

# Characterisation Of Complete Dentures: A Clinical Technique

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## Abstract:

The increase demand for esthetics has paved way to denture characterisation largely in recent times. In 1952 Wilhelm Zech, a sculptor by profession incorporated something more than geometric designs to artificial teeth based on different personalities, which lead to the concept of characterisation. To simulate the natural appearance of the patient into the denture, modifications can be made in form and colour of the denture base and the teeth. For a natural illusion, changes in tooth arrangement and position, spacing and crowding, tilting, chipping of incisal edges, rotations of teeth, stippling, staining, tinting of the denture base and also dental jewelry can be done. In this article, a clinical technique of denture characterisation has been described along with the laboratory procedure.

**Key Word:** denture characterization, esthetics, pigmentation, Optiglaze

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## I. Introduction

GPT defines denture characterization as “the modification of the form and color of the denture base and teeth to produce a more lifelike appearance.”<sup>1</sup> As a prosthodontist, our duty is to fulfil the patient needs considering the function, esthetics and economical background. This can be achieved by the reconstruction of the missing teeth and the soft tissues using accurate prosthetic materials. More natural and pleasing appearance of the patients can be restored by terms of denture characterisation.

As per Frush and Fisher<sup>2</sup> statement “the environment of the teeth is as important as the tooth itself”, both the teeth and the denture base must be given equal importance while fabrication. “To meet the esthetic needs of the denture patient, we should make the denture look like the patient’s natural teeth.” was stated by Hardy<sup>3</sup>.

Characterisation of denture depends on<sup>4</sup>

1. Modification of artificial teeth
2. Arrangement of teeth
3. Contouring of gingiva
4. Denture base design

In 1955, the dentogenic concept was introduced to bring in a revolution into the aesthetics in artificial dentures. According to Fisher<sup>2</sup>, the patient's age, sex, and personality can be used as guiding principle for tooth selection and arrangement. Payne stated that “teeth should be placed where they grew.” Martone<sup>5</sup> has stated that, “The key to esthetics lies in asymmetry.”

Esthetic dental treatment consists of artistic and subjective components designed to generate an illusion of beauty. Esthetic principles include divine proportion, symmetry, colours, unity and harmony and the gestalt principle. A combination of blue and brown stains as described by Kemniter<sup>6</sup> to reproduce melanin pigmentation of gingiva can also be done. An organized systemic approach is required to evaluate, diagnose and resolve esthetic problems. Our goal as a dentist is to attain a pleasing smile by preparation of various esthetic elements.

Common Techniques<sup>7</sup>

1. Simulating melanin pigmentation

A new pathway can be illuminated to bring mental comfort, satisfaction and well-being to denture wearers. This method involves the use of brown and purple resins for those with pigmented oral tissues.

According to Pound<sup>8</sup> the racial and individual colour peculiarities of the gingiva in artificial denture can be incorporated.

2. Brush-on or paint-on technique

John. L. Powers developed a technique to apply the tinting material directly to the finished denture after processing, in the presence of the patient. He mentioned that dusting and wetting technique is imaginary in the absence of the patient and its time consuming. Therefore, he said coloring of the denture varies from one patient to another. So, one cannot use the same color resins for each patient and the coloring of the denture base can be modified according the tissue color of each patient.

This article describes the laboratory procedures for internal characterization of denture base in a complete denture incorporating veined denture base material at the stage of packing and external characterization using Optiglaze(GC India) after acrylization.

Procedure

1. A complete wax up of the denture was done after verifying the denture in the patients' mouth.
2. Gingival characterisation like festooning was performed while wax up and stippling was also embossed.
3. Flasking of the trial denture was done using dental plaster, followed by complete dewaxing.
4. Packing was done using Acralyn-H Light Veined Heat cure denture base material and curing protocol was followed.
5. Regular trimming and polishing of the denture were done.
6. The middle third, cervical third of the teeth and the marginal gingiva was roughened using sand paper to gently create a uniform surface texture and to prime the material for application of the colorants.
7. A thin layer of clear Optiglaze was coated over the roughened tooth and light curing was done for 10 seconds.
8. Following this a thin layer of brown shade was coated and cured for 10 seconds.
9. Final coating of clear HV Optiglaze was done and followed by curing for 10 seconds to give the glassy finish.
10. Final denture with denture characterisation to simulate gingival stains was inserted and the patient was satisfied with the natural appearance of the denture.



A



B



C



D

E



## II. Conclusion

As Frush<sup>2</sup> mentioned, “A smile can be attractive, a prime asset to person’s appearance, and it can be powerful factor in the ego and desirable life experience of human being”, it should not be treated with indifference due to its deep emotional significance. A pearl like arrangement of artificial teeth with a flat acrylic denture base should not be the aim of the dentist, the ultimate aim lies in bringing back the natural appearance, form, function and esthetics of the patient<sup>9</sup>. Modifications in the denture teeth and denture bases can be done based on the most commonly followed Dentogenic concept<sup>10</sup>, which takes into account the age, sex and personality of the patient. Using the easy-to-follow protocol described, our goal of ensuring a happy and satisfied patient can be done cost effectively and also reduces the expensive laboratory procedures.

## References

- [1]. The glossary of prosthodontic terms. *J Prosthet Dent* 2005;94(1):10-92
- [2]. Frush JP, Fisher RD. How dentogenic restorations interpret the sex factor. *The Journal of Prosthetic Dentistry* 1956;6(2):160-72.
- [3]. Hardy IR. Problem solving in denture esthetics. *Dent Clin North Am* 1960;305-20.
- [4]. Frush J. P., Fisher R. D. The dynesthetic interpretation of the dentogenic concept. *J Prosthet Dent.*, 1958;8:558- 81.
- [5]. Martone AL. Effects of complete denture on facial esthetics. *J Prosthet Dent* 1964;14:231-55.
- [6]. Lagdive S, Darekar A, Lagdive S. Review: Characterization of Denture Bases -Redefining Complete Denture Esthetics”. *Int J Healthcare Biomed Res.* 2012;1(1):16–20.
- [7]. Srivastava R., Choukse V. Characterization of Complete Denture. *International Journal of Dental Clinics* 2011;3(1):56-9
- [8]. Pound E. Esthetic dentures and their phonetic values. *J Prosthet Dent.* 1951;1(1-2):98–111. doi:10.1016/0022-3913(51)90085-6.
- [9]. Lombardi RE. The principles of visual perception and their clinical application to denture esthetics. *The Journal of Prosthetic Dentistry* 1973; 29 (4):358-82.
- [10]. Jameson W. E. Dynesthetic and dentogenic concept revisited. *J Esthet Restor Dent* 2002;14(3):139-48.

**KEY FOR DIAGRAMS**

A Various shades of GC Optiglaze with applicator tip

B Red Brown shade of Optiglaze

C Application of optiglaze using applicator tip

D & E Stained complete denture