

**INFLUENCE OF TONGUE IN COMPLETE DENTURE RETENTION AND STABILITY**

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**ABSTRACT**

It is very difficult to relate the anatomical sciences to clinical dentistry, but there is an ever growing need to do so. Especially in fabrication of complete denture, it is important to understand the anatomy, size, position and classification of the tongue and surrounding musculature without which it impossible to achieve proper retention and stability of the complete denture. This paper tries to discuss the various factors that influence the retention and stability and ways to overcome those difficulties.

**KEYWORDS :- Tongue, Denture Stability, Denture Retention**

**INTRODUCTION**

Technique itself is merely the practical application of principles, if the principals are unsound, the most elaborate and painstaking techniques are certainly doomed to failure. It is necessary therefore to separately understand each property, its contributing factors and their interactions to critically analyze and select the procedures and techniques that lead to the fabrication of a successful denture.

The tongue which often presents abnormalities in size, function and position should be examined. A small tongue helps in the case of impression making but jeopardizes the mandibular denture Whereas a broad thick tongue always comes in the way of impression making but provides an excellent seal of the denture. An extremely large tongue may impair the denture stability. Hence, tongue can be classified as follows –

**Classification of Tongue According To House<sup>1</sup>**

<b>Class I</b>	Normal in size, development, and function. Sufficient teeth are present to maintain normal form and function.
<b>Class II</b>	Teeth have been absent long enough to permit a change in the form and function.
<b>Class III</b>	Excessively large tongue. All teeth have been absent for an extended period of time, allowing for abnormal development of the size of the tongue. Inefficient dentures sometimes can lead to the development of a class 3 tongue.

**Tongue Position Classification According To Wright<sup>1</sup>**

<b>Normal</b>	The tongue fills the floor of the mouth; and is confined by the mandibular teeth. The lateral borders rest on the occlusal surfaces of the posterior teeth and the apex rests on the incisal edges of the anterior teeth. There is no aberration in tongue size or activity.
<b>Class I</b>	Retracted: The tongue is retracted. The floor of the mouth; pulled downward is exposed back to the molar area. The lateral borders are raised above the occlusal plane and the apex is pulled down into the floor of the mouth. Class I provides the best prognosis.
<b>Class II</b>	Retracted: The tongue is very tense and pulled backward and upward. The apex is pulled back into the body of the tongue and almost disappears. The lateral borders rest above the mandibular occlusal plane. The floor of the mouth is raised and tense.
<b>Class III</b>	when tongue is low in relation to mandibular ridge crest or retarded in relation to anterior ridge, retention of the mandibular denture will be poor.

**Discussion**

The marked movements of the tongue such; as protrusion, withdrawal, rowing the tongue and display of a wide range of continuous exaggerated movements offer poor prognosis and influence the retention and stability of the denture. Retention and stability go and in and for the fabrication of a good denture.

The factors of retention can be briefly divided into:<sup>2</sup>

- Physical
- biological
  - Orofacial musculature
  - Neuromuscular control
  - Intimate Tissue contact
  - border seal
- Mechanical
- Surgical
- Psychological

The factors of stability can be grouped into:<sup>3</sup>

- The relationship of external surface and the periphery of the denture to the surrounding orofacial musculature
- Relationship of the denture base to the underlying tissues
- Relationship of opposing occlusal surfaces.

Let us consider the orofacial musculature and their relationship with external surface and periphery of the dentures as influencing retention and stability. The most common complaint of complete denture patients concerns the loose mandibular denture. It is mainly due to the patient's lack of understanding to the special problems associated with the mandibular denture. Patients should be educated to the three basic handicaps associated with the mandibular denture.<sup>4</sup>

- Although the area of the mandibular denture basal seats is three times less than the area of maxillary denture, both are subjected to the same occlusal loads and thrusts.
- Mandibular denture is surrounded lingually as well as buccally by muscles, all of which have a potential for denture base disruption (dislodgment).
- Third and most important factor the mandibular denture depends on proper tongue position to maintain adequate peripheral seal and stability.

The successful denture wearer has learned the importance of proper tongue position and its relevance in creating and maintaining mandibular denture retention and stability. As already said the class I tongue position is most ideal. In order to determine the tongue position, ask the patient to open the mouth just wide enough to accept the food.<sup>5</sup> The dentist should see only the dorsal surface of the tongue and occlusal surface of the teeth. The tongue should be in intimate contact with the lingual surface of the denture and the floor of the mouth should be at a normal level.

If on the other hand, the tongue is in a retruded position, the denture will be unstable, has no retention and will be easily dislodged. The patient will complain the denture is loose and it floats. In such cases, patient education is of extreme importance. The patient should be made aware of the tongue position, by helping him practice the opening and closing of the mouth, while the tongue

assumes a normal position. Once practiced, the enhancement of mandibular denture stability should be enough to reinforce the normal tongue position. The patient should be made to realize the tongue position is an integral part of his problem and no denture adjustment or releasing will correct it. Therefore, patient education is of utmost importance.

One more factor of importance is the relationship of external surface and periphery of the dentures to the orofacial musculature. The orofacial musculature can supply supplementary retentive force provided the teeth are placed in the neutral zone and the polished surfaces of the dentures are properly shaped and polished. So, the normal muscular activity will tend to retain the denture rather than dislodge them.

As pointed out by Fish and others, the position and shape of the polished surfaces of the denture can be a great asset with regard to retention, function, comfort and esthetics. Fish believed that the contours of the polished surfaces provide the principal factors governing the complete denture stability. In 1933 he wrote that it is not widely understood that actual shape of the whole buccal, labial and lingual surfaces can wreck the stability of denture just as complete as a "wrong impression or a wrong bite". The external surface should be made to harmonise with associated functioning musculature of the tongue, lips and cheeks. The general cross sectional geometric design of the denture base should be triangular. This permits the forces to be directed against three surfaces for better retention.<sup>5,6,7</sup>

The maxillary buccal flange should incline laterally and superiorly, the lingual flange medially and inferiorly and the palatal flange should incline medially and superiorly. Such inclinations will provide a favorable vertical component to any horizontally directed force.<sup>8</sup> The alveolar palatal surface of the maxillary denture should be concave, permitting the greater superior component of the tongue force to seat and hold the maxillary denture. The lingual flange of the mandibular denture should be concave and directed medially. This will guide the tongue to rest over the flange and will permit the horizontal forces generated against the denture base to be transmitted as seating faces.<sup>9</sup>

## CONCLUSION

Fortunately most patients adapt and rapidly become accustomed to the change in the orofacial complex, so that there is little or no permanent alterations in the execution of those functions. Nevertheless correct design of the restoration makes the period of adjustment much easier, shorter and also prolongs the service of the restorations. The proper design and fabrication of a prosthesis broadly depends on the diagnosis in case history and proper clinical examination of the patient. The successful clinical examination and treatment planning

particularly require, that the clinician can detect the abnormalities from the normal behavior, structure and function of the tissue. An understanding of the normal is therefore, essential for successful practice of clinical dentistry

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