Review Article

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NATIVE LANGUAGE PHONETICS IN PROSTHETIC AND RESTORATIVE DENTISTRY

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ABSTRACT:

The aim of oral rehabilitation is multipurpose (versatile), first a part of digestive system (mastication), the esthetics and the speech. The importance of speech in prosthetic dentistry is well documented in the literature. The purpose of this article is to illustrate basic phonetic terminology (terminologies), standard Indian (Hindi) phonetics relevant for (to) dentistry. The knowledge of the basic anatomic regions involved in Indian phonetics may help prosthodontists (dentist to) treat patients whose native language is standard Hindi.

Key-words: Phonetics, Speech, Prosthodontics

INTRODUCTION

Phonetics is the study of vocal sounds. The ability to produce, manipulate and articulate with sounds is called speech. Any change in the oral cavity due to the loss of teeth, resorption of the alveolar ridge, or soft- and hard-tissue defects produces a significant effect on the speech pattern. Schlosser and Gehl said that “correction of speech defects ‘due to the partial or complete loss of natural teeth, in compliance with phonetic requirements” was the third major objective for the fabrication of a denture prosthesis.

Besides restoring an esthetic appearance and masticatory function, prosthetic restorations might compensate for speech deficiencies acquired through the loss of essential anatomic components of the speech system, whereas inappropriate prosthetic restorations can induce speech problems.[1-5] Typically, the prosthodontist is his own phonetician, and the professional literature shows that he is gradually becoming aware of this role. It remains a secondary role, however, and not one that is supported by his professional curriculum. Therefore, a scientific approach to understand the phonetics and speech physiology in prosthetic and restorative dentistry seems indispensable.

A literature review revealed that the majority of studies report the influence of denture design on English phonetics.[1-5] No reports on Hindi phonetics in prosthetic dentistry can be (were) found, even though India has the second highest population (1.3 billion) in the world.[6] This article illustrates the basic Hindi phonetic in comparison to English; its relevance to prosthetic and restorative treatment and to allow the evaluation or prevention of speech problems during prosthetic treatment.

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SPECIFIC FEATURES OF HINDI SOUNDS

The sounds of Hindi speech can (could) be conveniently divided into two broad categories of vowels and consonants. Hindi speech contains a set of ten pure vowels about 35 consonants, of which about 29 consonants are of frequent usage. These consonants can (could) be conveniently classified according to the manner and place of production.[7]

The Hindi consonants possess certain special features, which are not so common to European languages and American English. The major discrepancy results from a difference in the number of places at which the stops can (could) be formed by the tip of the tongue making contact with the front portion of the top of the mouth. In fact in Hindi, there is (are) five way (ways) distinction in the place of articulation for the stops sounds, compared to English where there is (are) only four way contrast. In English /t/ and /d/ sounds, the tip of tongue comes in contact with alveolar ridge, while in Hindi there is no alveolar sound, rather it has either dental consonants or retroflex. Therefore English /t/ and /d/ are midway between Hindi dental and retroflex. So, there is no separate retroflex category in English but they do exist commonly in Hindi, Malayalam and other Indian Languages [8]. Retroflex sounds are (were) made by curling the tip of the tongue up and back so that the underside touches or approaches the back part of the alveolar ridge.

Stop	प ब फ म त द थ ध ट ड ठ ढ क क़ ग ख घ
Affricates	च ज छ झ
Fricative	स फ़ ष श ज़ ख़ ग़ ह
Vowel like (Approximant)	व ल ळ ऴ ऱ र ड़ ढ़ य य़
Nasal	म न ऩ ञ ङ ण

Table 1. *Classification of consonants according to manner of Articulation*

Bilabials	प ब फ म व म
Dentals	त द थ ध स ल ळ ऴ न ऩ
Labio Dental/ Lingua Dental	फ़
Retroflex	ट ड ठ ढ ष र ड़ ढ़ ऱ ण
Palatal/paleto Alveolar	च ज छ झ श ज़ य य़ ञ
Velar	क क़ ग ख घ ख़ ग़ ङ
Glottal	ह

DISCUSSION:

Prosthodontic treatment involves clinical procedures that affect speech articulation directly or indirectly. Speech is a dynamic process, in which different anatomic structures are(was) involved and can(could) be divided into static and dynamic structures.[3] The static structures, such as the teeth, the alveolar ridge, and the palate, are important in establishing the route the air takes, as well as providing some of the obstructions against which the air strikes to produce a sound. The dynamic structures include the tongue, lips, and

velum. The tongue is the most versatile of the three, which limits the space in the mouth differently for each sound. Rebuilding the static structures in their natural contours with prosthetics with an optimal environment for the dynamic structures ensures acceptable speech.

An abnormal protrusion of the incisors, a marked overbite or overjet, and abnormal rugae contour may impair correct pronunciation of the alveolar consonants.[9,10]

CONCLUSION:

Analysis of phonetic sound production in prosthodontic practice should be (shall have been) based on some understanding of the nature of the speech sounds, how they are (were) produced, and the anatomic and physiologic structures involved. The pronunciation of most standard Indian phonemes is similar to the pronunciation of their English counterparts, but some of the dentals, retropalatals, and palatals have notable differences.

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