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Estimation of sex and stature using anthropometry of the upper extremity in an Australian population.

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Abstract

Stature and a further 8 anthropometric dimensions were recorded from the arms and hands of a sample of 96 staff and students from the Australian National University and The University of Newcastle, Australia. These dimensions were used to create simple and multiple logistic regression models for sex estimation and simple and multiple linear regression equations for stature estimation of a contemporary Australian population. Overall sex classification accuracies using the models created were comparable to similar studies. The stature estimation models achieved standard errors of estimates (SEE) which were comparable to and in many cases lower than those achieved in similar research. Generic, non sex-specific models achieved similar SEEs and R^2 values to the sex-specific models indicating stature may be accurately estimated when sex is unknown.

Keywords: Stature Estimation, Sex Estimation, Anthropometry, Regression Analysis, Forensic Anthropology, Population Data.

1. Introduction

The identification of a deceased individual is a key aim in forensic investigations. The construction of a biological profile including estimations of sex, age, ancestry and stature can assist in personal identification by narrowing the pool of potentially matching identities from which a positive identification can be made using DNA or dental records (Baraybar 2008, Franklin et al. 2012). In cases of mass trauma, bushfires or other scenarios where disaster victim identification is necessitated,