Facial skeleton

Growth patterns of the human facial skeleton have been of great interest and importance for biological anthropologists, forensic scientists, craniofacial surgeons, and orthopedists. Nevertheless, growth trends of the facial skeleton in infancy and early childhood are still poorly known and clinical CT data have been insufficiently used for studying craniofacial ontogeny. The purpose of a study was to provide a comprehensive quantitative description of human midfacial ontogeny in infancy and early childhood, and to contribute to debates regarding the role of modularity vs. integration in shaping the human face.

The dataset includes 146 high resolution clinical CT datasets of males from the 2nd to 6th years of life and 101 dataset of infants (males) in the 1st year of life. Forty landmarks were collected from each 3D reconstructed skull, then 25 linear measurements describing the morphological features of the facial skeleton were calculated. The integration/modularity issue was addressed via comparison of intragroup correlation matrices at different ages.

Growth trends for all the measurements are presented in charts and tables of statistical parameters that can be used as normative data. The midfacial variables display a great diversity of growth patterns. The correlation structure of the measurements is different at different ages.

Variables commonly assigned to the same unit of the facial skeleton can exhibit rather different growth trends, but some measurements display seemingly coordinated patterns of growth change. The level of interindividual variation of most measurements is stable after the second half of the first year of life [1)].

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Evteev A, Anikin A, Satanin L. Midfacial growth patterns in males from newborn to 5 years old based on computed tomography. Am J Hum Biol. 2018 Apr 27:e23132. doi: 10.1002/ajhb.23132. [Epub ahead of print] PubMed PMID: 29702739.