H17 Can We Estimate Stature From the Scapula? A Test Considering Sex and Ancestry

Rachel M. Burke, MA, 10024 Northeast 120th Sreet #D3, Kirkland, WA*

After attending this presentation, attendees will better understand why multiple techniques for estimating stature are important, what measurements of the scapula are potentially useful for estimating stature, and how to use different regression formula to estimate stature based on scapular measurements.

This presentation will impact the forensic science community by providing a new method for estimating stature based on measurements of the scapula in order to create a more thorough biological profile.

The biological profile is one of the most important things that forensic anthropologists accomplish in their work. This includes the determination of age, race, sex, and stature. These four components of the biological profile aid in the identification of an individual in the forensic context. Since the beginnings of the field of physical anthropology, osteologists and anatomists have studied human remains in order to provide new and innovative ways of building the biological profile.

Two published studies have attempted to estimate stature from measurements of the scapula. Campobasso et al. (1998) found that certain measurements of the scapula were highly accurate in estimating the stature of males and females from an Italian population. Shulin and Fangwu (1982) concluded that other measurements of the skeleton were more useful in estimating stature than the maximum scapular breadth for a Chinese population.

The current research expands upon both of these previous studies using an American population collected from the Hamann-Todd Osteological Collection at the Cleveland Museum of Natural History. In so doing, this researcher hypothesized that there was a significant relationship between one or more measurements of the scapula and living stature. Additionally, significant measurements were submitted for multiple regression analysis in order to create regression formulae useful in estimating stature.

After taking eleven measurements of the scapula, these variables were regressed against the stature measurements (N=223) provided in the Hamann-Todd Human Collection Database. The results show that several variables including the length of the scapular spine, the maximum acromion-coracoid distance, the length of the axial border, the length of the coracoid, and the maximum scapular breadth significantly contribute to stature. Additionally, race also significantly contributes to stature. Regression formulae were calculated for populations when race is both known and unknown. After applying each of these formulae to a smaller test sample, results show that, unlike the findings of Campobasso et al. (1998), stature could be predicted for all individuals with an accuracy of 27%, for blacks with an accuracy of 50%, and for whites with an accuracy of 36%.

Stature, Scapula, Biological Profile

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