

# **A TEST OF THE POSTCRANIAL DISCRIMINANT FUNCTIONS OF FORDISC 2.0 USING THE HAMANN-TODD COLLECTION**

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ABSTRACT of a Master's Thesis in Human Biology at the University of Indianapolis  
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FORDISC 2.0 is a computer program that can assist in the identification of unknown skeletonized individuals. Developed by Drs. Steven Ousley and Richard Jantz at the University of Tennessee, this program is capable of performing two primary functions. Using standard cranial and postcranial measurements, it can classify unknown individuals into ancestry and sex groups by using multiple discriminant function analysis, and it can also derive stature estimations by least-squares regression methods. Most of the data used in these analyses is taken from a large forensic database, the University of Tennessee Forensic Data Bank, which is comprised of individuals from around the country that are of known race and sex who were born after 1900. The current study was conducted in order to determine the accuracy of the postcranial discriminant functions in FORDISC 2.0 by testing them with 100 individuals from a well-documented population, the Hamann-Todd Collection located at the Cleveland Museum of Natural History. This collection was selected because it represents a reasonably modern population and because none of the specimens had been included in FORDISC 2.0 for the construction of its postcranial discriminant functions. From each ancestry/sex group (African female, African male, European female, European male), targeted sample groups of 25 individuals were randomly selected from the Hamann-Todd Collection based on their completeness and the absence of severe pathological lesions. FORDISC 2.0 was able to correctly identify both ancestry and sex for 81% of the sample. Of the 19 individuals that were incorrectly classified, ancestry was misclassified 14 times, sex two times, and both ancestry and sex were misclassified for three specimens. In particular, the program tended to misclassify Africans as Europeans. Stature functions were also tested on each individual. The analysis shows that the documented statures fell within the 95% prediction intervals 97% of the time. Calculated statures tended to fall slightly above the recorded statures, with an average error of just over an inch. All subgroups performed equally well. FORDISC 2.0 appears to be a reliable method to accompany existing morphological techniques for predicting ancestry, sex, and stature using postcrania from unknown individuals born around the turn of the 20th century.

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