to enhance protrusive disclusion.



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6



Figure 7



Figure 8



Figure 9



Figure 10



Figure 11

About the Author

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