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CRANIOMETRIC ANCESTRY ANALYSIS OF A MODERN PERUVIAN SAMPLE: ASSESSING ANCESTRY PROPORTIONS & THE POTENTIAL FOR PERUVIAN SUBGROUPS IN ANCESTRY ESTIMATION TECHNIQUES

Lucia Elgerud Norström

Abstract

Ancestry is routinely estimated in the United States as part of the analysis that makes up the biological profile, commonly performed using the software program Fordisc. The reference group composition in Fordisc is imperative for the accuracy of the ancestry estimation, due to the nature of the employed Disciminant Function Analysis. Ancestry estimations are furthermore context specific, and the incorporated reference groups need to represent locally understood socio-ethnic categories or "social race". There is currently a large influx of South American immigrants in North America, which ancestry estimation methods need to accommodate for in terms of reference group composition. Studies are currently being conducted to assess craniometric and genetic differences between varying South American countries, for the purpose of adding additional variation to the existing Hispanic reference category in Fordisc. Few studies have, however, looked at foreign reference group within-country structure or the nature of socio-cultural categories in relation to craniometric data outside of the United States.

The present study was conducted in order to assess ancestry proportions in a modern Peruvian sample, and potential craniometric subgroupings that may or may not correspond with socio-cultural categories in Peru. Socio-ethnic groupings in Peru include but are not limited to: Amerindian (Native Peruvian), white (of European descent), mestizo and cholo (of Amerindian and European admixture). These are categories that connote a genetic component, which has the potential of being reflected in craniometric data unless the categories are primarily socially constructed. The material used for the present analysis consisted of 51 laser scans of male Peruvian crania from 1986. I collected standard craniometric measurements from the scans, and subsequently compared them to data from reference "proxy" groups, assumed to mimic Peruvian ancestral categories. All of the proxy groups chosen for the study were archaeological, and consisted of two Native Peruvian samples, a 16th century Spanish sample and a West African sample from Mali. The composition of the modern Peruvian sample was assessed in comparison to the ancestral reference groups, and substructure and ancestry proportions within the sample were assessed using the reference groups as proxies.

The results of the analysis indicate that there are craniometric differences within the modern Peruvian sample, and that these differences are potentially related to Amerindian ancestry, European ancestry and Amerindian/European admixed ancestry. Further studies are needed to determine the connection between the present findings and self-reported ethnicity within the Peruvian sample. Further studies are also needed to assess craniometric subgroup structure in larger samples from a wider geographical area within Peru.

This study suggests that within-group substructure should be analyzed and incorporated when constructing ancestry estimation reference groups, and that South American countries should not be treated as homogeneous entities in ancestry estimations techniques.