

Educational History

- Ph.D. 2013 Stony Brook University, Long Island, New York, Anthropology

 Dissertation: *Physical Activity and Genetics as Determinants of Limb Bone Morphology*, Advisor: Brigitte Demes
- M.A. 2009 Stony Brook University, Long Island, New York, Anthropology
- B.A. 2006 University of Minnesota, Twin Cities, Minnesota, Anthropology,
summa cum laude

Employment History

- Assistant Professor, 2020–present, Department of Anthropology, University of New Mexico, Albuquerque, New Mexico
- Lecturer, 2018–2019, Department of Human Evolutionary Biology, Harvard University, Cambridge, Massachusetts
- Postdoctoral Research Fellow, 2015–2018, Department of Human Evolutionary Biology, Harvard University, Cambridge, Massachusetts
- Postdoctoral Research Instructor, 2013–2015, Department of Anthropology, Stony Brook University, Long Island, New York

Professional Recognition and Honors

- Star Family Prize for Excellence in Advising, 2019, Harvard University
- Certificate of Teaching Excellence, received twice in 2019, Harvard University
- President’s Award for Distinguished Doctoral Students, 2014, Stony Brook University
- Norman Creel Prize for Outstanding Student Research, 2011 and 2013, Stony Brook University
- National Science Foundation Graduate Research Fellowship Program, Honorable Mention, 2007
- Turkana Basin Institute Graduate Fellowship, 2006–2013

Description of Research, Teaching, and Service Interests

My research tackles two big questions: How did humans evolve to use their bodies to move? And what are the costs and benefits of modern physical activity patterns for human health? To address these questions, I explore how the way humans use their bodies has changed over time. I'm especially interested in the transitions from non-industrial to industrial and then post-industrial societies. I study contemporary humans in both the field and lab, focusing on measures of locomotor biomechanics and their ties to the health and function of the musculoskeletal system, the only part of the human body that readily fossilizes. I also study the fossil and archeological records. Given the nature of my research questions, the work that I do is integrative and interdisciplinary, and I value collaborations with clinicians, ecologists, engineers, ethnologists, and many others.

Recently, my fieldwork has focused on the indigenous peoples of Peninsular Malaysia, known collectively as the Orang Asli. Traditionally, the Orang Asli live in remote rainforest camps and villages and subsist on some combination of hunting, fishing, wild food collection, and swidden horticulture. Today, however, few Orang Asli remain isolated from outside economic and cultural influences due to rapid expansion of industries, the market economy, and urban areas across Malaysia over the last half-century. As a result, Orang Asli lifestyles are changing, including patterns of physical activity. My research aims to better understand how and why lifestyle changes are occurring among the Orang Asli and how such changes are affecting their health and risk of disease.

What drives my research, what energizes me, is a profound wonder for humanity: the saga of our evolutionary history and the lessons it holds, the exquisite diversity of people and cultures, the undeniable similarity of us all, the joy and pain of being a person. But in pursuing my work I've discovered another strong motivating force: I want my research to help people. As a result, I'm particularly drawn to topics that lie at the interface between evolutionary anthropology and medicine, especially those related to degenerative diseases that appear to stem from deleterious interactions between our evolutionary heritage and modern environments. Thus, while I approach anthropology with curiosity and awe similar to a natural historian, I'm also compelled by the potential practical value of my research to modern human life.

In addition to being a researcher, I am passionate about teaching. I enjoy working with both undergraduate and graduate students in diverse ways, including through lecturing, seminars, and mentoring research in the field and lab. I find it inspiring to encourage undergraduates to think differently, teach them valuable skills, and, above all, help them understand the importance of using the lens of evolution to evaluate, and ideally improve, the current state of the world and human life. Also, it is truly a privilege to be able to guide graduate students and advanced undergraduates to become critical thinkers and scientists.

Scholarly Achievements

Articles Published in Refereed Journals

2023 **Wallace IJ**, Toya C, Peña Muñoz MA, Meyer JV, Busby T, Reynolds AZ, Martinez J, Thompson TT, Miller-Moore M, Harris AR, Rios R, Martinez A, Jashashvili T, Ruff CB. Effects of the energy balance transition on bone mass and strength. *Scientific Reports* 13, 15204

2023 Lea AJ, Clark AG, Dahl AW, Devinsky O, Garcia AR, Golden CD, Kamau J, Kraft TS, Lim YAL, Martins DJ, Mogoi D, Pajukanta P, Perry GH, Pontzer H, Trumble BC, Urlacher SS, Venkataraman VV, **Wallace IJ**, Gurven M, Lieberman DE, Ayroles JF. Applying an evolutionary mismatch framework to understand disease susceptibility. *PLoS Biology* 21, e3002311

2023 Karakostis FA, **Wallace IJ**. Climbing influences enthesal morphology in the humerus of mice: An experimental application of the VERA methodology. *American Journal of Biological Anthropology* 181, 130–139

2022 **Wallace IJ***, Lea AJ*, Lim YAL, Chow SKW, Sayed IbM, Ngui R, Shaffee MTH, Ng K-S, Nicholas C, Venkataraman VV, Kraft TS. Orang Asli Health and Lifeways Project (OA HeLP): a cross-sectional cohort study protocol. *BMJ Open* 12, e058660 (*Co-lead authors)

