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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/18184

DOI URL: <http://dx.doi.org/10.21474/IJAR01/18184>



RESEARCH ARTICLE

MANUAL METHOD FOR GINGIVAL SHADE SELECTION- A LITERATURE REVIEW

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Manuscript Info

Manuscript History

Received: 16 November 2023

Final Accepted: 21 December 2023

Published: January 2024

Key words:-

Shade Guide, Shade Matching, Gingiva, Soft Tissue, Dental, Dentistry

Abstract

Objective- The purpose of the article is to present a narrative review of the literature related to the different shade guides available for dental practitioners.

Materials And Methods- A literature search was performed in the online databases – PubMed, Science Direct, Medline and Google Scholar with the following When fabricating a restoration, patient satisfaction with the shade match is essential. The patient's level of satisfaction may not be the same as that of the dental practitioner. Esthetic expectations have dramatically increased in the last few years. Color and shade determination are generally considered difficult in dental practice. Most prostheses fail esthetically owing to improper shade selection. A good understanding of color shade guides is essential for precise shade matching, but the paucity of dental practitioners' knowledge of color science because of the numerous available shade guides creates a challenge. This comprehensive review states information on shade selection, different shade guides, and shade matching devices commonly used in dental practice. Dental shade guides are a set of colour standards mimicking the colour of tissues, which dentists aim to restore – tooth structures, gingival tissues or facial structures in facial prosthodontics - skin, mucosa, eyes etc. They can be systematized based on the following principles – fabrication process, the material of manufacturing or restoration and according to the tissues, which are restored.

Conclusion: To provide an esthetic restoration to the patient, the dentist must have a full understanding of the science of color and color perception. Matching the correct shade satisfies both the dentist and patient and gives a pleasing appearance to the patient.

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Introduction:-

It is not only important to have good dental esthetics, but also good gingival esthetics. Esthetic considerations in prosthetic restorations, such as fixed dental prosthesis, implant-supported and removable partial prostheses have focused primarily on the anterior region. An attractive or pleasing smile involves the harmonious interaction of 3 primary components: The lip position, teeth and associated gingival architecture. As a consequence, variables such as the number of teeth visible in a smile, size, shape, position and color of artificial teeth, as well as margin placement of fixed prostheses must be considered during the fabrication of prostheses. The soft tissues surrounding prosthetic restorations are as important as the appearance, form, and color of the prosthetic teeth. It has been proposed that the color of the teeth, gingiva, lips, skin, hair and eyes harmonize to provide a pleasing facial appearance. The characterization of healthy gingival color ranges from pale pink and pink to dark red or purple.¹

Over the past years, a disparity between gingival colored and tooth colored aesthetics has been emerging. Various studies and reviews have been achieved in tooth-colored aesthetics. Three factors can be held responsible for this development:

- (1) Influence of highly skilled dental technicians
- (2) Continuous refinement of manufacturing techniques
- (3) Improvement of dental materials²

Despite recent advancements, the majority of dentists are still using manual methods for selection of shade. Hence this review was undertaken to discuss various shade selection manual techniques and their drawbacks.³

Guidelines For Clinical Shade Selection-

Shade-matching devices are also called 'shade guides. The order of shade selection is first selecting the value, chroma and lastly hue. Color matching should be done in a systematic way that ensures accuracy, uniformity, predictable results which are absolutely important in esthetic dentistry.⁴

Operating Site Lighting-

Sunlight in the middle of the day is considered optimal for shade selection, as this exposure contains an almost equal blend of all wavelengths of light compared to morning and evening exposures, which are richer in reddish and yellow wavelengths. In clinics that do not have proper access to sunlight, artificial light should be used to simulate sunlight. Although no artificial light lamp can perfectly duplicate sunlight, it is adequate for clinical purposes. Prior to shade selection, the light to which the patients are most exposed to in their daily routine must be ascertained.

Environment-

Bright-colored surroundings should be avoided as they interfere with proper color matching by influencing the colors in the reflected light. A drape can be used to mask undesirable colors in the patient's clothing and jewelry. A very light gray color provides the ideal background for color matching. Surfaces with high gloss produce disturbing glares and should be avoided.

