Dental arches dimensions, forms and its association to facial types in a sample of Iraqi adults with skeletal and dental Class II-Division 1 and Class III malocclusion

(A cross sectional study)

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By:
Hanadi Majeed Hameed AL-Taee
B.D.S.

Supervised by:
Assist. Prof. Dr. Sami Kadhum AL-Joubori
B.D.S, M.Sc.

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Abstract

Information regarding arch dimensions in human populations is important to clinicians in most of the dental specialties including orthodontists. It is important to clarify and understand the association between facial structures and arch dimensions in different type of malocclusion.

This study is concerned to: determination of maxillary and mandibular dental arches dimensions represented by dental arch width and length; establishment of vertical and horizontal facial dimension; find out the most frequent dental arch form and facial type; study the role of gender differences and finally to find out if there is an association between the facial type and dental arches form in sample of Iraqi young adults aged between (18 – 25) years old with skeletal and dental Class II-Division 1 and Class III malocclusion**.** The sample was selected from the hospital of college of Dentistry, Baghdad University. A total of 334 Iraqi adult dental patient were clinically examined (180 females, 154 males) and only 90 of them fit the criteria of this research. The sample was divided into three groups:

Group one included 30 subjects has skeletal and dental class II division 1 malocclusion (15 males and 15 females) with overjet more than 3mm but less than or equal to 6mm .

Group two included 30 subjects has skeletal and dental class II division 1 malocclusion (15 males and 15 females) with overjet more than 6 mm but not more than 10mm.

Group three included 30 subjects has skeletal and dental class III malocclusion (15 males and 15 females) with 0 - –3mm overjet.

The sample composed of: 90 frontal photographs, 90 profile photographs and 180 Dental casts' photographs (90 maxillary dental arch, 90 mandibular dental arch).

In conclusion it was found that mean value of all linear measurement of maxillary dental arch and mandibular dental arches was higher in male than that of female in 1st, 2nd and 3rd Group. The most frequent maxillary dental arch form was the mid arch form in 1st, 2nd and 3rd Group, follow by the narrow then the wide arch form. The most frequent mandibular dental arch form was the mid arch form in 1st, 2nd and 3rd Group, follow by the narrow then the wide arch form in the 1st and 2nd group, while in the 3rd group its follow by the wide then narrow arch form.

The most frequent facial type is the Mesoprosopic, followed by the Leptoprosopic then the Euryprosopic face type in the 1st Group, while in the 2nd and 3rd Group the most frequent facial type is the Leptoprosopic, followed by the Mesoprosopic then the Euryprosopic face type. An association in the 1st Group was found between the mid arch form and the mesoprosopic facial type in maxillary dental arch of both gender and the mandibular dental arch in female, , while in the 2nd and 3rd Group no clear association was found between coordinate dental arch form and facial type.