PROGRAM OF THE

93RD ANNUAL MEETING OF THE AMERICAN ASSOCIATION OF BIOLOGICAL ANTHROPOLOGISTS

MARCH 20-23, 2024

To be held at the

JW Marriott LA Live

900 W Olympic Blvd, Los Angeles, CA 90015

AABA Scientific Program Committee

Kristi L. Lewton, Chair
Kevin Hatala, Associate Chair

Donovan Adams
Francisca Alves-Cardoso
Benjamin Auerbach
Shara Bailey
Miriam Belmaker
Michele Bleuze
Vanessa Campanacho
Stephanie Canington
Janine Chalk-Wilayto
Carter Clinton
Siobhán Cooke
Maria Ana Correia
Miguel Delgado
Anthony Di Fiore
Nathaniel Dominy
Nicholas Ellwanger
Kori Filipek
Rebecca George
Halszka Glowacka
Mark Grabowski
Neysa Grider-Potter
Elaine Guevara
Angela Harden
Amber Heard-Booth
Megan Holmes
Genevieve Housman
Kent Johnson
Saige Kelmelis
Brittany Kenyon-Flatt
Andrew Kim
Krystiana Krupa
Myra Laird
Ellis Locke
Christopher Lynn
Heli Maijanen
Hannah Marsh
Lumila Menéndez
Emily Middleton
Christina Nicholas
Heather Norton
Robert O'Malley
Marin Pilloud
Stephanie Poindexter
Luca Pozzi
Sean Prall
Kathryn Reusch
Michael Rivera
Gwen Robbins Schug
Joshua Robinson
Caroline Rowe
Sarah Schrader
Amy Schreier
Maja Šešelj
Michelle Singleton
Katie Starkweather
Sean Tallman
Christina Torres
Nicole Torres-Tamayo
Catalina Villamil
Amelia Villaseñor
Cara Wall-Scheffler
Kerryn Warren
Julie Wieczkowski
Amanda Williams
An-Di Yim
Chi Zhang

AABA Meetings Director

Lori Strong, Burk & Associates, Inc.

Contributed Sessions Planning Committee

Donovan Adams
Miriam Belmaker
Stephanie Canington
Janine Chalk-Wilayto
Siobhán Cooke
Nathaniel Dominy
Elaine Guevara
Nicholas Ellwanger
Kori Filipek
Rebecca George
Neysa Grider-Potter
Genevieve Housman
Saige Kelmelis
Myra Laird
Christopher Lynn
Robert O'Malley
Stephanie Poindexter
Kathryn Reusch
Joshua Robinson
Maja Šešelj
Michelle Singleton
Sean Tallman
Nicole Torres-Tamayo
Cara Wall-Scheffler
An-Di Yim

to cold-induced thermogenesis (*ESRRG*, *IL18R1*, *ABHD6*, *AARDC3*, *RB1*, *DYNC1H1*, *NR1D1*, *PCTP*); differentiation of thermoregulatory brown fat cells (*EBF2*, *METRNL*, *ZNF516*); and thyroid function (*DUOX* family). However, it is important to differentiate the effects of natural selection from drift and other demographic events. In particular, SNP-only data shows how variation occurs along known sites in the genome, but can obfuscate pleiotropic heritability data. In order to accurately measure regulatory variation at all sites, we performed eQTL and allele-specific expression (ASE) analysis on the data set to provide functional validation for candidate SNPs. This analysis identified departures between Quechua populations and a Maya control group. Our findings help to detangle the complex web of cold adaptation regulation in humans, and highlight how ecological/climatological stress shapes human metabolism, adiposity, and thyroid functioning.

It seems they glide: aerodynamics of vertical descent in *Galago moholi*

JESSE W. YOUNG[1], GRÉGOIRE BOULINGUEZ-AMBROISE[1,2], EMMETT BAKOS[1], TOBIN L. HIERONYMUS[1] and NOAH T. DUNHAM[3,4]

[1]Anatomy and Neurobiology, Northeast Ohio Medical University, [2]Evolutionary Anthropology, Duke University, [3]Conservation and Science, Cleveland Metroparks Zoo, [4]Biology, Case Western Reserve University

Lesser galagos (*Galago*) are superlative leapers, capable of vertical jumps of >2m (i.e., >15 body lengths) and horizontal leaps of >4m (i.e., >30 body lengths). Though morphological and biomechanical studies have investigated how galagos produce the take-off forces required for high-performance leaps, few have considered how the animals modulate their trajectory once airborne. Nevertheless, both observational and theoretical studies suggest that galagos use aerodynamic forces during the floating phase of a leap to adjust their trajectory and mitigate landing speed. Here, we quantify the aerodynamic force production (i.e., drag forces) of Mohol galagos (*Galago moholi*) during airborne descent. Two zoo-housed *G. moholi* (body mass: 174-200g) were filmed with two cameras operating at 240Hz and calibrated to a common volume as they dropped between perches (fall distances: 1-1.4m). We digitized the 3D position of the animal's nose, shoulder, hip, and base of tail, calculating their instantaneous angular position with respect to gravity (i.e., angle of attack), instantaneous velocity, and instantaneous acceleration. Net aerodynamic force was quantified as the difference between instantaneous acceleration and gravity (i.e., $-9.81 ms^{-2}$), multiplied by body mass. Angle of attack was maintained at ~49º (range: 48.6-49.5%), suggesting a compromise between parachuting and positioning the body for landing feet-first. Drag forces during descent averaged 52.4% of body weight, permitting the galagos to decrease landing speeds to an average of 88.5% of what they would have been under freefall. These data constitute the first quantitative evidence that leaping primates can use aerodynamic forces to modulate their movement dynamics while airborne.