2022 **Wallace IJ**, Kraft TS, Venkataraman VV, Davis HE, Holowka NB, Harris AR, Lieberman DE, Gurven M. Cultural variation in running techniques among non-industrial societies. *Evolutionary Human Sciences* 4, e14

2022 **Wallace IJ**, Riew GJ, Landau R, Bendele AM, Holowka NB, Hedrick TL, Konow N, Brooks DJ, Lieberman DE. Experimental evidence that physical activity inhibits osteoarthritis: implications for inferring activity patterns from osteoarthritis in archeological human skeletons. *American Journal of Biological Anthropology* 177, 223–231

2022 **Wallace IJ**, Felson DT, Worthington S, Lieberman DE. Response to: ‘Is non-industrial society undergoing an energy balance transition predisposed to accumulate abdominal adipose tissue and susceptible to knee osteoarthritis?’ by Yu et al. *Annals of the Rheumatic Diseases* 81, e64

2022 Holowka NB, Kraft TS, **Wallace IJ**, Gurven M, Venkataraman VV. Forest terrains influence walking kinematics among indigenous Tsimane of the Bolivian Amazon. *Evolutionary Human Sciences* 4, e19

2021 Kraft TS, Venkataraman VV, **Wallace IJ**, Crittenden AN, Holowka NB, Stieglitz J, Harris JA, Raichlen DA, Wood BM, Gurven M, Pontzer H. The energetics of uniquely human subsistence strategies. *Science* 374, eabf0130

- 2021 Holowka NB*, **Wallace IJ***, Mathiessen A, Ojiambo RM, Okutoyi P, Worthington S, Lieberman DE. Urbanization and knee cartilage growth among children and adolescents in western Kenya. *ACR Open Rheumatology* 3, 765–770 (*Co-lead authors)
- 2020 **Wallace IJ**, Burgess ML, Patel BA. Phalangeal curvature in a chimpanzee raised like a human: implications for inferring arboreality in fossil hominins. *Proceedings of the National Academy of Sciences USA* 117, 11223–11225
- 2020 **Wallace IJ**, Marsh D, Otárola-Castillo E, Billings BK, Mngomezulu V, Grine FE. Secular decline in limb bone strength among South African Africans during the 19th and 20th centuries. *American Journal of Physical Anthropology* 172, 492–499
- 2020 Lieberman DE, Mahaffey M, Cubesare Quimare S, Holowka NB, **Wallace IJ**, Baggish AL. Running in Tarahumara (Rarámuri) culture: persistence hunting, footracing, dancing, work, and the fallacy of the athletic savage. *Current Anthropology* 61, 356–379
- 2019 **Wallace IJ**, Felson DT, Worthington S, Duryea J, Clancy M, Aliabadi P, Eick GN, Snodgrass JJ, Baggish AL, Lieberman DE. Knee osteoarthritis risk in non-industrial societies undergoing an energy balance transition: evidence from the indigenous Tarahumara of Mexico. *Annals of the Rheumatic Diseases* 78, 1693–1698
- 2019 **Wallace IJ**, Bendele AM, Riew G, Hung H-H, Frank EH, Holowka NB, Bolze AS, Venable EM, Yegian AK, Dingwall HL, Carmody RN, Grodzinsky AJ, Lieberman DE. Physical inactivity and knee osteoarthritis in guinea pigs. *Osteoarthritis and Cartilage* 27, 1721–1728
- 2019 Karakostis FA, **Wallace IJ**, Konow N, Harvati K. Experimental evidence that physical activity affects the multivariate associations among muscle attachments (entheses). *Journal of Experimental Biology* 222, 213058
- 2018 **Wallace IJ**, Koch E, Holowka NB, Lieberman DE. Heel impact forces during barefoot versus minimally shod walking among Tarahumara subsistence farmers and urban Americans. *Royal Society Open Science* 5, 180044
- 2018 Berenbaum F, **Wallace IJ**, Lieberman DE, Felson DT. Modern-day environmental factors in the pathogenesis of osteoarthritis. *Nature Reviews Rheumatology* 14, 674–681
- 2018 Venkataraman VV, Yegian AK, **Wallace IJ**, Holowka NB, Tacey I, Gurven M, Kraft TS. Locomotor constraints favour the evolution of the human pygmy phenotype in tropical rainforests. *Proceedings of the Royal Society B: Biological Sciences* 285, 20181492
- 2018 Holowka NB, **Wallace IJ**, Lieberman DE. Foot strength and stiffness are related to footwear use in a comparison of minimally- vs. conventionally-shod populations. *Scientific Reports* 8, 3679
- 2018 Patel BA, Jashashvili T, Bui SH, Carlson KJ, Griffin NL, **Wallace IJ**, Orr CM, Susman RL. Inter-ray variation in metatarsal strength properties in humans and African apes:

implications for inferring bipedal biomechanics in the Olduvai Hominid 8 foot. *Journal of Human Evolution* 121, 147–165

2017 **Wallace IJ**, Worthington S, Felson DT, Jurmain RD, Wren KT, Maijanen H, Woods RJ, Lieberman DE. Knee osteoarthritis has doubled in prevalence since the mid-20th century. *Proceedings of the National Academy of Sciences USA* 114, 9332–9336

