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RCMOS - Multidisciplinary Scientific Journal The Knowledge.
ISSN: 2675-9128. São Paulo-SP.

Year VII, v.2 2026 | Submission: 09/15/2026 | Accepted: 09/18/2026 | Publication: 09/21/2026

Smile Aesthetics and Orofacial Function: Relationships between Dentofacial Harmony, Musculature and Swallowing

Smile Aesthetics and Orofacial Function: Relationships Between Dentofacial Harmony, Musculature, and Swallowing

Eye Aesthetics and Orofacial Function: Relationships between Dentofacial Armonia, Musculature and Swallowing

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SUMMARY

Smile aesthetics is a field of growing interest in contemporary dentistry, involving the integrated analysis of dental, gingival, labial, and facial elements. However, dental evaluation should not be limited to morphological aspects, since the structures involved in smile dynamics also play essential roles in the stomatognathic system, such as mastication, lip seal, and swallowing. This study aimed to analyze, through a literature review, the main parameters related to smile aesthetics and harmony, considering dental, gingival, facial, and functional aspects, as well as their relationships with the orofacial musculature and swallowing. The literature reviewed highlights the importance of parameters such as dental proportion and positioning, smile line, gingival exposure and architecture, lip dynamics, facial symmetry, and dentofacial aesthetic references for diagnosis and clinical planning. The participation of the orofacial musculature in both facial expression and bolus control and the oral phase of swallowing is also emphasized, indicating the need to consider form and function together. In the therapeutic context, conservative and minimally invasive approaches, including adhesive restorative techniques and interventions targeting gummy smiles, can contribute to satisfactory aesthetic results when appropriately indicated. It is concluded that aesthetic dental planning should adopt an individualized and multidimensional perspective, integrating dentofacial harmony, tissue preservation, and the functionality of the stomatognathic system, in order to favor aesthetically, functionally, and biologically appropriate results.

Keywords: Dental Aesthetics. Smile. Stomatognathic System. Swallowing. Facial Muscles.

ABSTRACT

Smile aesthetics has become a growing area of interest in contemporary dentistry and involves the integrated analysis of dental, gingival, labial, and facial components. However, dental assessment should not be limited to morphological aspects, since structures involved in smile dynamics also support essential stomatognathic functions, including mastication, lip sealing, and swallowing. This study aimed to analyze, through a literature review, the main parameters related to smile aesthetics and harmony, considering dental, gingival, facial, and functional aspects, as well as their relationships with orofacial musculature and swallowing. The reviewed literature highlights the importance of parameters such as dental proportion and positioning, smile line, gingival exposure and architecture, lip dynamics, facial symmetry, and dentofacial aesthetic references for diagnosis and clinical planning. The role of the orofacial musculature in both facial expression and food bolus control during the oral phase of swallowing also highlights the importance of considering form and function together. Regarding therapeutic approaches, conservative and minimally invasive procedures, including adhesive restorative techniques and interventions to manage excessive gingival display, may contribute to satisfactory aesthetic outcomes when appropriately indicated. It is concluded that aesthetic dental planning should adopt an individualized, multidimensional perspective, integrating dentofacial harmony, tissue preservation, and stomatognathic system functionality to promote aesthetically, functionally, and biologically appropriate outcomes.

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1 INTRODUCTION

The pursuit of aesthetic and functional harmony in the smile has received increasing attention in the field of...
dentistry, driving research aimed at identifying the factors that interfere with
aesthetic perception, in orofacial symmetry and in the performance of the functions of the stomatognathic system.
In this context, the choice of therapeutic approach should consider not only the results.
desired aesthetics, but also the preservation of health, tissue integrity and functions.
orofacial muscles. Among these functions, swallowing stands out, a complex process that depends on the action of the orofacial muscles.
coordinated muscular and neurological structures also involved in lip dynamics and in
Facial expression. Therefore, an integrated assessment of aesthetic and functional components becomes...
relevant for planning individualized and biologically appropriate dental interventions
safe.

Aesthetics encompasses aspects related to the perception of beauty, harmony, and proportions.
of the forms. In the field of dentistry, these principles are applied to the analysis of dental structures,
Gingival and facial structures, guiding interventions aimed at correcting alterations that may compromise them.
the harmony of the smile (De Aguiar Freitas, de Andrade Macedo and Paulin, 2024). In this sense, the
Contemporary dentistry seeks to offer solutions capable of promoting morphofunctional corrections.
of the dentofacial components, reconciling the aesthetic expectations of patients with the preservation
of the biological and functional conditions of the stomatognathic system (Pereira, Reis and Viana, 2024).

The aesthetic analysis of a smile, however, should not be separated from its functional dimension.
The orofacial musculature participates simultaneously in facial expression and essential functions, such as...
chewing, swallowing, speech, and maintaining lip seal. Changes in balance or
The coordination of these structures can affect both the appearance and symmetry of the smile, as well as...
Performance of oral functions. Swallowing, in particular, involves a coordinated sequence of
neuromuscular events and depend on the proper interaction between the lips, tongue, cheeks and other
Oral and oropharyngeal structures. Thus, considering these aspects broadens the scope of dental analysis.
Beyond purely aesthetic parameters, allowing us to understand the smile as
result of the integration between form and function.

