Is Neutral Zone, Patients Comfort Zone? A Feedback Review

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ABSTRACT

The technique of neutral zone is useful. It is the convergence of many concepts and ideas into a feasible and functional method. The technique aims to build a denture in accordance with the underlying oral structures that are formed by muscle function. It acts as an alternative technique in case of highly atrophic ridges. With a history of denture instability, it is most successful. This paper seeks to provide information with an enclosure of a patient input study to use the technique.

KEYWORDS: Atrophy, comfort, neutral zone, stability

INTRODUCTION

Population life expectancy is steadily increasing. [1] In the present world, people are aware and concerned about their health and, later in life, people experience tooth loss. Elderly patients have extreme ridge atrophy, especially those who are long-time denture. We even undergo lip and cheek muscular atrophy.[2] Previously complete adaptation of the denture was no problem as new wearers of the dentures were younger;[3] An alternative approach for conventional denture is required in case of a highly atrophied ridge. Dental implant is a good option because it provides stabilization for a denture. But due to many reasons such as cost factors or medical conditions, implants cannot be given in all cases.[4] Complete dentures need to be designed in a manner so that they adhere to normal neuromuscular activity.[5] If there is any failure in recognizing the relevance of the location of the tooth and the shape and contour of the flange, it can cause unstable dentures. There should be coordination between complete dentures and neuromuscular activity.[6] 

NEUTRAL ZONE

Fish[7] and R. W. Tench (personal communication, 1952) are the two people who have likely contributed the most to these principles. The neutral zone is a possible denture area within the oral cavity in which the movements of the tongue pushing toward the outside are neutralized by the pressures of the lips and cheeks pushing inwards.

According to the Glossary of prosthodontic terms: ninth edition, the neutral zone 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.[8] There are two factors that influence the neutral zone. These are alveolar residual ridges and tongue.[9] The position of teeth should be buccolingually on the residual alveolar ridge.[10] The position of the teeth must be precisely such that the muscle forces appear to balance the denture instead of unseating it.[5] There should be coordination between the tongue, teeth, and buccinator for better denture construction.[11]
to enable these muscle forces to balance during activity or function.[4] The neutral zone technique can thus enhance the stability of the denture.

**Denture surfaces**

In 1948, Sir Wilfred Fish[7] categorized a denture containing three surfaces. The first surface, the surface of impression, is that portion of the denture that is in interaction with tissues on which the denture lies and defines denture retention. The second surface, the occlusal surface is that area in contact with the teeth, either natural or artificial of the opposite jaw. Third surface, polished or external surface as termed by Fish, is all the remaining dentures that are not component of the other two surfaces. The polished surface is associated with denture retention.[12] In cases of severe ridge resorption, the more stability of the dentures and their retention depends on the outer surface.[13] The artificial teeth must be positioned in estimated positions the natural teeth occupied.[14]

**Clinical case series**

In our department, 10 patients of age groups between 60 and 65 years were randomly selected. Completely healed ridges with highly resorbed mandible were noticed in all cases [Figure 1]. For each patient, two sets of complete dentures were fabricated, one was fabricated conventionally and the other was fabricated with the concept of a neutral zone. The conventional denture was fabricated according to patients’ satisfactory esthetics. Patients were reviewed after 24, 48, and 72h. Patients were instructed to use it for 2 months. After 2 months, patients were recalled for the fabrication of the principle neutral zone denture.

**Phases of neutral zone impression technique**

1. Primary impression
2. Secondary impression
3. Jaw relation [Figure 2]
4. Vertical dimension was maintained
5. One anterior and two occlusal stoppers [Figure 3]
6. Neutral zone impression
7. Wax try-in [Figure 4]
8. Acrylization and finishing of complete denture [Figures 5 and 6]
9. Review after 24, 48, and 72 h [Figure 7]
10. Review after 1 month

Patient comfort and overall satisfaction were assessed through patient feedback analysis. Patients were more
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satisfied with the second denture, which was constructed using the neutral zone technique.

**CONCLUSION**

The primary goal of a complete denture is to fulfill three basic requirements that include maximum comfort, masticatory efficiency, and esthetics. With the help of neutral zone technique, a denture can be constructed in harmony with muscle balance. Muscle function is the key stabilizing and retentive component while working. Complete dentures made using neutral zone technique show increased stability, retention, and comfort. From the patients’
perspective, it improved overall patient satisfaction as well as the confidence to speak and smile.

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**Conflicts of interest**
There are no conflicts of interest.

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