2017 **Wallace IJ**, Winchester JM, Su A, Boyer DM, Konow N. Physical activity alters limb bone structure but not enthesal morphology. *Journal of Human Evolution* 107, 14–18

2017 Wei P, **Wallace IJ**, Jashashvili T, Musiba CM, Liu W. Structural analysis of the femoral diaphyses of an early modern human from Tianyuan Cave, China. *Quaternary International* 434, 48–56

2016 **Wallace IJ**, Botigué LR, Lin M, Smaers JB, Henn BM, Grine FE. Worldwide variation in hip fracture incidence weakly aligns with genetic divergence between populations. *Osteoporosis International* 27, 2867–2872

2016 **Wallace IJ**, Garland T Jr. Mobility as an emergent property of biological organization: insights from experimental evolution. *Evolutionary Anthropology* 25, 98–104

2015 **Wallace IJ**, Rubin CT, Lieberman DE. Osteoporosis. *Evolution, Medicine, and Public Health* 2015, 343

2015 Patel BA*, **Wallace IJ***, Boyer DM, Granatosky MC, Larson SG, Stern JT Jr. Distinct functional roles of primate grasping hands and feet during arboreal quadrupedal locomotion. *Journal of Human Evolution* 88, 79–84 (*Co-lead authors)

2015 **Wallace IJ***, Pagnotti GM*, Rubin-Sigler J, Naeher M, Copes LE, Judex S, Rubin CT, Demes B. Focal enhancement of the skeleton to exercise correlates with responsivity of bone marrow mesenchymal stem cells rather than peak external forces. *Journal of Experimental Biology* 218, 3002–3009 (*Co-lead authors)

2015 Almécija S, **Wallace IJ**, Judex S, Alba DM, Moyà-Solà S. Comment on “Human-like hand use in *Australopithecus africanus*.” *Science* 348, 1101

2015 Mongle CS, **Wallace IJ**, Grine FE. Cross-sectional structural variation relative to midshaft along hominine diaphyses. I. The forelimb. *American Journal of Physical Anthropology* 158, 386–397

2015 Mongle CS, **Wallace IJ**, Grine FE. Cross-sectional structural variation relative to midshaft along hominine diaphyses. II. The hind limb. *American Journal of Physical Anthropology* 158, 398–407

2015 **Wallace IJ**, Gupta S, Sankaran J, Demes B, Judex S. Bone shaft bending strength index is unaffected by exercise and unloading in mice. *Journal of Anatomy* 226, 224–228

- 2015 **Wallace IJ**, Judex S, Demes B. Effects of load-bearing exercise on skeletal structure and mechanics differ between outbred populations of mice. *Bone* 72, 1–8
- 2014 **Wallace IJ**, Nesbitt A, Mongle C, Gould ES, Grine FE. Age-related variation in limb bone diaphyseal structure among Inuit foragers from Point Hope, northern Alaska. *Archives of Osteoporosis* 9, 202
- 2014 **Wallace IJ**, Demes B, Mongle C, Pearson OM, Polk JD, Lieberman DE. Exercise-induced bone formation is poorly linked to local strain magnitude in the sheep tibia. *PLoS One* 9, e99108
- 2014 **Wallace IJ**, Leakey MG, Leakey LN. Implications of a new aff. *Hippopotamus karumensis* mandible from the Koobi Fora Formation, Turkana Basin, Kenya. *SINET: Ethiopian Journal of Science* 37, 143–148
- 2013 **Wallace IJ**, Kwaczala AT, Judex S, Demes B, Carlson KJ. Physical activity engendering loads from diverse directions augments the growing skeleton. *Journal of Musculoskeletal and Neuronal Interactions* 13, 245–250
- 2013 Su A, **Wallace IJ**, Nakatsukasa M. Trabecular bone anisotropy and orientation in an Early Pleistocene hominin talus from East Turkana, Kenya. *Journal of Human Evolution* 64, 667–677
- 2012 **Wallace IJ**, Tommasini SM, Judex S, Garland T Jr, Demes B. Genetic variations and physical activity as determinants of limb bone morphology: an experimental approach using a mouse model. *American Journal of Physical Anthropology* 148, 24–35
- 2010 **Wallace IJ**, Middleton KM, Lublinsky S, Kelly SA, Judex S, Garland T Jr, Demes B. Functional significance of genetic variation underlying limb bone diaphyseal structure. *American Journal of Physical Anthropology* 143, 21–31
- 2008 **Wallace IJ**, Demes B, Jungers WL, Alvero M, Su A. The bipedalism of the Dmanisi hominins: pigeon-toed early *Homo*? *American Journal of Physical Anthropology* 136, 375–378
- 2008 **Wallace IJ**, Demes B. Symmetrical gaits of *Cebus apella*: implications for the functional significance of diagonal sequence gait in primates. *Journal of Human Evolution* 54, 783–794
- 2006 **Wallace IJ**, Shea JJ. Mobility patterns and core technologies in the Middle Paleolithic of the Levant. *Journal of Archaeological Science* 33, 1293–1309
- 2006 **Wallace IJ**. A description of lithic artefacts from the Springbok Flats, South Africa. *Annals of the Transvaal Museum* 43, 113–115
- 2005 Thackeray JF, S enegas F, **Wallace IJ**. The distribution of cave breccias at Kromdraai A and B in relation to dolomite. *Annals of the Transvaal Museum* 42, 89–91

