

ABSTRACTS

An anthropological sample with uniquely detailed and lifelong documentation of the individuals' occupational activities, showed clear differences between heavy manual workers (exclusively presenting a power grip enthesal pattern) and precision workers (with a precision grasping pattern). The recent application of our method on Neanderthals reported that their enthesal patterns are directly linked to manual behaviors which reflect on the most recent and reliable archaeological evidence. Furthermore, our presentation discusses new and supportive evidence for our methodology, relying on our latest histological, geometric morphometric, and experimental research.

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An analysis of the trabecular morphology of the *Homo naledi* talus, and its inferred functional implications

COLIN P. KASL¹, ANNA J. RAGNI^{2,6} and WILLIAM E.H. HARCOURT-SMITH^{3,4,5,6}

¹Department of Anthropology, New York University, ²Vertebrate Paleontology, Richard Gilder Graduate School, American Museum of Natural History, New York, ³Department of Anthropology, Lehman College, 250 Bedford Park Blvd. W., Bronx, New York., ⁴Department of Anthropology, CUNY, Graduate Center, New York, ⁵Division of Paleontology, American Museum of Natural History, New York, ⁶New York Consortium of Evolutionary Anthropology

The *Homo naledi* foot has previously been described as relatively modern in external morphology, with an adducted hallux, rigid midfoot, elongated tarsus, and a talus falling just within the range of modern human shape variation. However, the proximal pedal phalanges are markedly curved, and there is a reduced or possibly absent medial longitudinal arch. Given the mosaic nature of the foot, a better understanding of its precise functional affinities is important. Here we focus on internal trabecular structure, which has long been considered to reflect loading regimes during locomotion. Previous studies have found important differences in talar trabecular morphology between extant apes, modern humans and fossil hominins. This study assesses the trabecular morphology of four *H. naledi* tali: UW101-148/149, UW101-520, UW101-1215, and UW101-1417. Specimens were microCT scanned (<40 microns), separated into nine spherical regions of interest directly plantar to the trochlear surface, and processed to analyze standard trabecular parameters, including thickness (Tb.Th) and number (Tb.N), bone volume/trabecular volume (BV/TV), and degree of anisotropy (DA). Results show that Tb.Th and BV/TV of *H. naledi* are similar to values for extant apes and other fossil hominins, and

higher than in modern humans. The degree of anisotropy follows a similar pattern of anatomical distribution to modern humans, with highly anisotropic trabeculae on the lateral side of the trochlea. We conclude that the *Homo naledi* upper ankle joint was subjected to predominantly modern human-like loading regimes, though the more ape-like Tb.Th and BV/TV values indicate that these were not exclusively modern human-like.

Predicting skull shape from admixture history in a multigenerational macaque cross sample

DAVID C. KATZ^{1,2}, LAURA T. BUCK², JAY DEVINE¹, REBECCA R. ACKERMANN^{3,4}, BENEDIKT HALLGRIMSSON¹, LESLEA J. HLUSKO⁵, SREETHARAN KANTHASWAMY⁶ and TIMOTHY D. WEAVER²

¹Cell Biology & Anatomy, University of Calgary, ²Department of Anthropology, University of California, Davis, ³Department of Archaeology, University of Cape Town, ⁴Human Evolution Research Institute, University of Cape Town, ⁵Integrative Biology, University of California, Berkeley, ⁶School of Mathematical and Natural Sciences, Arizona State University

The extent to which skeletal morphology reflects admixture history is an important issue for studies that seek to infer ancient admixture when genetic data is not available. Most admixture studies focus on the earliest generations of crosses. Yet, often enough in nature, some introgressed genetic material persists in a parental population over many generations of reproduction. In the case of interbreeding among Late Pleistocene archaic humans, the evidence supports such a scenario.

Here, we quantify the admixture signal preserved in the skulls of admixed rhesus macaques (*Macaca mulatta*), a close relative of humans. We use a multigenerational sample of Chinese and Indian *M. mulatta* subspecies and approximately 100 of their admixed progeny. The sample is drawn from a colony maintained at the California National Primate Research Center, and includes many animals with only a small genetic contribution (~ 10%) from one subspecies line. We tested the extent to which admixture proportion predicts shape in the cranium as a whole and for masticatory morphology. Percentage Chinese ancestry is a good predictor of shape ($R^2=0.4$, $p=0.002$) along the primary axis of variation (first principal component, 56% of variation). The ability to predict shape from ancestry is much weaker for masticatory morphology ($R^2=0.115$, $p=0.006$; PC1 accounts for 28.4% of variation). We discuss the implications of our findings for efforts to infer

admixture from skeletal data, and provide further details about the macaque sample, which will become available to the scientific community over the next several years.

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Managing an undergraduate research lab at a teaching-focused university

LAURIE KAUFFMAN

Biology, Oklahoma City University

It is essential that undergraduate students be afforded the opportunity to participate in research. Research experiences for undergraduates have many benefits including improving student soft-skills, increasing student retention and satisfaction, and preparing students for graduate school. At teaching-focused institutions, faculty are often encouraged to provide undergraduate research opportunities, but may lack time and resources to do so. Often, primarily undergraduate institutions have fewer resources for research, and faculty likely carry a large teaching load, making it difficult to allot time to mentoring undergraduates in research. Here I discuss my experiences running a primate behavior undergraduate research lab. In the last seven years I have worked with more than twenty students to carry out research projects on wild squirrel monkeys, zoo-housed orangutans, and long-tailed macaques at a local monkey sanctuary. I describe my use of regular structured meetings, intentional mentoring, and small scale research projects. These approaches have allowed me to complete a significant amount of undergraduate research within a limited time budget. I share my tips for maintaining an undergraduate research lab in light of limited resources, and also invite discussion and tips from others working in similar circumstances.

Relations between cultural perceptions of childhood and childhood stress in an ancient Greek colony

MADISON R. KAYE¹, BRITNEY KYLE², STEFANO VASSALLO³ and LAURIE J. REITSEMA⁴

¹Department of Anthropology, Washington College, MD, ²Department of Anthropology, University of Northern Colorado, CO, ³Soprintendenza di Palermo, Italia, ⁴Department of Anthropology, University of Georgia, GA

Every culture develops its own conceptualization of childhood. Therefore, the culture in which a child is indoctrinated may influence stress experienced during childhood. This study uses social age categories, defined by the ancient Greek's cultural ideology of childhood based on cognitive development stages, to assess the prevalence of childhood stress indicators within individuals who died during childhood or adulthood in