Cervical and craniocervical posture as predictors of craniofacial growth.

Solow B, **Siersbaek-Nielsen S**.

Institute of Orthodontics, Royal Dental College, Copenhagen, Denmark.

The present study aimed to determine whether growth changes in craniofacial structure could be predicted by variables expressing the postural relations of the head and the cervical column. The sample comprised 34 children, 16 girls and 18 boys. Cephalometric radiographs obtained in natural head position (mirror position) were taken on two occasions before orthodontic treatment. Mean age was 9.9 years at time 1 and 12.7 years at time 2. Selection of the sample was based on skeletal maturity at time 2 indicating peak activity in pubertal growth. Forty-one reference points and four fiducial points were digitized on each film. Individual growth changes in craniofacial structure were determined by computerized structural superimposition of the digitized sets of points. Correlation coefficients were calculated between 11 postural variables at the first observation and the subsequent growth rate in 36 structural variables. Uniform fields of low to moderate correlation coefficients significant at the 5%, 1%, and 0.1% levels (0.3 to 0.6) were found for eight structural variables, indicating that a small craniocervical angle and a backward-inclined upper cervical column at time 1 was associated with horizontal facial development characterized by reduced backward displacement of the temporomandibular joint (TMJ), large maxillary growth in length, increased facial prognathism, and larger than average true forward rotation of the mandible; whereas, a large craniocervical angle and an upright position of the upper cervical column at time 1 was associated with vertical facial development characterized by large backward displacement of the TMJ, reduced growth in length of the maxilla, reduced facial prognathism, and less than average true forward rotation of the mandible. The findings are in agreement with a theoretical model for the developmental interaction between head posture and facial structure.