Articles Appearing as Chapters in Edited Volumes

2023 **Wallace IJ**, Riew GJ, Landau R, Bendele AM, Holowka NB, Hedrick TL, Konow N, Ruiz M, Lieberman DE. Effects of physical activity and impact loading rate on knee osteoarthritis. In *Biocultural Evolution: An Agenda for Integrative Approaches*, Karakostis A, Jäger G, editors. Tübingen: Kerns Verlag, pp. 55–72

2018 **Wallace IJ**, Hainline C, Lieberman DE. Sports and the human brain: an evolutionary perspective. In *Handbook of Clinical Neurology: Sports Neurology*, Hainline B, Stern RA, editors. San Diego: Elsevier, pp. 3–10

2017 **Wallace IJ**, Demes B, Judex S. Ontogenetic and genetic influences on bone's responsiveness to mechanical signals. In *Building Bones: Bone Formation and Development in Anthropology*, Percival CJ, Richtsmeier JT, editors. Cambridge: Cambridge University Press, pp. 234–253

Other Scholarly Works

2015 Nunn CL, **Wallace IJ**, Beall CM. Connecting evolution, medicine, and public health. *Evolutionary Anthropology* 24, 127–129

2014 Yang D, **Wallace IJ**, de Vries D. Peking Man: new research. *Evolutionary Anthropology* 23, 162–163

2014 Everhart JL, **Wallace IJ**. Big things in Texas: highlights of the 79th annual SAA meeting. *Evolutionary Anthropology* 23, 164–165

2010 **Wallace IJ**. Evolution in real time. *Evolutionary Anthropology* 19, 200–201

2008 **Wallace IJ**, Wheeler BC, Su A, Lodwick JL. Physical anthropologists return to America's heartland. *Evolutionary Anthropology* 17, 163–165

2007 **Wallace IJ**. Highlights of the 2007 meeting of the Paleoanthropology Society. *Evolutionary Anthropology* 16, 121–122

2007 Royer DF, Gilbert CC, Sisk ML, **Wallace IJ**. The first humans. *Evolutionary Anthropology* 16, 86–87

2006 **Wallace IJ**. Review of *Examining the Levallois Reduction Strategy from a Design Theory Point of View*. *PaleoAnthropology* 2006, 51–53

Works in Progress

- **Accepted for Publication**

Greening VA, Hernandez E, Mongle CS, Billings BS, Mngomezulu V, **Wallace IJ**, Grine FE. Variation, sexual dimorphism and enlargement of the frontal sinus with age in adult South Africans. *American Journal of Biological Anthropology*

Ruff CB, **Wallace IJ**, Toya C, Peña Muñoz MA, Meyer JV, Busby T, Reynolds AZ, Martinez J, Miller-Moore M, Rios R. The effects of the industrial transition on lower limb bone structure: a comparison of the inhabitants of Pecos Pueblo and present-day Indigenous peoples of New Mexico. *American Journal of Biological Anthropology*

- **In Revision**

Brassington L, Arner A, Watowich MM, Damstedt J, Ng KS, Lim YAL, Venkataraman VV, **Wallace IJ**, Kraft TS, Lea AJ. Integrating the Thrifty Genotype and Evolutionary Mismatch Hypotheses to understand variation in cardiometabolic disease risk.

- **Submitted for Publication**

Lauer C, Holowka NB, Kraft TS, **Wallace IJ**. Foot arch height, arch stiffness, and intrinsic muscle size are not associated with daily physical activity levels in a cross-sectional study of adults who normally wear restrictive shoes.

Ruff CB, **Wallace IJ**, Abeyta-Brown A, Butler M, Busby T. Prediction of body mass from stature and pelvic breadth.

Invited Lectures and Presentations at Professional Meetings

- **Invited Academic Lectures**

2023 Plenary speaker, Osteoarthritis Research Society International (OARSI) World Congress

2023 Grand rounds, Hospital for Special Surgery, Rheumatology Division

2023 Université Bordeaux, Laboratoire d'Anthropologie

2023 Universiti Malaya Faculty of Medicine, Department of Parasitology

2022 Boston University School of Medicine, Musculoskeletal Clinical Research Collaboratory

2022 University of New Mexico, Office of the Institutional Review Board

2021 Princeton University, Lewis Sigler Institute for Integrative Genomics

2021 University of Tübingen, DFG Center for Advanced Studies

2021 University of California, Riverside, Department of Biology

2020 Keene State College, Orang Asli Archive

- 2020 Boston University School of Medicine, Musculoskeletal Clinical Research Collaboratory
- 2020 University of New Mexico, Department of Biology
- 2019 Harvard Medical School, Hebrew SeniorLife, Marcus Institute for Aging Research
- 2019 University of New Mexico, Department of Anthropology
- 2018 Plenary speaker, Annual Meeting of the American Association of Anatomists
- 2018 Hunter College of the City University of New York, Department of Anthropology
- 2017 Harvard University, Concord Field Station
- 2017 University of Massachusetts Lowell, Department of Biological Sciences
- 2017 University of Southern California, Keck School of Medicine, Department of Radiology
- 2017 NYIT College of Osteopathic Medicine, Department of Anatomy
- 2015 Harvard University, Department of Human Evolutionary Biology
- 2014 University of the Witwatersrand, Evolutionary Studies Institute
- 2014 Stony Brook University, Distinguished Doctoral Students' Awards Colloquium
- 2014 Stony Brook University, Provost's Graduate Student Lecture Series
- 2013 Brown University, Department of Ecology and Evolutionary Biology

