H46 Estimating Advanced Adult Age-at-Death in the Pelvis: A Comparison of Techniques on Known-Age Samples From Iberia

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The goal of this presentation is to demonstrate the difficulty of estimating age in elderly individuals by comparing the performances of four age-estimation methods on skeletal samples of advanced age. This study examines factors undermining successful age estimation, and investigates whether new techniques may have the potential to advance the study of aging in elderly individuals.

This presentation will impact the forensic community by exploring the utility of various aging techniques to the forensic anthropological community - specifically, by testing and comparing traditional aging techniques with a new Bayesian method of age estimation that may prove valuable to the forensic anthropologist. The presentation focuses on the as-yet-unsolved problem of estimating advanced adult age. Thus, it will provoke discussion on whether accurate age estimates for the elderly are a worthwhile goal or a biological impossibility, and stimulate future research on the forensic applicability of both new and traditional methods of age-at-death estimation.

An accurate adult age-at-death estimate is the goal of much forensic anthropological research; it is a crucial component of the biological profile that facilitates skeletal individuation and victim identification. However, accurate age estimates into the decade of the 60's and beyond are rarely achieved with current methods. Historically, morphological age-at-death estimation techniques have focused on the articular surfaces of the bony pelvis. The Suchey-Brooks pubic symphysis method, and the Lovejoy et al. and Buckberry and Chamberlain auricular surface methods, have been tested on many populations worldwide. However, even these widely-used techniques can result in estimation errors and broad age ranges that prove forensically uninformative. Because of the irregularity of skeletal degenerative change, such errors are often exaggerated in individuals of advanced age.

These three methods are tested on modern Iberian skeletal samples of known age from the Universitat Autònoma de Barcelona (N=34) and the Universidad de Valladolid (N=80) which include an abundance of elderly individuals (>60 years) and therefore highlight the hazards of applying traditional age estimation techniques to individuals of advanced age. The Rissech et al. method, a Bayesian age estimation technique based on the acetabulum, is also tested. When tested on these samples, the three traditional methods perform with similar but high degrees of inaccuracy and bias, sometimes overestimating the ages of young adults by up to 20 years and underestimating the ages of older adults by up to 35 years. In estimating the ages of elderly Iberian individuals, the three methods perform equally poorly. In contrast, the Rissech et al. method estimates male age with significantly lower inaccuracy and bias than do the three traditional techniques. In addition, its population-specific point age estimates and narrow confidence intervals suggest its utility to the forensic anthropologist.

Differences in ancestry, activity levels, and rates of skeletal degeneration continue to make skeletal estimation of advanced adult age problematic. However, accurate age estimates and biological profiles, even for the elderly, remain a goal for forensic anthropologists. These results suggest that Bayesian techniques like the Rissech et al. method may have the potential to improve age estimation among elderly individuals.

Age-at-Death, Pelvis, Iberia

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