In this context, studies have been developed with the aim of evaluating the prevalence and the
Characteristics of different orofacial symmetry patterns (De Siqueira et al., 2024). Principles
dentofacial aesthetics, such as facial shape and height, lip analysis, the smile area, aesthetics
Gingival folds, the axial inclination of the anterior teeth, and the positioning of the midlines also have...

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have been widely considered in aesthetic evaluation and dental planning (Câmara, 2012).
The combined analysis of these parameters allows us to identify relationships between facial structures and dental and to understand, in a more comprehensive way, the elements involved in the perception of Balance and harmony of the smile.
To perform these analyses, reference points and lines can be drawn on photographs.
frontal facial and smile features, allowing for schematic representation and evaluation of the regions of interest. Among the vertical references, the facial midline stands out, established from Anatomical reference points and other auxiliary lines used in the evaluation of facial symmetry.
Horizontal references, in turn, include parameters related to the hairline, to eyebrows, interpupillary line, labial commissures, occlusal plane, nasal wings and chin, contributing to the analysis of facial proportions and thirds (Bruneau, 2024).
Despite the use of these parameters in dental evaluation, further investigation remains relevant.
To what extent do aesthetically ideal references correspond to subjective perception?
of smile harmony and the evaluation of dental surgeons. Furthermore, the integration between aesthetic parameters and functional aspects, including those related to the orofacial musculature and to swallowing reinforces the need for a multidimensional understanding of the smile, especially Given the growing appreciation for individualized, conservative, and functional treatments suitable.
Therefore, through a literature review, this study aims to analyze the main parameters related to the aesthetics and harmony of the smile, considering dental aspects, gingival, facial, and functional structures, as well as their relationships with the orofacial musculature and with the swallowing, in addition to discussing the main therapeutic approaches used in cosmetic dentistry. contemporary.

2. THEORETICAL FRAMEWORK

2.1 Smile Aesthetics and Swallowing

The relationship between the teeth and lips is one of the main elements of aesthetic perception. smile, since the position, exposure, and proportion of the dental elements influence directly relates to the harmony between the smile and the perioral tissues. Lip analysis can be performed. in the different facial planes, considering their relationship with tooth exposure and the aesthetic line. of the smile. A smile considered aesthetically harmonious results from a balanced interaction between Dental positioning, gingival architecture, lip dynamics, and muscle function

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perioral. In this context, smile analysis is a relevant step in the diagnosis and treatment.
Dental planning, especially in frontal evaluation, in which references are examined.
Horizontal lines and parameters related to the lines that make up the aesthetics of the smile.
From a functional perspective, swallowing disorders may also be associated with
impairments of the orofacial musculature, since different functions of the system
Stomatognathic systems share muscular structures and neuromotor control mechanisms.
Muscles such as the *orbicularis oris* and the *buccinator* participate in the dynamics of facial expression.
as much as it involves maintaining lip seal, controlling the food bolus, and its proper administration.
Positioning during chewing and the oral phase of swallowing. Changes in the function of these
Structures can cause asymmetries in facial expression, reduced lip competence, and escape.
anterior food and waste accumulation in the vestibular region. Furthermore, the integration between the
cranial nerves involved in the motor and sensory functions of the orofacial and oropharyngeal structures
This highlights the neuromuscular complexity shared by these functions, which allows
to understand possible associations between changes in facial expression and swallowing disorders
(Gonçalves et al., 2026).

Machkour (2021), in turn, highlights the importance of vertical references in aesthetic evaluation.
Dental aesthetics are facilitated by a diagram of dental aesthetic references. This resource facilitates analysis.
a systematized view of the upper anterior teeth allows for a more precise visualization of
The positioning of these teeth and their relationship to the gingival and labial tissues. In this way,
The use of these references contributes to an integrated assessment of dental proportions and
its integration into the overall aesthetic of the smile, providing relevant parameters for diagnosis and
clinical planning.

Tolentino et al. (2025) addressed the diagnosis of gummy smile and proposed a modality
Minimally invasive therapy based on the application of botulinum toxin. This approach can
to constitute a therapeutic alternative in selected cases, especially when the etiology of
A gummy smile involves a component of muscle hyperactivity. In the context of dentistry
In contemporary aesthetics, there is a growing appreciation for conservative procedures.
aimed at achieving satisfactory aesthetic results, with maximum preservation of tissues.
dental.