- Invited Public Lectures

- 2023 Maxwell Museum of Anthropology, University of New Mexico, "Ancestors Lecture"
- 2022 National Museum of Nuclear Science and History, "Science on Tap"
- 2022 Manzano High School (Albuquerque Public Schools)

- Refereed Abstracts for Presentations at Professional Meetings

- 2023 Abeyta-Brown A, Busby T, **Wallace IJ**. Effects of occupation-related physical activity on limb bone shaft strength among contemporary people in the United States. *American Journal of Biological Anthropology* S75, 1

2023 Cook-Graver HM, Meyer JV, Peña Muñoz MA, Martinez A, Martinez J, Harris AR, Rios R, Busby T, **Wallace IJ**. Why is excess body weight associated with greater bone strength? *American Journal of Biological Anthropology* S75, 36

2023 Lauer C, Holowka NB, Kraft TS, **Wallace IJ**. Habitual physical activity levels and foot strength and stiffness. *American Journal of Biological Anthropology* S75, 100

2023 Reinhardt KD, Kraft TS, Lea AJ, **Wallace IJ**, Arner A, Ngui R, Lim YAL, Chow SKW, Sayed IBM, Nicholas C, Ng K-S, Antle M, Venkataraman VV. Market integration alters sleep-wake patterns among Malaysian Orang Asli. *American Journal of Biological Anthropology* S75, 147

2022 **Wallace IJ**, Toya C, Peña Muñoz MA, Martinez A, Meyer JV, Martinez J, Miller-Moore M, Busby T, Harris AR, Reynolds AZ, Ruff CB. Effects of an energy balance transition on skeletal health among indigenous peoples of the southwestern United States. *American Journal of Biological Anthropology* S73, 192–193

2022 Holowka NB, Kraft TS, **Wallace IJ**, Gurven M, Venkataraman VV. Forest terrains influence walking kinematics among indigenous Tsimane of the Bolivian Amazon. *American Journal of Biological Anthropology* S73, 84–85

2022 Pearson OM, **Wallace IJ**, Jashashvili T, Carlson KJ, Warden SJ, Fleagle JG. Cross-sectional geometry and bilateral asymmetry of Omo I humeri. *American Journal of Biological Anthropology* S73, 142

2020 **Wallace IJ**, Felson DT, Worthington S, Duryea J, Clancy M, Aliabadi P, Eick GN, Snodgrass JJ, Baggish AL, Lieberman DE. Knee osteoarthritis susceptibility among non-industrial societies undergoing rapid lifestyle changes. *American Journal of Physical Anthropology* S69, 299

2019 **Wallace IJ**, Riew G, Landeau R, Holowka NB, Bendele AM, Grodzinsky AJ, Frank EH, Lieberman DE. Physical (in)activity and the etiology of osteoarthritis. *American Journal of Physical Anthropology* S68, 260

2019 Konow N, Winchester JM, Boyer DM, **Wallace IJ**. New methods for quantifying enthesal shape and adaptation to functional loading. *American Journal of Physical Anthropology* S68, 129–130

2018 **Wallace IJ**, Holowka NB. What fossils can and can't tell us about hominin locomotor evolution: insights from experimental skeletal biomechanics. *FASEB Journal* 32, 92.1

2018 **Wallace IJ**, Ruiz M, Holowka NB, Lieberman DE. Foot sole cushioning lowers the rate of tibial shaft strains recorded *in vivo* during running. *American Journal of Physical Anthropology* S66, 293

