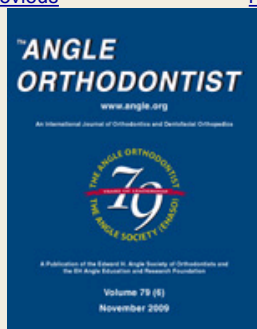


Volume 79, Issue 5  
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Original Articles

## Facial Morphologies of an Adult Egyptian Population and an Adult Houstonian White Population Compared Using 3D Imaging

Dennis Craig Seager<sup>a</sup>, Chung How Kau<sup>b</sup>, Jeryl D. English<sup>c</sup>, Wael Tawfik<sup>d</sup>, Harry I. Bussa<sup>e</sup>, and Abou El Yazeed M. Ahmed<sup>f</sup>

### Abstract

**Objective:** To compare the facial morphologies of an adult Egyptian population with those of a Houstonian white population.

**Materials and Methods:** The three-dimensional (3D) images were acquired via a commercially available stereophotogrammetric camera capture system. The 3dMDface System photographed 186 subjects from two population groups (Egypt and Houston). All of the participants from both population groups were between 18 and 30 years of age and had no apparent facial anomalies. All facial images were overlaid and superimposed, and a complex mathematical algorithm was performed to generate a composite facial average (one male and one female) for each subgroup (EGY-M: Egyptian male subjects; EGY-F: Egyptian female subjects; HOU-M: Houstonian male subjects; and HOU-F: Houstonian female subjects). The computer-generated facial averages were superimposed based on a previously validated superimposition method, and the facial differences were evaluated and quantified.

**Results:** Distinct facial differences were evident between the subgroups evaluated, involving various regions of the face including the slant of the forehead, and the nasal, malar, and labial regions. Overall, the mean facial differences between the Egyptian and Houstonian female subjects were  $1.33 \pm 0.93$  mm, while the differences in Egyptian and Houstonian male subjects were  $2.32 \pm 2.23$  mm. The range of differences for the female population pairings and the male population pairings were 14.34 mm and 13.71 mm, respectively.

**Conclusions:** The average adult Egyptian and white Houstonian face possess distinct differences. Different populations and ethnicities have different facial features and averages.

**Keywords:** [Imaging](#), [Three-dimensional](#), [Anthropometry](#), [Face](#), [Orthodontics](#)

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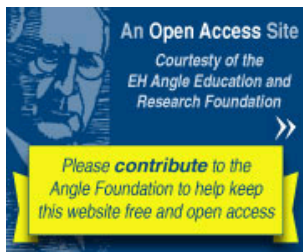
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