Supported by NSF BCS-2020515

Pelvic incidence and pelvic tilt impact greater sciatic notch shape

SARAH M. ZALESKI

Department of Pathology & Anatomical Sciences, University of Missouri

The greater sciatic notch (GSN) of the pelvis varies within and between sexes. J-shaped GSNs are associated with individuals assigned male at birth; U-shaped GSNs are associated with individuals assigned female at birth. The latter relationship is attributed to obstetric requirements, but more work is needed to understand the processes impacting GSN variation. GSN shape likely relates to pelvic incidence (PI) and pelvic tilt (PT), angles that show how the sacral plateau is positioned over the hip joints. The posterior ray of PI is formed from a line perpendicular to the center of the sacral plateau. The anterior ray is the sacro-acetabular distance from the plateau center to the bi-acetabular midpoint. PT is the angle between the sacro-acetabular distance and a coronal plane through the hip joint centers.

Here, I use three-dimensional landmark coordinate data and geometric morphometrics to analyze a sample of re-articulated pelves from the Bass, Terry, and Hamann-Todd collections and from medieval Kulubnarti, Nubia representing 76 assigned females and 81 assigned males, aged 19-100 years. I performed ordinary least squares regressions to separately test the impact of PI and PT on GSN shape. Greater PI is significantly associated with more U-shaped GSNs. Greater PT is significantly associated with a more pronounced piriform tubercle region. Results support a connection between factors relating to sagittal balance, PI and PT, and GSN shape. This study underscores the importance of considering proximal processes rather than simply obstetric selection to explain GSN variation.

Funding: Lambda Alpha National Anthropology Honor Society Graduate Research Grant, University of Florida Graduate School Doctoral Research Travel and Doctoral Dissertation Awards, John M. Goggin Award (UF Anthro. Dept.).

How to identify early *Homo*? Geometric morphometric approach based on multiple craniodental structures

CLÉMENT ZANOLLI[1,2], THOMAS W. DAVIES[3], OTTMAR KULLMER[4,5], FRIEDEMANN SCHRENK[4,5] and MATTHEW M. SKINNER[6,7]

[1]Univ. Bordeaux, CNRS, MCC, PACEA, UMR 5199, [2]Evolutionary Studies Institute, University of the Witwatersrand, [3]Department of Human Origins, Max Planck Institute for Evolutionary Anthropology, [4]Division of Palaeoanthropology, Senckenberg Research Institute and Natural History Museum Frankfurt, [5]Department of Palaeobiology and Environment, Institute of Ecology, Evolution, and Diversity, Goethe University Frankfurt, [6]Centre for the Exploration of the Deep Human Journey, University of the Witwatersrand, [7]School of Anthropology and Conservation, University of Kent

There is a general view that the first members of our genus evolved c. 3–2 million years ago in Africa. However, there is considerable debate about which features can be used to identify a fossil as belonging to *Homo* and whether some 'early *Homo*' material would be more appropriately reassigned to an australopith taxon. Here we use geometric morphometrics to test whether 'early *Homo*' fossils are most similar in key aspects of craniodental morphology to unambiguous *Homo* species (*Homo erectus* s.l. and successive species), *Australopithecus*, or *Paranthropus*. The study sample consists of published craniodental specimens belonging to 'early *Homo*' (e.g., LD 350-1, A.L. 666-1, UR 501, OH 7, 13, KNM-ER 1802, 1813, 5431, StW 80, SK 27, 847). Geometric morphometric analyses of cranial vault (2D lateral and posterior profiles), mandible (2D dental arcade and symphysis cross-section shape), and molar enamel-dentine junction shape were conducted. To assess within and between group variation and the classification of particular specimens we computed principal components analyses, between-group principal component analyses, canonical variate analyses and typicality probabilities. Results suggest that a number of 'early *Homo*' specimens consistently show greater morphological resemblance to *Australopithecus* and/or *Paranthropus* than to *Homo erectus* s.l. and successive *Homo*. This is particularly the case for pre-2.2 million year old specimens, while more recent fossils show an intermediate morphology between *Australopithecus* and *Homo erectus* s.l. The implications of these results for the taxonomy of particular specimens and the morphological features used to define and diagnose 'early *Homo*' species will be discussed.

University of Bordeaux's IdEx "Investments for the Future" program/GPR "Human Past", EVODIBIO and AFRIQUE teams of PACEA, ERC under European Union's Horizon 2020 research and innovation programme (grant No. 819960)