Condition of the Gingiva and Teeth-

The gingiva should be clean and devoid of any plaque and debris. The gingiva as well as tooth should be moist with saliva as dehydration gives wrong shade. No rubber dam should be used during the shade selection.

Distance of the Operator from the Tooth, Position of the Patient and Timing-

A distance of 61 cm (2 feet) to 183 cm (6 feet) distance from the oral cavity is considered ideal for shade matching. The patient should be positioned in the dental chair such that the patient's teeth and gingiva are at the level of the operator's eyes. The operator should stand directly in front of the patient. Shade selection and shade matching should be performed by the dentist preferably in the morning, when eye fatigue is minimal.³

Shade Selection Methods:

We have two types of shade selection methods. They are,

- 1) Manual or visual methods
- 2) Automatic or instrumental.

The most popular method of shade selection in dentistry is through the use of visual selection with prefabricated shade guides. Colors in the shade guides should be based on a representative selection of intraoral human soft tissue colors. There are some commercially available shade guides for oral soft tissues to be used for finding a corresponding acrylic denture base resin.

Some Universal shade guides are available-

BruxZir Gingival Shade Guide

The shade includes six shade tabs that match precisely with the available shades for prosthesis and helps ensure an optimal match with patient's soft tissue i.e., gingiva and soft tissue.

The guide includes six shade tabs corresponding the-

G00 (Lightest), G0 (Light), G1 (Standard), G3 (Medium), G4 (Dark) and G5 (Darkest).



Fig.1:- BruxZir Gingival Shade Guide with G00, G1, G3, G4, G5 shades.

The Lucitone 199 shade guide system (Dentsply Trubyte, York, Pa) consists of 4 glossy shade tabs of the same shape in original, light, light reddish pink, and dark shades.



Fig.2:- Lucitone 199 Shade guide system (Dentsply Trubyte, York, Pa).

The Ivocap Plus gingiva indicator set (Ivoclar Vivadent, Schaan, Liechtenstein) consists of 4 shades as well: pink, fibred light pink, fibred pink, and "Preference" (a shade which should correspond to the original shade of Lucitone 199).



Fig.3:- Ivocap Plus gingiva indicator set (Ivoclar Vivadent, Schaan, Liechtenstein).

The IPS Gingiva shade guide system (Ivoclar Vivadent) offers 10 shades: 5 regular shades, 4 gingival modifier shades, and 1 gingival opaquer shade.¹

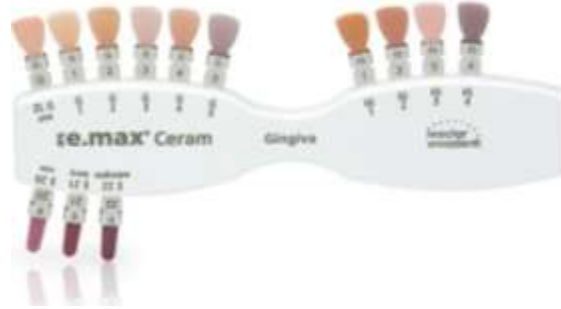


Fig.4:- The IPS Gingiva shade guide system (Ivoclar Vivadent).

Disadvantages Of Shade Guides-

The disadvantages of shade guides are described as follows:

- (a) The colors in shade guides differ for each manufacturing company
- (b) the shades in a guide are not logically organized and do not cover the volume of color space that exists in natural soft tissue
- (c) a standard shade tab is made using synthetic resin and has greater thickness; different than original soft tissue
- (d) a shade guide tab reflects and transmits light, creating translucency and an appearance of vitality.⁴

Conclusion:-

Shade guides for soft tissues and facial prosthodontics should be further developed. The accurate recreation of colour dimensions in an important step for achieving a harmonious dentition. Although the dentist has plenty of options concerning shade matching for hard tooth substances (i.e., white aesthetics), Soft tissue aesthetics (i.e., pink aesthetics) and the recreation of skin colour is still an underdeveloped area with little existing shade guides. Further research is needed in order to create a universally accepted and applicable colour standard for these cases.

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