Dental Arch Dimensions in Yemeni Sample Aged (10-15) years With Normal Occlusion And Class I With Anterior Crowding In Both Arches (Comparative Study)

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By

Nasr Hameed Abdullah Al-Kodimi

B.D.S

Supervised By

Ass. Prof. Dr.Fakhri A. Ali

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Abstract

Information concerning the arch dimensions in human populations is important in clinical orthodontics.

This study was conducted to asses the dental arch dimensions of Yemeni children aged (10-15) years. The investigation comprises clinical examination on (7630) primary and intermediate school pupils in Sana'a city. Only (400) pupils (200 females,200 males) out of the total were selected to fulfill the specifications of the study sample .The sample was divided in to two groups, mixed dentition group aged(10-12)years divided into normal occlusion group(50 females,50 males) and class I with anterior dental crowding group(50 females,50 males).Permanent group aged(13-15) was divided into normal occlusion group(50 females,50 males) and class I with anterior dental crowding group(50 females,50 males). Pairs of studying models for the upper and lower arches were constructed and evaluated by a special software for digitizing and analyzing the data. Thirteen linear distances were utilized, which represented the dental arch width, length, segmental and palatal measurements.

The results of the study have shown that:

❖ In the mixed dentition there was no significant difference in the majority of the measured dental arch widths, lengths, arch perimeter, and palatal depth in both normal occlusion and class I with anterior dental crowding in both males and females.

❖ By comparing all dimensions in the same sex, normal occlusion group reveal greater mean values for most of maxillary and mandibular arch dimension than class I with anterior dental crowding group in both mixed and permanent dentition.

❖ In permanent dentition, groups most of dental arch widths, and arch perimeter showed a significant difference between males and females, while no significant difference between females and males in arch lengths in both normal occlusion and class I with anterior dental crowding.

❖ Anterior and posterior palatal depths reveal no significant difference between females and males in both normal occlusion and class I with anterior dental crowding in mixed dentition, and in permanent dentition, while they reveal a significant difference in class I with anterior dental crowding in permanent dentition.