Dental arches dimensions, forms and the relation to facial types in a sample of Iraqi adults with skeletal and dental class I normal occlusion

(A cross sectional study)

A Thesis submitted to the Council of
The College of Dentistry at the University of Baghdad
In Partial Fulfillment of Requirements for the Degree of Master of science in Orthodontics

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Abstract

The face is a three dimensional object, facial structures are arranged to give the face its normal form. The teeth are arranged in an arch that's based on the jaw which is a part of the facial structure. The dental arch has certain forms depending on several factors including the skeletal form of the jaw and it is calculated in terms of different ratios of several arch dimensions.

This study is concerned about determining the normative value of dental arch dimensions and forms of Iraqi young adults sample aged between (18 – 25) years old with skeletal and dental class I normal occlusion.

The aim of this study is to establish normative values for the Maxillary and Mandibular Dental arches dimensions represented by dental arch width, length and to find out the most frequent dental arch form and facial type and the role of gender differences and to find out if there is a the relationship between the facial type and dental arches form and which is the most frequent facial type and dental arch form

The sample was selected from Baghdad University, college of Dentistry. A total of 200 Iraqi adult Dental students were clinically examined (100 females, 100 males) and only 72 of them fit the criteria of this research with an age range between 18 and 25 years old were selected because most of the growth of craniofacial bones could be considered to be completed after the age of 18 years. The sample composed of one hundred forty four Dental casts, seventy two frontal photographs, seventy two profile photographs and One hundred forty four Dental casts' photographs six linear measurements for Maxillary dental cast and six linear measurements for Mandibular Dental cast and two liner measurements for frontal and profile facial photographs.

Orthodontics is one of the fields that took advantage of high speed personal computers such as Pentiums by utilizing specialized orthodontic programs (software)

which have automated some of the more laborious tasks in diagnosis and treatment planning, storage and sorting of information. So the use of computers is obligatory in our modern life that's why it was used in almost everything in this study from obtaining the record and analyzing them for typing and directing this thesis. Specialized computer software for orthodontic record analysis (AUTO CAD 2007) were used, which simplified the analyzing process and reduced the time and effort spent on taking measurements directly from the records to facilitate work and to gain more accurate results.

In conclusion it was found that all of the maxillary dental arch dimensions are greater than mandibular dental arch dimensions in the total sample and both genders and all of the measured dental arch dimensions have a significantly

Greater mean value in males than in females also in general facial measurements were higher in females than males with a high significant difference except in the nasion gnathion distance in which it was not significant differences between both genders.

The most frequent facial type in males and females is the Mesoprosopic one, followed by the Euryprosopic while the least frequent is the Leptoprosopic face type while the mid arch form is the most frequent arch form and it is usually associated with Mesoprosopic face type in both genders followed by the wide dental arch form and the narrow dental arch form.

It was concluded that the relation between facial type and dental arch form is a perfect positive correlation and as the facial type graduated from Leptoprosopic to Mesoprosopic to Euryprosopic then the Maxillary Dental arch form increases from narrow to mid to wide.