

Computational methods for addressing age and sex sample bias: a south-central European Neandertal test case. J.C.M AHERN. Dakota Science Center, Grand Forks, ND 58206-5023 and Department of Anthropology, University of North Dakota, Grand Forks, ND 58202.

It is widely believed that the evidence for Neandertal ancestry is best in Central Europe. The late Neandertal sample from Vindija (Croatia) has been described as transitional between the earlier Central European Neandertals from Krapina (Croatia) and modern humans. Vindija's transitional status is based to a large extent on frontal bone morphology, which varies significantly with age and sex. Consequently, the morphological differences indicating this transition may be the result of different age or sex compositions between the samples. Using new computational methods, this study tests the hypothesis that the metric differences between the Krapina and Vindija supraorbital samples are due to sampling bias.

Among a sample of recent humans, measurements and characters of the frontal bone were analyzed for covariation with age and sex. For these variables, the shapes of the distributions of the Krapina and Vindija samples were examined in order to determine the relative degree of age-related sample bias. Furthermore, all possible paired ratios were calculated for the modern human sample and the two Neandertal samples. The confidence limits of the modern human intragroup paired ratios were used to determine which paired Neandertal specimens could be categorized into different age or sex groups.

The results of this analysis demonstrate that young adults are overrepresented among the Krapina frontals, while the Vindija sample has a more equal distribution of young and old individuals. Females are also overrepresented in the Krapina sample. If the Krapina and Vindija samples were drawn from the same population, the overrepresentation of young adults and females at Krapina should make the Krapina remains appear artificially more modern-like. However, the Vindija remains appear intermediate between Krapina and modern humans. Thus, age and sex related sample bias cannot explain the morphological differences between the earlier Neandertals from Krapina and the late Neandertals from Vindija.