

PATIENT SATISFACTION WITH COMPLETE DENTURE FABRICATION USING TWO NEUTRAL ZONE IMPRESSION MATERIALS –AN INVIVO STUDY

¹ Dinakar Reddy K ¹ Post Graduate Student
² Ravi Kumar P ² Post Graduate Student
³ Raja Reddy N ³ Reader
⁴ Indira padmaja B ⁴ Professor

^{1,2} Department of Prosthodontics , CKS Theja Dental College, Tirupati , Andhra Pradesh, India.

ABSTRACT: The concept of Neutral zone is an important biomechanical consideration in fabrication of complete dentures. There are different methods of recording the Neutral zone. This article compares the levels of patient satisfaction with complete denture fabricated using two neutral zone impression materials.

KEYWORDS: Complete Denture, Neutral zone, Zinc oxide eugenol, Tissue conditioner

INTRODUCTION

The **SATISFACTION** of the complete denture patient depends on the impression made with the purpose of obtaining the following characters like Retention, Stability, Support and Aesthetics.

The arrangement of teeth in complete dentures has been predominantly based on certain mechanical principles without much consideration for the biology and physiology of the Oro-facial muscles surrounding the prosthetic appliance,

This has an adverse influence on the success of the complete denture prosthesis, particularly in patients with severely atrophic mandibular ridges.

To take the physiology of muscles into account, the neutral zone (NZ) concept was introduced. It is an old concept, but is extremely valuable till date and, yet not often practiced.

The soft tissues that form the internal and external boundaries of the denture space greatly effect and influence the **STABILITY** of the dentures and help to determine the peripheral borders, tooth positions and external contours of the denture.

The NZ is defined as “**the potential space between the lips and cheeks on one side, and the tongue on the other; that area or position where the forces between**

the tongue and cheeks or lips are equal”. It is also referred to as the- Dead space and Zone of minimal conflict.¹

Aims and Objectives

This study aimed to compare the levels of patient satisfaction with complete denture fabricated using two neutral zone impression materials.

Materials and Methods

The materials that are used in this study are :

- 1. Green stick compound
- 2. Zinc-oxide eugenol impression paste
- 3. Tissue conditioner.

The compound is removed from the record bases, and the occlusal stops are trimmed, then wax is poured into the space between the indices; this provided an exact representation of the NZ.

The NZ wax rims were made to uniformly contact each other. The teeth were arranged and their position was verified by placing the indices together around the wax try-in.



Fig.1. Materials used in the study.

- 1. Green stick compound
- 2. Zinc-oxide eugenol impression paste
- 3. Tissue conditioner.

Try-in and Recording of Polished Surfaces:

After the wax try-in was found satisfactory, polished surfaces of the trial dentures were recorded using ZOE impression paste. During recording the patient is instructed to do the same as for recording the NZ using green stick compound.

Completion of the Denture

The trial dentures were invested, processed, finished, and lightly polished to prevent alteration of contours, then the dentures were inserted, carefully evaluated, and checked for occlusal errors.

Fabrication of Denture using soft liner:

The same method is followed for the fabrication of complete denture using soft liner that is as follows:

FABRICATION OF NEUTRAL ZONE RECORD BASES



RECORDING THE NEUTRAL ZONE



TRY-IN AND RECORDING OF POLISHED SURFACES

The soft liner is removed from the record bases, and the occlusal stops are trimmed, then wax is poured into the space between the indices; this provided an exact representation of the NZ.

The NZ wax rims were made to uniformly contact each other. The teeth were arranged and their position was verified by placing the indices together around the wax try-in.

After the wax try-in was found satisfactory, polished surfaces of the trial dentures were recorded using soft liner.

