

## CORRELATIONS BETWEEN CENTRAL INCISORS WIDTH AND MAXILLARY ARCH WIDTH

Faisal M. Fahmi\*, Hanaa M. Al El-Sheikh\*\*, Moodhy S. Al-Athel\*\*

### ABSTRACT

One hundred and sixty three subjects participated in this study; 94 females and 69 males. The widths of their central incisors were compared with the width of their arches in an attempt to reach a formula for selection of anterior central incisors in edentulous patients. The study demonstrated significant difference in the arch widths of males and females. The ratios between the central incisors width to arch width was found to be 1/68 and 1/74 for males and females, respectively.

### INTRODUCTION

A good aesthetic result is one of the most important factors in patient satisfaction with complete denture<sup>(2)</sup>. Maxillary central incisors are considered the key-teeth when treating edentulous patients since they are the most visible teeth during unstrained facial activity. In addition, they play a role in speech, lip support and incisal guidance.

The selection of artificial teeth to replace lost natural teeth is a very important phase of complete denture service as far as the patient is concerned. A number of guides are available to assist the dentist in the selection of artificial teeth. The best guide for anterior teeth selection is the diagnostic casts or previously extracted teeth. In the absence of any pre-extraction guides, tooth selection depends on the artistic concepts and abilities of the dentist. However, there are several guidelines that could help in determining the tooth size.

Since alveolar bone is developed mainly to support the teeth, it is logical to assume that at least in a general way, the size and form of the maxillary arch bear a relationship to the size and form of the anterior teeth. However, measurements of edentulous casts are rarely useful in selecting anterior teeth mould because of the resorption that took place of the residual ridges.

Patients from different racial and ethnic groups may have different dental arch sizes and the dentists have to consider this point when selecting the artificial teeth. Manufacturers produce standard mould guides which might not be suitable for all racial groups in terms of size and shape.

Mack<sup>(6)</sup> reported that the maxillary arch dimension and the width of the central incisor are greater in Nigerians than in British. Bishara et al.<sup>(1)</sup> reported that central incisor dimensions were found to be similar in both Mexican and Americans.

Keng and Foong<sup>(3)</sup> measured the maxillary arch size and the central incisor dimensions in a group of Chinese subjects. They compared their data with data collected on other races. They reported no significant difference between Caucasian and Malay groups. Nigerian groups have larger teeth than both Chinese and British groups.

Tooth selection is usually based on the assumption that teeth are identical on each side of the arch, which is not the case in the natural dentition. Mavroskoufits and Ritchie<sup>(7)</sup> reported that differences exist between the two teeth in all dimensions (mesio-distal cervical crown width, width at the contact point and crown length).

The width of the maxillary central incisor was measured and reported by several investigators. Moorees<sup>(9)</sup> found a difference of 0.38 mm between the mean values of male and female. Similar results have been reported by other investigators<sup>(10,11)</sup>.

### Purpose of study

The purpose of this study was to investigate whether there is any correlation between the width of the central incisors and the arch width.

### MATERIAL AND METHOD

#### Selection of cases

The cases were selected among the students in the Dental College in King Saud University in

\* Associate Professor, Department of Prosthetic Dental Sciences, College of Dentistry, King Saud University, Riyadh, Saudi Arabia.

\*\* Lecturer, Department of Prosthetic Dental Sciences, College of Dentistry, King Saud University, Riyadh, Saudi Arabia.