

# **CHARACTERIZATION OF COMPLETE DENTURE**

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**ABSTRACT**

The idea of having a complete denture that looks natural and lifelike as possible cannot be overemphasized in the success of complete dentures, which is the ultimate goal of its fabrication. Together with the function and comfort of the complete denture on the patient, contributes immensely to its success. This article aims to highlight the ways complete dentures can be characterized based on the Dentogenic concept and Dynesthetic concept.

**KEYWORDS;** Esthetics, Characterization, Dentogenic, Dynesthetic, Denture

## **INTRODUCTION**

The glossary of prosthodontic term 9 defines esthetics as the theory and philosophy that deal with beauty and the beautiful, especially concerning the appearance of a dental restoration, as achieved through its form and/or color; those subjective and objective elements and principles underlying the beauty and attractiveness of an object, design, or principle [1]

Characterization of the complete denture is necessary for the denture for a life-like appearance, and to make it appear more natural.[2]

## **DEFINITION**

According to the glossary of prosthodontics terms "Denture characterization is the modification of the form and color of the denture base and teeth to produce a more lifelike appearance." [2]

Thus the two elements that must be considered in denture esthetics are teeth and their supporting denture base, to meet the esthetic needs of the denture patient, we should make the (denture) teeth look like (the patient's) natural teeth.[3]

## **METHODS OF CHARACTERIZATION**

A complete denture can be characterized by two basic methods.

1. Characterization by selection, arrangement, and modification of artificial teeth.
2. Characterization by tinting the denture bases.

Two concepts can be mentioned that were spoken of by Frush and Fisher way back in 1955, introducing us to the earliest concepts of esthetics. Dentogenic concept and Dynesthetic concept.

Dentogenics", refers to the art, practice, and techniques used to achieve that esthetic goal in dentistry. The Dentogenic concept summarized that gender, personality, and age provide guidelines to "enhance the natural appearance of the individual.[4,8]

Dynesthetic concept portrayed secondary factors of a dentogenic restoration. It was believed that the application of dynesthetic techniques to the dentogenic concept brought about a more psychologic and physiologic comfort to all of our patients.[4] The factors include,

- The selection of artificial teeth
- Their subsequent sculpturing
- The individual and detailed positions of these teeth
- The color and contours of the denture base

## **CHARACTERIZATION BY SELECTION**

Choosing the correct size and mould of teeth is very important for the denture.

The patient should be consulted if at all possible, to find out their views, or by viewing old photograph albums, to ensure the best result.

When choosing artificial teeth, look for features that one would expect to see in natural teeth, almost life-like, with good characteristics such as strong surface detail, enamel striation, mamelons, and natural translucency and fluorescence.[1,5]

## **CHARACTERIZATION BY ARRANGEMENT**

The ways of characterization by arrangement are;

Modifying the direction of the long axis of teeth helps in the accentuation of natural effects.[3]

Placing the incisal edge of one maxillary central incisor slightly in an anterior direction to the other central incisor.[6]

Lateral incisors may be slightly rotated to show their mesial surface thereby overlapping the central incisor. This effect softens the smile.

By rotating the lateral incisors mesially and making their distal end prominent, the effect of the smile turns out to be hardened.

Diastemas can be produced

Smile line; Broader curve denotes older dental features, while a sharp curve denotes youthful component.

## **CHARACTERIZATION BY MODIFICATION OF ARTIFICIAL TEETH**

It can be done by incorporating stains into the denture teeth. Staining of teeth can be done to mimic abrasion (dentinal exposure), some shades of pitting, or fluorosis.

Varieties of staining kits are available nowadays. They are mostly self-cured colored acrylic resins that can be applied by a brush; both intra-orally as well as outside the mouth.

An example is the minute staining kit that is available in 7 colors- Brown, Yellow, Cervical Blend, Pink, Grey, Blue, and White.

Grinding the incisal edges can be done to portray attrition with age. Reshaping the incisal edges and mesiodistal diameter makes it possible to modify any tooth to the desired form. [4]

## **CHARACTERIZATION OF DENTURE BASE**

Pound in 1951, was one of the first to suggest a method of tinting acrylic denture bases to simulate the gingival color in artificial denture bases. [2]

## **INDICATION FOR CHARACTERIZATION OF DENTURE BASE**

- Patients with an active upper lip.
- Patients with a prominent pre-maxillary process.
- Actors, singers, and others who expose gum tissue areas during their performances.
- The psychological acceptance of the dentures by the patient.

