

Evaluation of the applicability of a North American cephalometric standard to Brazilian patients subjected to orthognathic surgery

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Abstract

Objectives: To study the applicability of a North American cephalometric standard to Brazilian patients subjected to orthognathic surgery by comparing the post-surgical/orthodontic treatment cephalometric tracings of 29 patients who had undergone surgery of the maxilla and mandible with the cephalometric standard used as guidance in planning the cases. **Methods:** The tracings were generated by the Dolphin Imaging 9.0 computer program from scanned lateral cephalograms in which 48 dental, osseous and tegumentary landmarks were defined. Thus, were obtained 26 linear and angular cephalometric measurements to be compared with normative values, considering sexual dimorphism and possible modifications to the treatment plan to meet the individual needs of each case, as well as any possible ethnic and racial differences. The sample data were compared with the standard using Student's t-test means and standard deviations. **Results:** The results showed that for males, the sample means were significantly different from the standard in five of the measurements, while for women, nine were statistically different. However, despite the similarity of the means of most measurements in both genders, the data showed marked individual variations. **Conclusions:** An analysis of the results suggests that the North American cephalometric standard is applicable as a reference for planning orthodontic-surgical cases of Brazilian patients, provided that consideration is given to variations in the individual needs of each patient.

Keywords: Orthognathic surgery. Facial analysis. Cephalometric standard.

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Editor's summary

Authors from many regions of the world have established cephalometric standards for hard and soft tissue normality for their specific populations with the purpose of orienting treatment plans according to the characteristics of each ethnic-racial group. This study compared the post-treatment cephalometric results of patients who had undergone orthognathic surgery in conformity to the normative values¹ used to inform the treatment plans. The goal was to check whether or not the use of such standard would be feasible for this group of patients.

In both genders, a statistically significant difference was found for overbite, exposure of upper central incisor and lower lip thickness. In these cases, the sample data values were smaller than the standard. In men, two other measurements differed from the standard, i.e., the angle formed by the lower central incisor and the mandibular occlusal plane, and the horizontal distance between points A' and B' (anteroposterior maxillomandibular relationship of the soft tissues). In these cases, sample patient values were significantly higher than the standard. Moreover, for women, there were differences in the angle formed by the upper central incisor and maxillary occlusal plane and the interlabial space (which were smaller than the standard), whereas upper lip height, lower lip height, height of lower facial third and total facial height were higher than the standard. It is noteworthy, however, that the standards should be considered as planning, not treatment guidelines, so as to ensure the fulfillment of individual case needs.

Questions to the authors

1) What are the main cephalometric differences between North Americans and Brazilians in terms of normal/acceptable occlusion?

In fact, we found differences in almost all cephalometric landmarks and magnitudes of soft tissue profile, but the most striking finding was that the Americans have longer faces and more protrusive chins.

2) What can explain these differences?

This difference can be attributed to the fact that North Americans are basically Anglo-Saxon and Brazilians, mostly Mediterranean.

3) Were you surprised by these findings?

No, the results did not surprise us because we had already observed that with the measures proposed by Arnett, Brazilian patients tended to show stronger and more protrusive chins.

REFERENCES

1. Arnett GW, Jelic JS, Kim J, Cummings DR, Beress A, Worley CM Jr, et al. Soft tissue cephalometric analysis: diagnostic and treatment planning of dentofacial deformity. *Am J Orthod Dentofacial Orthop.* 1999 Sep;116(3):239-53.

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