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Variation of anatomical and centroid points in the human fetal skull

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ABSTRACT

To overcome the problem of variation of reference points in cephalometric analysis two methods have been used: 1) fixed relations between consistently recognizable anatomical points and 2) centers of gravity.

The linear distance between each point and every other point was calculated from their coordinates measured on radiographs of 60 fetuses (49–212 mm crown-rump length).

For each distance between every permutation of points the variance was calculated for the series of 60 fetuses. The sum of the variances for each individual point against all other points was added together and the mean variance for each point derived by dividing by the total number of points.

On the basis of mean variance the centroid of the total skull outline showed least variation and was therefore the most stable point measured. This was closely followed by the origin of the coordinate reference grid based on fixed relations theory. All the centroid points showed less variation than the anatomical points upon which the origin of the grid was based.

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