# Cranial Base Morphology in Different Skeletal Classes

## (A Cross-Sectional Lateral Cephalometric Study)

**A thesis submitted to the council of the College of Dentistry at the University of Baghdad, in partial fulfillment of the requirements for the degree of Master of Science in Orthodontics**


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# Abstract

It was stated in scientific literatures that the entire craniofacial complex is influenced by the growth of the cranial base structures. Nevertheless, many times this is not the case, and this point is subject to great controversy.

This study was performed to evaluate the possible differences in cranial base flexure between different skeletal classes for both genders and investigate any possible correlation between cranial base variables and other skeletal base variables.

The sample was collected according to specific criteria and consisted of 75 lateral cephalometric radiographs of Iraqi adults aged between 18-25 years (39 males, 36 females), collected from patients and undergraduate students in the orthodontic department of College of Dentistry-Baghdad University. The total sample was divided to three major categories depending on ANB angle and dental occlusion into class I control group (12 males, 13 females), class II (13 males, 12 females) and class III (14 males, 11 females).

All the radiographs were digitally traced and 7 skeletal base measurements (3 angular, 4 linear) and 12 cranial base measurements (4 angular, 4 linear, 4 area) were obtained. A software program (AutoCAD 2012) was used for analyzing the sample, descriptive and comparative statistics were used for data analysis utilizing a computerized statistical program (SPSS Statistics 20).

The results revealed that no significant difference in all the angular measurements of skeletal and cranial bases existed between genders; while all linear and area measurements were usually higher in males than females and there was no significant difference in all the skeletal and cranial bases angles existed between different skeletal classes in both genders meaning that there is no relationship between cranial base flexure and skeletal classes. The Jarabak ratio was found larger in the order of class I > class II > class III in both genders. The cranial base angles N-S-Ar, N-S-Ba and SN-FH were always correlated negatively with both the maxillary and mandibular prognathism angles (SNA & SNB) in all skeletal classes for both genders.

The anterior cranial base angle SN-FH appears to play more important role in the determination of antero-posterior position of the maxilla and mandible than the posterior cranial base angle SBa-FH in all skeletal classes for both genders and finally, gender difference has greater effect on linear and area parameters than the effect of skeletal class difference.