## H21 Population Affinities of "Hispanic" Crania: Implications for Forensic Identification

*Dennis E. Slice, PhD*, Wake Forest University School of Medicine, Department of Biomedical Engineering, Medical Center Boulevard, Winston-Salem, NC 27157-1022; Ann H. Ross, PhD, North Carolina State University, Department of Sociology and Anthropology, Campus Box 8107, Raleigh, NC 27695-8107*

After attending this presentation, attendees will understand the extent of the morphological diversity of individuals classified as Hispanics and the potential of geometric morphometric methods for quantifying that diversity and incorporating it into the assessment of unidentified human remains.

This presentation will impact the forensic community and/or humanity by illustrating the importance of regional diversity in the cranial morphology of persons identified as Hispanic in the United States using the relatively new methods of geometric morphometrics.

The term "Hispanic" is used in the U.S. to identify persons of Spanish speaking countries and their descendants. Such classification, however, fails to recognize the varied genetic background of the subsumed populations resulting from the diverse ethnohistories and migration patterns of their native regions. In the forensic setting, the use of such a broad classification amounts to the disregard for potential sources of variation that could otherwise lead to a much more precise characterization of unidentified human remains.

In this report, we present results of research designed to document and begin to address this problem. We use geometric morphometric methods to assess the craniometric affinities of a sample of modern Mexicans using the coordinates of twenty-three standard craniometric landmarks. The Mexican sample (n=31) was compared to samples of an indigenous pre-contact population (Ayalan) from Ecuador (n=13), modern Cubans (n=23), persons of African descent as represented in the Terry collection (n=18), modern Spanish (n=30), and pre-contact Cubans (n=6). Previous analysis had shown the modern Cubans were most similar to the Africans and only slightly less similar to the Spanish, but they were quite distinct from the pre-contact Cubans. This suggests a nearly complete replacement of the indigenous Cuban populations by an admixture of Spanish and Africans with a slightly higher African component. We speculated that other Hispanic populations, such as Mexicans, would show different results with a greater affinity toward indigenous populations and a much reduced similarity to persons of African descent.

A nonparametric multivariate analysis of variance comparing the sum-of-squares accounted for by group membership to that of 999 random permutations of group membership showed differences between all pairs of samples to be highly significant, with p values at or near the minimum (p=0.001) possible for the test (p<= 0.001 - 0.002). A cluster analysis of population means based on Mahalanobis distances supported the earlier speculation of similarities between the recent Mexican sample and indigenous populations and a lack of similarity with the African sample. The Mexicans and Ecuadorians form a cluster distinct from the modern Cubans, Spanish, and Terry samples, and all are quite distinct from the pre-contact Cubans.

These results support the view that people now broadly grouped together as "Hispanics" represent a morphologically diverse assemblage of populations characterized by their individually-distinct genetic histories. The modern Mexican population, while maintaining its own morphological uniqueness, appears to manifest a considerable degree of similarity to native populations and a substantial distinction from Europeans and Africans. This argues for a strong indigenous component in Mexican morphology with little of the admixture with Old World populations that characterize the modern Cubans. Incorporating such information into standard forensic practice could produce a much more informative assessment of unidentified human remains.

**Forensic Anthropology, Hispanic Populations, Geometric Morphometrics**

 ** Presenting Author*