aim at integrating gene expression or functional networks with phenotypic covariance data.
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Cranial morphology of the human skeletal remains from Lapa do Santo, Lagoa Santa, Brazil: Implications for the peopling of the New World

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The karstic region of Lagoa Santa (eastern central Brazil) has been highly important for discussions about the tempo and mode of human dispersal in the Americas, owing to the high density of late-Pleistocene/early-Holocene sites and hundreds of human skeletons recovered from the local rockshelters. Lapa do Santo rockshelter, excavated during the past decade, represents to date one of the largest collections of early Holocene human remains recovered from controlled excavations in the region. Here we analyze the morphological affinities of Lapa do Santo individuals with other early series from Lagoa Santa and Colombia, contextualizing them within the modern human cranial variation across the planet. Our analyses are based on complementary multivariate approaches to describe cranial shape, aiming to characterize the within-group variance and the between-group morphological affinities of the series included in the analyses. Our results indicate that 1) Lapa do Santo and other Lagoa Santa individuals do not present higher levels of within-group variation than modern human groups, supporting the idea that they represent one single biological population despite the ~3,000 years of occupation span in the region; and 2) the early South American groups, Lapa do Santo included, share high morphological affinities among themselves and with Australo-Melasian and Easter Island groups. Taken together, these results suggest an increase of biological diversity in the continent during the Holocene, possibly associated with the influx of new extra-continental diversity after its initial settlement by groups showing Paleoamerican cranial morphology.
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The biocultural context of dental modification in prehistoric Southeast Asia

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This research examines intentional dental modifications by means of ablation and filing from archaeological sites throughout Southeast Asia. Until recently, cases of intentional filing were undocumented throughout prehistoric Southeast Asia and intentional ablation has been limited to Neolithic and Iron Age sites with only four tentative cases of intentional ablation in the Bronze Age. The increasing number of samples from newly documented sites in Cambodia, and previously documented evidence from other parts of Southeast Asia, such as Thailand and Vietnam, allows the opportunity to systematically examine ablation patterns from across the region and around the world. Worldwide ethnographic studies indicate the technique of filing differs around the world, while ablation methods are similar. Biological factors such as age and sex are examined, along with migratory and diet patterns, to evaluate the association of these factors with dental modification. Methods of extracting and filing the teeth, and the biological impact on subsequent dental health are also explored. Pathology related to alveolar bone or adjacent teeth is quite low, and it appears dental modification did not negatively impact dental health. Similar patterns of ablation were found between the Neolithic Thai site of Khok Phanom Di and late Iron Age Cambodian sites Phum Snay and Phum Sophy, suggesting possible links between Thailand and Cambodia. Though, unique patterns have been identified and are discussed, including exclusive filing patterns for Cambodia and Thailand. This research allows improved opportunities for understanding the biological impact and biocultural significance of intentional dental modification throughout prehistoric Southeast Asia.
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Artificial cranial modification of human remains from two archeological sites in Xinjiang, China

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The practice of intentional cranial deformation has a long time depth worldwide. Although it has been documented in some archaeological site reports in China, this practice has not been systematically studied. This paper explores artificial cranial deformation from two archaeological sites in Xinjiang, China.

Jilintai cemetery (2500 – 2000BP) is located in Yili region, northwestern Xinjiang, and Yingpan cemetery (2000 – 1500BP) is located in Yuli county, northeastern Xinjiang. A total of 253 crania (202 from Jilintai and 51 from Yingpan) were examined in this study. Crania were measured according to the Standards Book, and 11 angles and 6 indices were calculated. Statistical analyses include discriminant function analysis and the one-way ANOVA test.

The results show that 23 crania (female=10, male=13) were modified in Jilintai sample. In contrast at Yingpan 22 crania (female=15, male=7) were deformed. The inter-population comparison shows that all crania from both sites exhibited circumferential modification, indicating a similar cultural tradition. The significant differences between modified and unmodified crania were on measurements of cranial length and breadth, and angles of the vault, while there are no significant differences in facial morphology. The intra-population comparison suggests that generally females display more pronounced deformation than males. In addition, individuals with deformed crania possess more prestigious burial goods, especially females, than those with normal cranial morphology. This may suggest that individuals with deformed crania enjoyed higher social status in their community.

Preliminary investigations of habitual stress on femora from two economically different archaeological populations in China

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This study aims to examine skeletal indication of potential habitual stress on femora in two economically different ancient populations from northwestern China: Liushui (LS) cemetery (2950±50BP) from southwestern Xinjiang and Neiyangyuan (NYY) cemetery (2500BP) from Shanxi province. Based on archaeological contexts and other lines of evidence, the former is a nomadic population with similar cultural appearance to the Scythian culture from Eurasiathe latter is suggested to be sedentary agriculturalists.

Femora of 188 individuals (LS=99; NYY= 89) were visually examined for presence/absence and severity of markers such as Poirier's facet, Allen's fossa, linea aspera expression, distal femoral osteoarthritis, and size of femoral diaphysis. The frequencies of Poirier's facet, Allen's fossa and enthesophytes along the linea aspera in LS were shown to be significantly higher than in NYY. In addition, LS males displayed significantly higher frequencies of Poirier's facet and Allen's fossa than LS females; however, there was no significant sex-related difference in NYY.

The distinct robusticity patterns of muscle attachments in LS suggests that horse-riding was the habitual activity causing the change, which is consistent with the nomadic lifestyle of this particular skeletal population. When comparing LS with NYY, this study demonstrates that different habitual activities took place in these nomadic and sedentary agricultural populations respectively, which can result in distinctive and observable skeletal changes.
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Testing stature equations on a medieval Upper Nubian skeletal sample

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Stature is a component of the biological profile along with age, sex, and ancestry. In bioarchaeological contexts, changes in stature or body proportions over time can indicate trends in