CV

Ian Jacob Wallace

Education and academic appointments

Starting 2020	Assistant Professor, Department of Anthropology, University of New Mexico
2018–2019	Lecturer, Department of Human Evolutionary Biology, Harvard University
2015–2018	Postdoctoral Research Fellow, Department of Human Evolutionary Biology, Harvard University
2013–2015	Postdoctoral Research Instructor, Department of Anthropology, Stony Brook University
2013	PhD in anthropology, Stony Brook University
2006	BA (*summa cum laude*) in anthropology, University of Minnesota

Research and review articles

In press	**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*
In press	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*
2018	**Wallace IJ**, Hainline C, Lieberman DE. Sports and the human brain: an evolutionary perspective. In *Sports Neurology*, Hainline B, Stern RA, editors. San Diego: Elsevier, pp. 3–10
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	Berenbaum F, **Wallace IJ**, Lieberman DE, Felson DT. Modern-day environmental factors in the pathogenesis of osteoarthritis. *Nature Reviews Rheumatology* 14, 674–681
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	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* 114, 9332–9336
2017	**Wallace IJ**, Winchester JM, Su A, Boyer DM, Konow N. Physical activity alters limb bone structure but not entheseal 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
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
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

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

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, Sénégas 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

Conference presentations and abstracts

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 entheseal shape and adaptation to functional loading. *American Journal of Physical Anthropology* S68, 129–130

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

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, Brown University, Providence, RI

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 peoples during the 20th century. *American Journal of Physical Anthropology* S66, 167

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

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

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

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

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

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**, Judex S, Demes B. The effects of weight-bearing exercise on skeletal structure and strength differ between outbred populations of mice. 2nd Annual Musculoskeletal Repair and Regeneration Symposium, Albert Einstein College of Medicine, Bronx, NY

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

Book and conference reports

2015 Nunn CL, **Wallace I**, 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

Invited lectures

2019 Harvard Medical School, Hebrew SeniorLife, Marcus Institute for Aging Research
2019 University of New Mexico, Department of Anthropology
2018 Hunter College of the City University of New York, Department of Anthropology
2017 Harvard University, Department of Organismic and Evolutionary Biology, 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 New York Institute of Technology, 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

Honors and awards

2019 Star Family Prize for Excellence in Advising, Harvard University
2019 Certificate of Distinction and Excellence in Teaching, Harvard University

2014 President's Award for Distinguished Doctoral Students, Stony Brook University
2011 & 2013 Norman Creel Prize for Outstanding Student Research, Stony Brook University
2006–2013 Graduate Fellowship, Turkana Basin Institute

Grants

2017 American School of Prehistoric Research: Subsistence energetics of the indigenous South American Tsimane
2014 Leakey Foundation: Phylogenetic signal in limb bone shaft structure among South Africans
2012 Sigma Xi Grant-in-Aid of Research: Physical activity and genetics as determinants of limb bone structure
2008 Leakey Foundation: Genotype-specific growth patterns and long bone functional adaptation

Fieldwork

2019– Orang Asli Health and Aging Project, Malaysia
2015– Health screening of Tarahumara Native Americans, 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 Archaeological 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

Professional service

Manuscript reviewer:

American Journal of Physical Anthropology; *Anatomical Record*; *Current Anthropology*; *Ecology and Evolution*; *Evolutionary Anthropology*; *Footwear Science*; *Journal of Anatomy*; *Journal of Experimental Biology*; *Journal of Human Evolution*; *Journal of Morphology*; *Journal of Musculoskeletal and Neuronal Interactions*; *Osteoporosis International*; *PeerJ*; *PLoS One*; *Proceedings of the Royal Society B: Biological Sciences*

Grant reviewer:

Leakey Foundation; National Research Foundation of South Africa; National Geographic Society; National Science Foundation; Natural Sciences and Engineering Research Council of Canada

Other service:

2011–2013 Editorial Assistant, *Evolutionary Anthropology*

Current professional affiliations

American Association for the Advancement of Science
American Association of Physical Anthropologists
Paleoanthropology Society