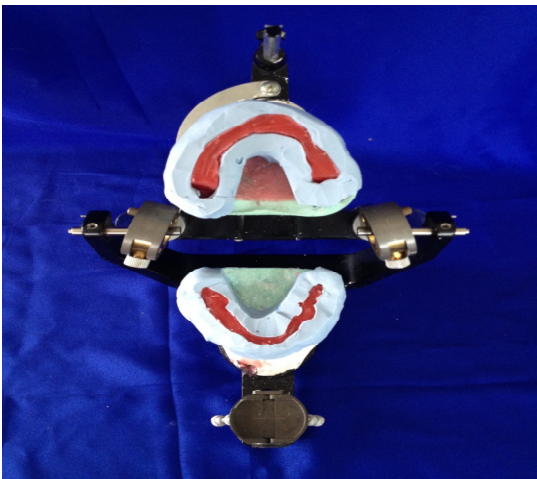
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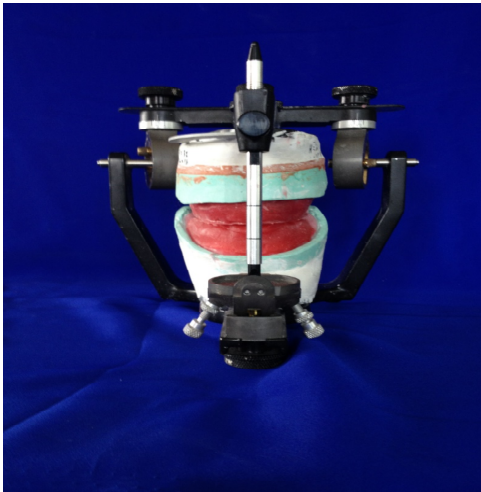
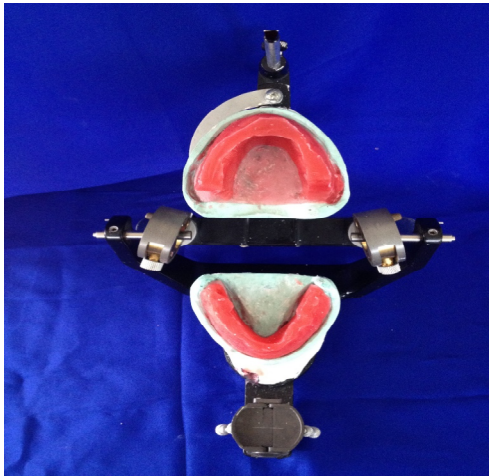
Fig.2.Fabrication of Neutral Zone Record Bases using compound



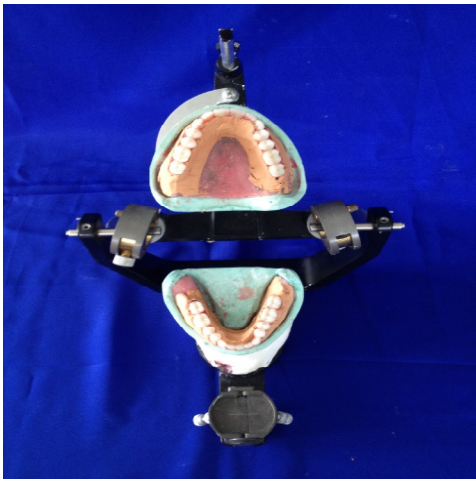
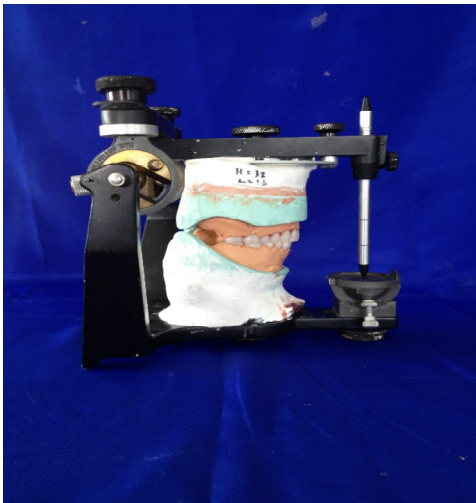
Adaptation of Polyvinyl silicone putty to prepare indices



Duplication of Neutral zone



Preparation of occlusal rims



Arrangement of the teeth and their position verified by placing the indices together around the wax try-in.

Fig.2. Lab procedures



Fig.2. Lab Procedures – Fabrication of dentures

QUESTIONNAIRE DESIGN AND SCORING:

The questionnaire consisted of five items that is,

- 1. General satisfaction
- 2. Retention
- 3. Stability
- 4. Ability to speak
- 5. Comfort
- 6.

Responses to items were given by the patient on a 5-point **LIKERT** scale i.e., for each given item patient had to choose one out of the five responses.

The likert scale values for the five responses ranged from 0 to 4

- 0 when the patient was not at all satisfied
- 1 When not very satisfied;
- 2 When reasonably satisfied
- 3 When very satisfied
- 4 When totally satisfied.

RESULTS:

Based on the above scorings and mean values the results are as follows:

General satisfaction	NZ-2 > NZ-1
Retention	NZ-2 = NZ-1
Stability	NZ-2 > NZ-1
Ability to speak	NZ-2 > NZ-1
Comfort	NZ-2 > NZ-1

The complete dentures fabricated using the soft liner is better when compared with the complete denture fabricated with ZOE paste

Discussion:

The objective of this study is to compare patient satisfaction with complete dentures fabricated using two neutral zone impression materials that is zinc oxide eugenol impression Paste and soft liner.

In the present study, subjects rated their satisfaction by responding to a questionnaire which assessed various factors associated with the function of the prosthesis.

