KÖRPER & TOD
Cluster 3 des DAI

DEUTSCHES
ARCHÄOLOGISCHES INSTITUT

Cluster 3 „Körper und Tod. Konzepte – Medien – Praktiken“

Abendvorträge 2023–24
Evening Lectures 2023–24

13. Februar 2024 – 18 Uhr

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Effects of cremation on human bones: histomorphometric method for age-at-death estimation

Age-at-death estimation of cremated individuals remains a demanding task, due to shrinkage, warping and intense fragmentation of the burnt bones. In order to overcome this obstacle, researchers attempt age estimation through the study of bone microstructure. Up to date, histomorphological and histomorphometric methods can estimate age-at-death of cremated individuals with standard estimation error of >10 years. We present, a new histomorphometric age-at-death estimation method for cremated individuals based on an osteon population density (OPD) regression equation. The method was generated on modern individuals of know age and sex resulting on standard estimation error of ±3 years. Based on the efficient results we proceeded to the adaptation and adjustment of this method for cremated individuals. Through experimental cremations under controlled conditions, we established the path of OPD transformation rendering possible the adjustment of the values to their original state. Preliminary results indicate that this modification optimized the methodology providing more accurate age-at-death estimations on cremated individuals. In parallel, we present the taphonomical alterations caused by high temperatures to bone microstructure after performing an open field experimental cremation using modern pigs. In this experiment we recorded the histomorphological transformations according to the pyre temperature and the environmental conditions (i.e., windy weather). Our work aims to standardize and improve the current methodologies for the study of cremated human skeletal remains.

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