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Differential growth of the female face in the anteroposterior dimension

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ABSTRACT

This study contrasts the growth rates of the craniomaxillary and mandibular dimensions.

Longitudinal data from lateral head cephalograms of 18 female subjects, between 3 and 18 years old, were used. All of the subjects had yearly cephalograms available and none had received orthodontic treatment. Four linear distances included anterior cranial base, maxillary length and mandibular length and four angular measurements included ANS-S-N, ANS-N-S, Gn-S-N and Gn-N-S.

The mandible lagged in size by 4 years relative to anterior cranial base length and by 2 years relative to maxillary length at 5 years of age. There was an incremental gradient of growth from S-N downward to Ar-Pog such that dimensions successively showed a greater relative amount of growth during the entire period of development. The proportional displacement of nasion and anterior nasal spine maintained a constant S-N-ANS angle. The increase in angle S-N-Gn was due to proportionally greater increase in mandibular length relative to anterior displacement of nasion. The different rates of dimensional increments from anterior cranial base to mandible result in differential growth affecting the spatial relationship of maxilla and mandible in the sagittal plane. Skeletal discrepancies in maxillomandibular relationships between 4 and 10 years of age is a normal transient developmental characteristic.

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KEY WORDS: Differential growth, Longitudinal growth, Anterior cranial base, Maxillary length, Mandibular length.