Characterization of denture bases includes, Festooning, stippling, replicating alveolar eminence, inflamed or bulbous gingiva, tinting of the denture base, and incorporating imprints of rugae in the dentures.

## **FESTOONING**

Removal of wax from the cervical portion of the teeth until sufficient areas of their labial and buccal surfaces are exposed.

The free gingival margin has a definite rolled margin of wax, drawn tightly around the tooth. [7]

## **STIPPLING**

The stippled surface in dentures represents naturally attached gingiva that appears rough when wiped dry. It produces uneven light refraction which is responsible for a more pleasing natural effect. It is produced interdentally and in the interproximal regions.[4] The various popular methods used are:

- Toothbrush technique
- Offset bur technique
- Blow wax technique
- With the help of a sponge

## **REPLICATING ALVEOLAR EMINENCE AND INFLAMED OR BULBOUS GINGIVA**

They are depicted through a series of swellings corresponding to the roots of the teeth. The most marked is the anteriorly situated, canine eminence that blends into the peripheral border. The prominences become progressively less marked in the pre-molar and molar regions. The reflection of inflamed or bulbous gingiva is reproduced by leaving more interdental wax.[4]

## **INCORPORATING RUGAE;**

The patient can regain the maximum sensation of contours in the palatal area. Different ways of incorporating rugae has been discussed. The most common method is by luting dental floss (thickness 0.75mm) with inlay casting wax in the trial denture base prior to flasking.[4]

## **USE OF TINTS IN THE DENTURE BASE;**

Several methods have been used to tint denture base resins to achieve a more natural appearance. Usually, heat curing or auto-polymerizing resins of various shades or colors are painted on the denture base or are shifted onto the mold during denture construction to obtain a tinted denture. The most widely used tints today are the various pigments, which are placed within the original mold chamber, so they do not affect contours.[4]

## **IDEAL REQUIREMENTS OF DENTURE BASE TINTING**

### **MATERIAL**

should be readily miscible with methyl methacrylate resin.

should be non-toxic

should not add appreciable bulk to denture bases.

should be stable and non-fading.

should be resistant to loss from abrasion in cleaning and in normal function. should not alter the properties of the denture base resins. [2]

Pound in 1951 incorporated the racial and individual colour peculiarities, of the gingiva in an artificial denture. [9]

He was the first to suggest a method of tinting acrylic denture bases to simulate the gingival colour which was later modified by Hardy. [2,9]

Dr. Pound introduced Replident surface stains along with a staining technique that applied the pigmentation onto the surface layer of the denture base and was processed as an integral part of the denture. This became one of the most widely used of all the documented systems and later became known universally as Dr. Earl Pound's Kayon Staining Kit.

Though the system Pound described was the most universally accepted, its colour range was inadequate for rendering darker pigmentations.

Thus a new product for internal staining that includes darker pigmentation colours was developed. This resulted in the creation of the Enigma Colour Tone System, which is widely used today. [2,9] They include;

- i. **IVORY PINK:** The lightest colour and is used mostly to mix custom colours or where an opaque layer is needed. Characterization of complete denture
- ii. **LIGHT PINK:** For root eminences and the thin layer over the gingival roll
- iii. **MEDIUM PINK:** Places where bony buccal prominences transition from the roots on pale healthy gums
- iv. **NATURAL PINK:** Places where bony buccal prominences transition from the roots on pale healthy gums. Used as base canvas.
- v. **DARK PINK:** Used specifically for vascularity in areas of attached gingivae, and inflammation in papillae Characterization of complete denture
- vi. **BLUE PINK:** Accent vascularity or inflammation on patients with darker red tones



vii. **LIGHT BROWN:** Used when natural gums have brownish patches

viii. **DARK BROWN:** Used for heavier pigmentation to show greater vascularity.

## **CONCLUSION**

The treatment with characterized complete denture prosthesis can produce a more lifelike or natural appearance compared with conventional denture that produces artificial look in edentulous patients. Prosthodontic therapy with use of characterized complete denture prosthesis compare to conventional denture prosthesis aids the patient in developing proper speech, enhanced esthetics and may have dramatic social and psychological benefits for these patients.

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