- 2018 Venkataraman VV, Kraft TS, Yegian A, **Wallace IJ**, Holowka NB, Gurven M. Walking mechanics and the evolution of the human pygmy phenotype. *American Journal of Physical Anthropology* S66, 286
- 2018 Marsh D, **Wallace IJ**, Otárola-Castillo E, Mngomezulu V, Grine FE. Long-term declines in limb bone shaft strength among South African Bantu-speaking peoples during the 20th century. *American Journal of Physical Anthropology* S66, 167
- 2017 **Wallace IJ**, Worthington S, Felson DT, Jurmain RD, Wren KT, Maijanen H, Woods RJ, Lieberman DE. Osteoarthritis as an evolutionary mismatch disease. *American Journal of Physical Anthropology* S64, 400
- 2017 Holowka NB, Koch E, Ruiz M, **Wallace IJ**, Lieberman DE. Foot muscle size and longitudinal arch biomechanics in a minimally shod, non-industrial population. *American Journal of Physical Anthropology* S64, 221
- 2016 **Wallace I**, Shea J, Brown F, Zewdie S, Sisay F, Gebru Y, Fleagle J. Update on the paleoanthropology of the Kibish Formation, southwestern Ethiopia. *PaleoAnthropology* 2016, A33
- 2016 **Wallace IJ**, Judex S, Su A, Demes B. Trabecular bone adaptations to arboreal and terrestrial environments: experimental evidence from mice. *American Journal of Physical Anthropology* S62, 327
- 2016 Rubin-Sigler J, Pagnotti GM, **Wallace IJ**. Biology trumps mechanics: bone adaptation to exercise correlates more closely to bone marrow stem cell responsiveness than peak forces. *American Journal of Physical Anthropology* S62, 274–275
- 2015 **Wallace IJ**, Judex S, Demes B. Skeletal effects of physical activity differ between populations. *American Journal of Physical Anthropology* S60, 317
- 2015 Ward CV, **Wallace IJ**, Patel BA, Plavcan JM, Kirera FM. A large 1.5-year-old hominin radius from Koobi Fora, Kenya. *American Journal of Physical Anthropology* S60, 319
- 2014 **Wallace IJ**, Demes B, Mongle C, Pearson OM, Lieberman DE. Exercise-induced bone formation is poorly linked to peak strain magnitude. *American Journal of Physical Anthropology* S58, 264
- 2014 Patel BA, **Wallace IJ**, Granatosky M, Boyer DM, Stern JT, Larson SG. Emancipation of the forelimb: new experimental evidence on the functional roles of grasping hands and feet during arboreal quadrupedal locomotion. *American Journal of Physical Anthropology* S58, 205
- 2014 Mongle C, **Wallace IJ**, Grine FE. Diaphyseal cross-sectional variation in extant hominoid humeri: implications for incomplete hominid fossils. *American Journal of Physical Anthropology* S58, 188

- 2014 **Wallace IJ**, Judex S, Demes B. The effects of weight-bearing exercise on skeletal structure and strength differ between outbred populations of mice. *Integrative and Comparative Biology* 54, Suppl 1, e364
- 2013 **Wallace IJ**, Demes B, Judex S, Kwaczala AT, Carlson KJ. Physical activity producing loads from diverse orientations enhances growing bones. *Journal of Bone and Mineral Research* 28, S211
- 2013 **Wallace IJ**, Patel BA. Cross-sectional geometry of chimpanzee finger bones. *American Journal of Physical Anthropology* S56, 283
- 2013 Carlson KJ, **Wallace IJ**, Judex S. Differentiation of bone functional adaptations in the forelimb and hind limb. *American Journal of Physical Anthropology* S56, 94
- 2013 Patel BA, **Wallace IJ**. Cross-sectional geometry of chimpanzee (*Pan troglodytes*) finger bones is correlated with habitual load bearing of individual digits during knuckle-walking. *FASEB Journal* 27, 744.2
- 2012 **Wallace IJ**, Tommasini SM, Judex S, Garland T Jr, Demes B. Inferring hominin activity levels from limb bone remains: insights from a mouse model. *American Journal of Physical Anthropology* S54, 296–297
- 2011 **Wallace IJ**, Garland T Jr, Wallace SA, Middleton KM, Kelly SA, Judex S, Demes B. Genetic and epigenetic effects on diaphyseal morphology in selectively bred mice with the mini-muscle allele. *Integrative and Comparative Biology* 51, Suppl 1, e263
- 2010 **Wallace IJ**, Middleton KM, Lublinsky S, Kelly SA, Judex S, Garland T Jr, Demes B. Activity, genes, and diaphyseal structure. *American Journal of Physical Anthropology* S50, 238
- 2010 Carnation S, **Wallace IJ**, Nakatsukasa M. Relative limb strength in *Paracolobus chemeroni*. *American Journal of Physical Anthropology* S50, 77
- 2009 Kirera F, **Wallace IJ**, Patel BA. A nearly complete hominin radius from Area 40 of the Koobi Fora Formation (East Turkana, Kenya). *American Journal of Physical Anthropology* S48, 165
- 2008 **Wallace IJ**, Demes B. Footfall patterns and peak vertical substrate reaction forces in *Cebus apella*. *American Journal of Physical Anthropology* S46, 216
- 2006 **Wallace IJ**, Shea JJ. Mobility strategies and core technologies in the Levantine Middle Paleolithic. *PaleoAnthropology* 2006, A76

- **Other Presentations at Professional Meetings**

2023 Villaseñor Z, Thompson NE, Duryea J, Lieberman DE, **Wallace IJ**. Association between femoral bicondylar angle and step width during human walking. 8th Annual Meeting of the Southwestern Association of Biological Anthropologists

2023 Edgar HJH, Kamnikar K, Busby T, Martinez J, Meyer J, Peña Muñoz MA, Rios R, **Wallace IJ**, Appel N, Ousley S. A reassessment of stature for modern Native Americans using the New Mexico Decedent Image Database (NMDID) data. 75th Anniversary Conference of the American Academy of Forensic Sciences

2019 **Wallace IJ**, Burgess ML, Patel BA. Phalangeal curvature in a chimpanzee raised like a human. Northeast Regional Meeting of the Society for Integrative and Comparative Biology

2019 **Wallace IJ**, Jurmain RD, Lieberman DE. Industrialization and the prevalence of osteoarthritis in the United States. 46th Annual North American Meeting of the Paleopathology Association

