OMICSGroup
C o n f e r e n c e s
Accelerating Scientific Discovery

3rd International Conference on
Forensic Research and Technology

October 06-08, 2014   Hilton San Antonio Airport, USA

Investigation of the pubic symphyseal landscape: Age at death estimation for skeletal remains using 3D topographical data and geographical information systems

Jessica I Bolton[1], Sophie Beckett[1], Roland Wessling[1] and **Jelena Bekvalac[2]**
[1]Cranfield University, UK
[2]Museum of London, UK

Current methods for age-at-death determination from the pubic symphysis utilise surface descriptions and standardised archetype pictures and casts to allocate an age category. Such methods have been shown to have a good level of accuracy and ease of use but are, inevitably, subjective methods of assessment of the surface. The increasing availability and awareness of 3D data in the analysis of human remains, is driving research into the development of quantitative methods of age-at-death estimation that utilise 3D data. The results presented demonstrate the ability to quantify 3D topographical scan data of the pubic symphysis using Geographical Information Systems (GIS). The pelves of 54 males of known age-at-death and sex (St Bride's Church Crypt Assemblage, London, UK) were scanned using a hand-held laser topography scanner and the scans were explored as 'geographical landscapes' within ArcGIS (ESRI software). The relationship between age-at-death and the parameters; mean slope and mean aspect were investigated. In general, values of mean slope and mean aspect, across the pubic symphysis surface, decreased with increasing age-at-death. These correlations were shown to be significant for the study sample ($p < 0.01$) and reflect the known changes that occur in the pubic symphysis surface with age. This study represents a preliminary investigation and a springboard for further research; however the potential of this approach is clearly demonstrated for topographical data. The approach can also be applied using computed tomography (CT) data, which is the current area of expansion considering the increasing use of CT in forensics.

Biography

Jessica I Bolton completed her MSc in Forensic Anthropology and Archaeology in 2013 at Cranfield University, UK. This study comes from her MSc thesis (Bolton, J. I., 2013) which is currently being submitted for publication. She currently works for Cranfield Forensic Institute performing 3D analysis in computed tomography and 3D laser scanning on human skeletal remains. Her research in Geographical Information Systems, age estimation and 3D techniques continues as she anticipates her PhD in this area.

J.I.Bolton7@gmail.co.uk

J Forensic Res 2014
ISSN: 2157-7145, JFR an open access journal

Forensic Research-2014
October 06-08, 2014

Volume 5, Issue 6

Page 104