

THE RELATION BETWEEN FACE LENGTH, ARCH LENGTH AND MAXILLARY CENTRAL INCISORS LENGTH IN A SAUDI POPULATION SAMPLE

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

ABSTRACT

The present study was to correlate the relationship of face length, arch length and maxillary central incisors length and to determine whether the ratio of the face length to maxillary central incisor length of 1:16 that was suggested in the literature also applies for selection of tooth length in a Saudi population. One hundred and sixty three subjects were included in this study. Results showed that males tend to have longer central incisors than females. A significant correlation was found between face length, arch length and central incisor length. The ratio of face length to maxillary central incisor length was found to be 1:18 in males and 1:20 in females. The ratio of arch length to central incisor length was 1:5 in both males and females. These biometric ratios could help in establishing the initial trial length for an artificial maxillary central incisor.

INTRODUCTION

Selection of the six maxillary anterior teeth for edentulous patient is made primarily for aesthetics. They must be in harmony with the oral environment in terms of size, form and colour. Selection of properly sized maxillary central incisors is important because they are the most prominent teeth in the arches as patients are viewed from a frontal position. Since alveolar bone develops mainly to support teeth, it is logical to assume that at least in a general way, the size and form of the maxillary arch is related to the size and form of the anterior teeth. Patients from different racial and ethnic groups may have different dental arch size and the dentist has to consider this point when selecting artificial teeth. No information exists in the literature regarding the relationship between arch length and the length of maxillary central incisors.

Diagnostic casts of the natural teeth are the most helpful guide in selecting the size, shape and arrangement of artificial teeth. Formulas, average values and measurements reported in the literature can serve as a starting point. This should be supplemented by the dentist's good artistic judgment.

Lombardi⁽⁷⁾ stated that the mould selected should have a pleasing proportion with facial anatomy and thereby harmonize with factors necessary to unify it with realism. All patients often have the mistaken belief that their real teeth were small and white. The dentist must explain that there is normally a harmonious relationship between the size of the anterior teeth and the size of the face.

Williams⁽¹⁵⁾ found a relationship between the size of faces and the sizes of teeth. Sears⁽¹³⁾ and Pound⁽¹¹⁾ reported a ratio of 1 : 16 when relating the maxillary central incisor length to the face length.

La Vera et al.⁽⁵⁾ reported that using facial measurements for selecting tooth length might result in choosing teeth that are slightly longer than the natural teeth.

The present clinical study was conducted to correlate the relationship of face length, arch length and the length of upper central incisors and to determine whether the ratio of face length to maxillary central incisor length of 1 : 16 that was suggested in the literature applies for selection of tooth length in a Saudi population.

SUBJECTS AND METHOD

One hundred and sixty three subjects, comprising 94 females and 69 males, who fulfilled the following criteria were included in this study:

(1) They were all Saudis, (2) with healthy permanent teeth, (3) not subjected to orthodontic treatment, (4) all the teeth were morphologically normal, (5) no artificial crown was placed on the upper teeth, (6) there was no gingival inflammation or hypertrophy that would impede the proper measurement of the crown length and (7) they were all above 18 years of age so facial growth had been completed.

These criteria limited the number of subjects in this investigation to 163. The subjects were of mixed sex and age. They ranged from 18 to 58 years old with a mean age of 24.61 ± 5.87 years for male and 23.77 ± 5.65 years for female.

* Lecturer, Department of Prosthetic Dental Sciences, College of Dentistry, King Saud University.

** Associate Professor, Department of Prosthetic Dental Sciences, College of Dentistry, King Saud University.