From this perspective, Furtado, Alves and de Morais (2025) highlight that the growing demand for
Treatments aimed at improving the aesthetics of the smile have favored the development and adoption of
minimally invasive techniques. These approaches include adhesive procedures,
whose indication must consider, among other factors, the positioning and alignment of the elements.
Dental conditions, occlusal conditions, and the amount of preserved dental structure. Restorative techniques

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Adhesives can be used for diastema closure and dental re-anatomization in conditions such as dental agenesis, presence of conical lateral incisors and morphological alterations or wear and tear on the dental structure. When properly indicated and planned, these procedures They can provide aesthetic modifications with minimal wear and tear, or in certain situations... Clinical procedures, requiring no preparation of the dental structure.

In accordance with the principles of minimally invasive dentistry, Barbosa, Neres and Amaral (2021) highlight the importance of the dentist considering, whenever clinically feasible, Conservative therapeutic alternatives. This approach seeks to reduce unnecessary removal of healthy dental tissue, preserving the remaining dental structure and promoting greater predictability. and biological safety during treatment. Therefore, aesthetic planning must reconcile the Patient expectations based on functional, biological, and structural criteria, prioritizing interventions. capable of achieving satisfactory results with the least possible damage to tissues. natural.

De Aguiar Freitas, de Andrade Macedo and Paulin (2024) present a classification of the line of Smile based on the degree of exposure of the upper front teeth and gingival tissues. dividing it into three categories: high, medium, and low. In the high smile line, exposure is observed. complete clinical crown of the upper anterior teeth accompanied by a continuous band of Gingival tissue. When this gingival exposure is excessive, it can constitute an aesthetic complaint and This requires an assessment of its etiology to determine the most appropriate therapeutic approach. In the mid-smile line, significant or complete exposure of the tooth crowns occurs. anterior superior, accompanied by visualization of the interdental papillae, but with less Exposure of the gingival tissue.

In addition to the amount of gingival exposure, the position and relationship between the gingival margins of the Anterior teeth are relevant parameters for perceiving the harmony of a smile. Feu et al. (2011) consider the location of the gingival margin of the incisors as an aesthetic reference. lateral incisors, approximately 1 mm below the margins of the central incisors and canines. Configurations in which the gingival margins of the lateral incisors are positioned above the margins. Changes in the continuity and harmony of the central incisors and canines can occur. Gingival contour, being described as less favorable from an aesthetic point of view. Thus, the analysis The gingival architecture, associated with dental proportions and lip dynamics, constitutes a A relevant component in aesthetic smile design.

2.2 Minimally Invasive Approaches in Smile Aesthetics

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From this perspective, Furtado, Alves and de Morais (2025) highlight that the growing demand for Treatments aimed at improving the aesthetics of the smile have favored the development and adoption of minimally invasive techniques. These approaches include adhesive procedures, whose indication must consider, among other factors, the positioning and alignment of the elements. Dental conditions, occlusal conditions, and the amount of preserved dental structure. Restorative techniques Adhesives can be used for diastema closure and dental re-anatomization in conditions such as dental agenesis, presence of conical lateral incisors and morphological alterations or wear and tear on the dental structure. When properly indicated and planned, these procedures They can provide aesthetic modifications with minimal wear and tear, or in certain situations... Clinical procedures, requiring no preparation of the dental structure.

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FINAL CONSIDERATIONS

The study concluded that the aesthetics of a smile result from the interaction between different components. dental, gingival, labial and facial features, the analysis of which should consider aspects of proportion, symmetry and Harmony. Morphological references and principles of proportionality, including the golden ratio. They can contribute to aesthetic planning, although they should not be considered parameters. Absolute values are not absolute, since the perception of beauty is individual and multifactorial. In this sense, it is up to... The dentist will conduct a thorough evaluation of the main complaint and the anatomical characteristics. and functional aspects and the patient's expectations, in order to establish a therapeutic plan. individualized, conservative, and biologically appropriate.

Among the factors related to smile harmony identified in the literature, the position stands out. and the proportion of the dental elements, the labial dynamics, the gingival exposure and the architecture of the periodontal tissues. Correction of gingival contour alterations, when properly indicated, It can contribute to balancing dentogingival proportions and achieving results. more harmonious aesthetics. Similarly, minimally invasive approaches and procedures. Treatments that preserve dental and periodontal structures as much as possible should be prioritized whenever... Clinical conditions permit.

In addition to morphological and aesthetic aspects, smile analysis should consider its relationship with... Functionality of the stomatognathic system. The orofacial musculature involved in lip dynamics and Facial expression also plays essential roles, such as chewing and bolus control. Feeding and swallowing. Alterations in the coordination or performance of these structures can This has repercussions both on facial expression and symmetry, as well as on the efficiency of oral functions. In this way, the integrated assessment of aesthetics and function contributes to a broader understanding.

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of the patient's needs, preventing dental planning from being restricted exclusively to the appearance of the smile.

It can be concluded, therefore, that obtaining satisfactory results in cosmetic dentistry depends on... an individualized and multidimensional approach, capable of integrating dental parameters, Gingival, facial, and functional aspects. Consideration of the orofacial musculature and its role in swallowing reinforces the importance of planning that combines aesthetics, tissue preservation and function, favoring more conservative, safe interventions that are compatible with the specific characteristics. of each patient.

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