The results, however, indicate that the patient is more satisfied by complete dentures fabricated using the soft liner when compared with the complete denture fabricated with ZOE paste. Correct positioning of the teeth, optimal contouring of the polished surfaces and the Convex bulges reproduced in the maxillary dentures provided improved facial support and better aesthetics.

It is therefore suggested that NZ can be recorded for the maxillary denture space to Provide optimum facial support.

CONCLUSION:

Based on the results it is concluded that there is no significant difference in retention of the dentures fabricated by either of the neutral zone impression materials.

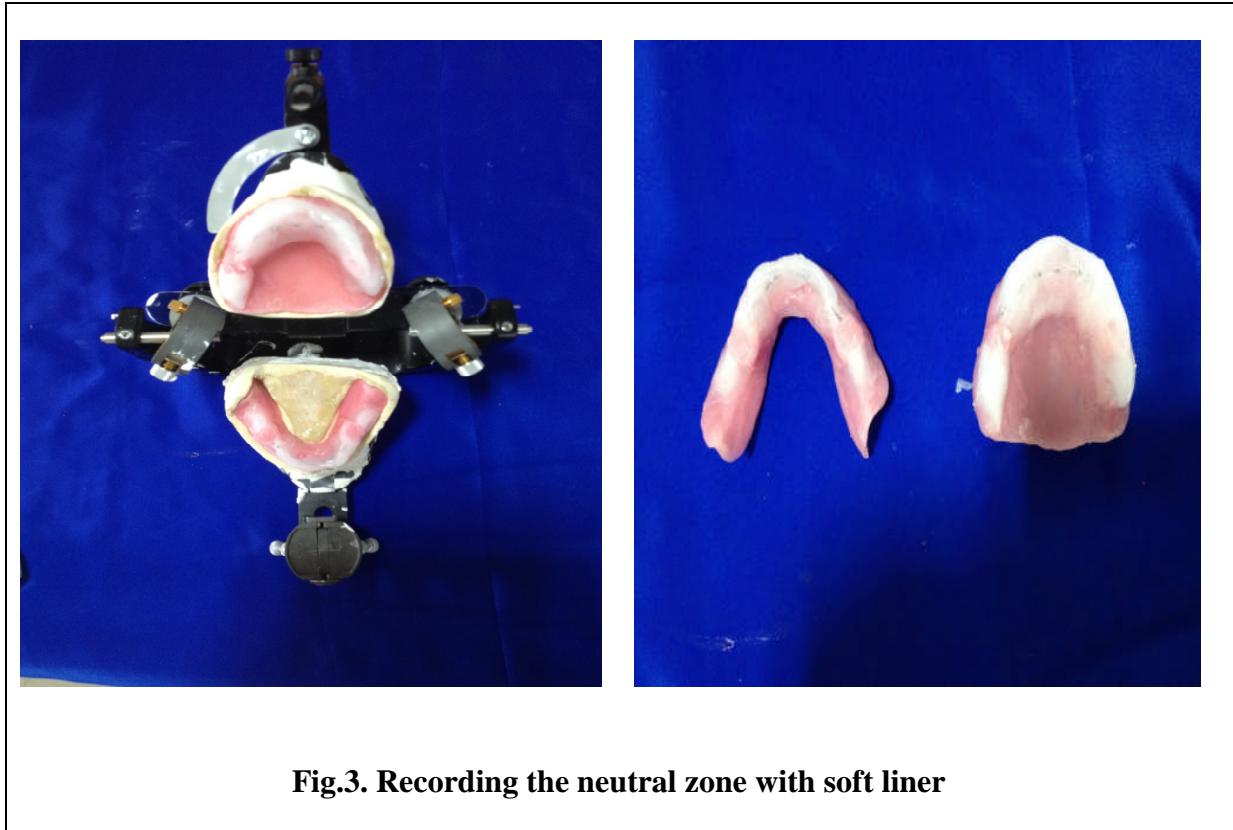


Fig.3. Recording the neutral zone with soft liner

For stability and comfort-

1. 80% patients preferred the dentures fabricated with soft liners and
2. 20% patients preferred dentures fabricated with ZOE paste.

For retention, general satisfaction, ability to speak-

1. 60% patients preferred dentures fabricated with soft liners and
2. 40% patients preferred dentures fabricated with ZOE paste.

It can therefore be suggested that dentures fabricated using soft liner techniques led to better overall patient satisfaction.

However, these findings must be interpreted with caution because of the limited sample size of the study.

References

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Corresponding Author

Dr. Dinakar Reddy K
Post Graduate
Department of Prosthodontics
CKS Theja College of Dental sciences
Tirupati, Andhra Pradesh.
Phone No: +91 9000965556
E- mail: kdrmds@gmail.com