



Physical Anthropology Section – 2004

H13 Variation in Size and Dimorphism in Eastern European Femora

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After attending this presentation, attendees will know that there are variations in size and dimorphism of the femur among local Eastern European populations, and by extension, other postcranial bones, that requires population specific skeletal information upon which to base identification criteria.

This presentation will impact the forensic community and/or humanity by encouraging forensic anthropologists working in human rights in foreign countries to develop criteria specific to the populations on which they work.

The conflict in the former Yugoslavia has resulted in hundreds of mass graves containing thousand of individuals. There are still insufficient data from documented skeletons from the region to allow local standards to be developed. Furthermore, there is evidence of variability among ethnicities in the area. Metric data obtained from the femur of Kosovars and Croats provides the first opportunity to examine their relationship to Croats and Bosnians. Implications of variation for sexing and stature estimation will be examined.

Only three variables were taken from the Kosovo femora: Maximum length, bicondylar length and femur head diameter. Only maximum length and head diameter were used. The Kosovo sample consists of 449 males and 73 females. Antemortem stature was also available for about 90 Kosovars and 86 Croats. Femora from 150 American white males and 89 white females were available for comparison.

Both femur length and femur head diameter exhibit significant variation among samples. Variation among samples remains significant when American whites are excluded, so even different ethnicities in the same general region differ from one another. Bosnians, among the Eastern European groups, have the longest femora with the largest heads. Kosovars have short femora with large heads, and Croats are intermediate. American whites exceed all groups in femur length, but have the smallest head diameter. If American white femur head diameter is used as a sexing criterion and applied to Kosovars, over one quarter of females are classified as males.

Stature formulae from Trotter and Gleser (WWII reference sample), Ross and Konigisberg (Bosnian/Croatian reference sample), Sarajlic (Bosnian reference sample) and the Forensic Data Bank (recent American White reference sample) were used to estimate stature of both Kosovars and Croats for whom antemortem stature was available. All three formulae underestimated the Eastern European sample, Trotter and Gleser the most, the Forensic Data Bank the least. The Kosovo and Croat antemortem statures are estimates, mainly from family members. Like Americans, Eastern Europeans appear to overestimate stature, resulting in underestimates when using regression equations derived from measured stature.

These results show the importance of identification criteria from the populations to which they are being applied. American identification criteria cannot be exported to Eastern Europe, and within Eastern Europe, criteria for different ethnicities are desirable.

Postcranial, Sexing Criteria, Stature Estimation