2018 **Wallace IJ**, Lieberman DE. Effect of prolonged walking on a cushioned substrate on the knees of guinea pigs. Northeast Regional Meeting of the Society for Integrative and Comparative Biology

2017 **Wallace IJ**, Lieberman DE. Adaptation of articular cartilage to exercise-induced loading. Northeast Regional Meeting of the Society for Integrative and Comparative Biology

2017 **Wallace IJ**. Role of joint loading in the prevention of osteoarthritis. Survive, Then Thrive: Harvard-Yale Conference on Human Evolution

2016 **Wallace IJ**, Lieberman DE. Osteoarthritis as an evolutionary mismatch disease. Northeast Regional Meeting of the Society for Integrative and Comparative Biology

2014 **Wallace IJ**, Copes L, Raichlen D, Garland T Jr. Mobility as a nexus of biological organization. 79th Annual Meeting of the Society for American Archaeology

2013 **Wallace IJ**, Judex S, Demes B. The effects of weight-bearing exercise on skeletal structure and strength differ between outbred populations of mice. Annual Musculoskeletal Repair and Regeneration Symposium, Albert Einstein College of Medicine

Research

Research Funding

- External funding

Early Life Effects on Health During Rapid Lifestyle Change: Evolutionary and Molecular Mechanisms

Principal Investigator

National Science Foundation

Award number: BCS-2142091

2022

\$460,000

The Anthropology of Demographic Transition and Livelihood Diversification

Co-Principal Investigator

National Science Foundation

Award number: SMA-2222262

2022

\$560,406

Orang Asli Osteoarthritis (OAOA) Study

Principal Investigator of subcontract

National Institutes of Health

Award number: P30AR072571

2021

\$22,500

Phylogenetic Signal in Limb Bone Shaft Structure among South Africans

Principal Investigator

Leakey Foundation

2014

\$17,000

Genotype-Specific Growth Patterns and Long Bone Functional Adaptation

Principal Investigator

Leakey Foundation

2008

\$11,000

- Internal funding

Enhancing and Supporting Local Indigenous Scholars in the Study of Dancing and Running Traditions among Native Americans in New Mexico

Principal Investigator

Alfonso Ortiz Center for Intercultural Studies, University of New Mexico

2022
\$4,700

Enhancing Active Learning in Human Evolutionary Physiology and Anatomy
Principal Investigator
Teaching Allocation Grant, University of New Mexico
2021
\$4,957

Enhancing and Supporting Local Indigenous Scholars in the Study of Skeletal Health among
Native Americans in New Mexico
Principal Investigator
Alfonso Ortiz Center for Intercultural Studies, University of New Mexico
2021
\$4,700

Orang Asli Osteoarthritis (OAOA) Study
Principal Investigator
Research Allocations Committee, University of New Mexico
2020
\$9,250

Energetics of Uniquely Human Subsistence Strategies
Principal Investigator
American School of Prehistoric Research, Harvard University
2017
\$3,500

Pending Research Funding

Leveraging Extreme Variation in Lifestyle to Understand its Effects on Inflammation and Aging
Heterogeneity
Principal Investigator
National Institutes of Health
2023

Building and Evaluating a Secure, Cloud-Based Data Portal for Communicating Research
Outcomes to Indigenous Study Participants in Low-Technology Settings
Co-Principal Investigator
National Institutes of Health
2023

Fieldwork

2023–present Turkana Health and Genomics Project, Kenya

- 2020–present Orang Asli Health and Lifeways Project, Malaysia
- 2015–2019 Health screening among the Tarahumara, Copper Canyons, Mexico
- 2014 Fossil prospection in the Kibish Formation, Lower Omo Valley, Ethiopia
- 2008 Fossil prospection in the Koobi Fora Formation, East Turkana, Kenya
- 2007 Archeological survey in the Galana Boi Formation, West Turkana, Kenya
- 2007 Excavation in the Nachukui Formation, West Turkana, Kenya
- 2005–2007 Excavation at Abri Castanet, Dordogne, France
- 2005 Excavation at Hummal, El Kowm, Syria
- 2005 Excavation at Roc de Marsal, Dordogne, France
- 2004 Excavation at Kromdraai, Gauteng, South Africa

Teaching

Doctoral Advisement

- **University of New Mexico**

Jordan Martinez

Cecilia Sena

Doctoral Dissertation Committee Membership

- **University of New Mexico**

Ruizhe Liu

John W. Lower

Jana Valesca Meyer

Adam Z. Reynolds, 2023

Dissertation: *Human Diversity in Molecular Sexual Dimorphism and Gender Disparities in Health*

Master's Thesis Committee Membership

- **University of New Mexico**

Steven Klepacz, 2023

Thesis: *Effects of Aging on Excess Post-Exercise Oxygen Consumption*

Jackson Grady, 2020

Bachelor's Honors Advisement

- **University of New Mexico**

My Linh Lucero

Madison Butler

Amaya Abeyta-Brown, 2023, *magna cum laude*

Thesis: *Effects of Occupation-Related Physical Activity on Limb Bone Shaft Strength among Contemporary People in the United States*

