

A Thesis

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By

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A radiographic cross sectional investigation of 126 adults (65 males and 61 females) with different skeletal patterns was aimed to evaluate the spatial relationship of condyle to fossa, to representing a baseline data that might provide diagnostic information for the assessment of temporomandibular joint status in adult asymptomatic population.

The sample had undergone thorough clinical examination followed by cephalometric projection for the purpose of sample grouping. ANB angle was used to determine different antero-posterior skeletal variations into class I, II, and III skeletal jaw relationship, while jarabak ratio, sum of posterior angles, and gonial angle were used to determine different vertical skeletal patterns: anterior, posterior, and equalized growth direction. Tomographic imaging technique was applied to obtain 252 (right & left) temporomandibular joint views. Tomographic data were analyzed to determine condyle position for each subject by using the ratio (posterior joint space/ anterior joint space).

Since the data were categorical data and each number represented a specific position of the condyle (anterior, concentric or posterior), hence, chi-square test was used to calculate the frequency (percentage) of condyle position in each group.

In conclusion, the dominant condyle position in class I skeletal jaw relation was concentric, in class II was anterior and in class III was posterior; a significance difference *at probability* < 0.05 between each type of antero-posterior skeletal variation and condyle position was detected. In the vertical skeletal variation (anterior rotation) the dominant condyle positions were anterior and concentric *at probability* < 0.05, while no statistically significant difference in the posterior and no rotation groups, no certain condyle positions were observed at the same level. In general, there was a relation between gender (male & female) and side (left) of the entire sample and condyle position, while there was no relation in the right side of the whole sample at (P> 0.05). Finally there was no specific spatial relationship of the condyle to fossa in asymptomatic subjects.