Jennah Groves, 2023, *summa cum laude*

Thesis: *The Effect of Normal Loading on Bone Curvature*

Chloé Lauer, 2023, *summa cum laude*

Thesis: *Habitual Physical Activity Levels and Foot Strength and Stiffness*

Harry Cook-Graver, 2022, *cum laude*

Thesis: *Why is Excess Body Weight Associated with Greater Bone Strength?*

- **Harvard University**

Rebecca Landau, 2019, *cum laude*

Thesis: *Breaking It down: Investigating the Effects of Variation in Physical Activity and Loading Substrates on the Development of Knee Osteoarthritis*

Grant Riew, 2019, *magna cum laude*

Thesis: *Obesity and the Pathogenesis of Knee Osteoarthritis: Assessing the Relative Influence of Joint Stress and Visceral Adiposity*

Classroom Teaching

- **University of New Mexico**

2023 Evolutionary Human Physiology and Anatomy (ANTH 390L/590L), 16 students

2023 Human Physical Activity (ANTH 450/550), 14 students

2023 Human Biology (ANTH 2135), 25 students

2023 Anthropology Honors Seminar (ANTH 498), 4 students

2022 Evolutionary Human Physiology and Anatomy (ANTH 390L/590L), 15 students

2022 Human Physical Activity (ANTH 450/550), 15 students

2022 Anthropology Honors Seminar (ANTH 498), 14 students

2022 Human Behavioral Ecology and Life History (ANTH 567), 8 students

2021 Human Evolutionary Anatomy and Physiology (ANTH 450), 16 students in spring semester, 10 students in fall semester

2020 Principles of Evolutionary Medicine (ANTH 1996), 11 students

2020 Human Physical Activity (ANTH 450), 15 students

2020 Evolution and Human Health (ANTH 450), 28 students

- **Harvard University**

2019 Evolutionary Human Physiology and Anatomy (LS 2), 168 students

2019 Human Evolution and Human Health (HEB 1386), 37 students

2018 Evolutionary Human Physiology and Anatomy (LS 2), 127 students

Curriculum Development

2021 Human Evolutionary Anatomy and Physiology (ANTH 390L & 590L)

2021 Human Biology: Evolution, Life History, and Health (ANTH 2135)

Service

Symposia/Workshops Organized

Traditions of Endurance: Dancing and Running Culture among the Indigenous Peoples of the American Southwest. Co-organizers: Jordan Martinez and Travis Torres Thompson. ARTSLab, University of New Mexico (March 31, 2023)

Editorships

2022 Guest Editor, *Frontiers in Nutrition*

2020 Guest Editor, *Proceedings of the National Academy of Sciences USA*

2011–2013 Editorial Assistant, *Evolutionary Anthropology*

Reviewing for Journals

2023 *American Journal of Biological Anthropology* (x 3); *Comparative Biochemistry and Physiology Part A: Molecular and Integrative Physiology*; *Proceedings of the Royal Society B: Biological Sciences*; *Scientific Reports*

2022 *Journal of Anatomy*, *Journal of Human Evolution*

2021 *American Journal of Physical Anthropology*; *Journal of Anatomy*; *Journal of Human Evolution*; *PaleoAnthropology*

2020 *American Journal of Physical Anthropology*; *eLife* (x 2); *Exercise and Sport Sciences Reviews*; *Journal of Anthropological Research*; *Journal of Human Evolution* (x 2); *Journal of Theoretical Biology*; *Osteoarthritis and Cartilage*; *Quaternary Research*

2019 *American Journal of Physical Anthropology*; *Current Anthropology*; *Footwear Science*; *Hand Surgery and Rehabilitation*; *Journal of Human Evolution*; *Osteoporosis International*

2018 *American Journal of Physical Anthropology* (x 2); *Anatomical Record*; *Journal of Anatomy*; *Journal of Experimental Biology* (x 2); *PeerJ*; *PLoS One*

2017 *American Journal of Physical Anthropology* (x 3); *Journal of Human Evolution* (x 2); *Journal of Morphology*

2016 *American Journal of Physical Anthropology* (x 2); *Ecology and Evolution*

2015 *American Journal of Physical Anthropology* (x 3); *Evolutionary Anthropology*; *Journal of Anatomy*; *Journal of Morphology*; *Journal of Musculoskeletal and Neuronal Interactions*; *PLoS One*; *Proceedings of the Royal Society B: Biological Sciences*

<2015 *American Journal of Physical Anthropology*; *Evolutionary Anthropology* (x 9); *Journal of Human Evolution*

Reviewing for Funding Organizations

- 2023 Leakey Foundation, National Science Foundation (x 2)
- 2022 European Research Council; Leakey Foundation (x 2)
- 2021 Leakey Foundation (x 2)
- 2020 National Science Foundation (x 3)
- 2019 Leakey Foundation
- 2018 Natural Sciences and Engineering Research Council of Canada
- 2017 National Geographic Society; National Science Foundation
- 2016 Leakey Foundation (x 3)
- 2015 Leakey Foundation (x 2); National Research Foundation of South Africa

At UNM

- 2022–2023 Member, Department of Anthropology Graduate Studies Committee
- 2021–2022 Chair, Evolutionary Anthropology Journal Club
- 2020–present Chair, Department of Anthropology Colloquium Committee