JOHN DAVID POLK

[Google scholar metrics (12/26/23): 2506 citations; h-index: 23; i10 index: 31]

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Education

1993	University of Toronto Bachelor of Science: Specialist program Biological Anthropology, Major Zoology
1997	Stony Brook University Master of Arts Anthropological Sciences
2001	Stony Brook University Doctor of Philosophy Anthropological Sciences: Comparative biomechanics and gait

List of Academic Positions

2001	Post-doctoral researcher Department of Anthropology George Washington University (working with Prof. Daniel Lieberman)
2001 – 2003	Post-doctoral researcher Department of Anthropology Harvard University. Biomechanics of gait and bone biology (working with Prof. Daniel Lieberman)
2003 – 2006	Research Associate Department of Anthropology Harvard University
2003 – 2009	Assistant Professor Department of Anthropology University of Illinois Urbana Champaign
2008 – 2009	Assistant Professor Department of Surgery University of Illinois College of Medicine
2011 – 2012	Visiting Professor Department of Anthropology McGill University
2013 – 2014	Dean's Fellow College of Liberal Arts and Sciences, Univ. of Illinois
2009 – 2018	Associate Professor Department of Surgery University of Illinois College of Medicine
2009 – 2019	Associate Professor Department of Anthropology, College of Liberal Arts and Sciences University of Illinois Urbana-Champaign Research Associate Department of Kinesiology and Community Health, College of Applied Health Sciences Urbana IL
2017 – 2019	Associate Professor, and co-Director Musculoskeletal Medicine, Carle-Illinois College of Medicine Research Associate Beckman Institute for Advanced Science and Technology
2019 – 2022	Professor, and co-Director Musculoskeletal Medicine, Carle-Illinois College of Medicine Professor Department of Anthropology College of Liberal Arts and Sciences University of Illinois Urbana-Champaign Research Associate Department of Kinesiology and Community Health, College of Applied Health Sciences Urbana IL
2021 – Present	Associate Professor & Director, Human Biology Program, Department of Anthropology, University at Albany Professor, Biomedical and Translational Sciences, Carle-Illinois College of Medicine

Honors Recognitions and Outstanding Achievements

1988	Royal Military College Club of Canada Award
1988	Achievement Leadership and Contribution Award
1998-2000	University Teaching Fellowship Stony Brook University.
2000	Mildred and Herbert Weisinger Dissertation Fellowship Stony Brook University.
2007	UIUC List of Teachers Ranked as Excellent (ANTH 456)
2008	UIUC List of Teachers Ranked as Excellent (ANTH 440)
2010	UIUC List of Teachers Ranked as Excellent (ANTH 456 ANTH 440)

2010	Outstanding Student Choice for Anthropological Recognition Undergraduate Anthropology Student Association University of Illinois Urbana-Champaign. Award given for sustained support for undergraduate research.
2011	Department of Anthropology Teaching Award for Support of Undergraduate Research
2013	UIUC List of Teachers Ranked as Excellent (ANTH 440)
2015	UIUC List of Teachers Ranked as Excellent (Medical Gross Anatomy)
2016	UIUC List of Teachers Ranked as Excellent (Medical Gross Anatomy)
2017	UIUC List of Teachers Ranked as Excellent (ANTH 102)

Publications

(*peer reviewed [G]Graduate student, [U]Undergraduate student or [P]Postdoc involvement)

Doctoral Dissertation:

(2001) The influence of body size and body proportions on the kinematics & kinetics of terrestrial primate quadrupedalism. Stony Brook University. PhD Advisor: Brigitte Demes; Committee: William Jungers, John Fleagle, Susan Larson. Outside member: Andrew Biewener (Harvard).

Books:

(none)

Refereed Articles:

1. * **Polk JD,** Demes B, Jungers WL, Heinrich RE, Biknevicius AR and Runestad JA (2000). A comparison of primate carnivoran and rodent limb bone cross-sectional properties Are primates really unique? Journal of Human Evolution 39:297-325.

2. * **Polk JD** (2002) Adaptive and phylogenetic influences on musculoskeletal design in cercopithecine primates. Journal of Experimental Biology. 205:3399-3412.

3. * Lieberman DE, Pearson OM, **Polk JD,** Demes B, and Crompton AW. (2003) Optimization of bone growth and remodeling in response to loading in tapered mammalian limbs. J. Exp. Biol. 206:31253138.

4. * Lieberman DE, **Polk JD** and Demes B. (2004) Predicting long bone loading from cross-sectional geometry. American Journal of Physical Anthropology 123:156-171

5. * **Polk JD** (2004) The influence of body size and limb proportions on joint posture in terrestrial monkeys and fossil hominins. Journal of Human Evolution. 47:237-252.

6. * **Polk JD**, [U]Psutka SP and Demes B (2005) Sampling frequencies and measurement error in primate gait studies. Journal of Human Evolution. 49:665-679.

7. * Pontzer H, Lieberman DE, Momin E, [G]Devlin MJ, **Polk JD,** Hallgrímsson B and Cooper DML (2006) Trabecular bone in the bird knee responds with high sensitivity to changes in load orientation. Journal of Experimental Biology. 209:57-65.

8. * Hanna JB, **Polk JD** and Schmitt D. (2006) Forelimb and hindlimb forces in walking and galloping primates. American Journal of Physical Anthropology 130:529-535.

9. * **Polk JD,** [U]Blumenfeld J, Ahluwalia K. (2008) Knee Posture Predicted from Subchondral Apparent Density in the Distal Femur An Experimental Validation The Anatomical Record Advances in Integrative Anatomy and Evolutionary Biology. 291:293–302.

10. * **Polk JD,** Spencer-Smith J, [G]DiBerardino L, [U]Ellis D, [U]Downen M Rosengren KS (2008) Quantifying Phase Portraits Application to Gait Ontogeny. Infant Behavior and Development 31302-306.

11. * [G]Shorter KA, **Polk JD,** Rosengren KS, Hsiao-Wecksler ET (2008) A new approach to detecting asymmetries in gait. Clinical Biomechanics 23:459-467.

12. * Rosengren KS, Deconinck FJA, [G]Di Berardino LA, **Polk JD,** Spencer-Smith J, Lenoir M and De Clercq D (2009) Differences in Gait Complexity and Variability Between Children With and Without Developmental Coordination Disorder. Gait & Posture 29:225-229.

13. * **Polk JD,** [G]Williams SA, and [U]Peterson J. (2009) Body size and joint posture in Primates. Am. J. Phys. Anthropol. 140:359-367.

14. * Patel BA and **Polk JD. (**2010**)** Distal forelimb kinematics in patas monkeys (*Erythrocebus patas*) and olive baboons (*Papio anubis*) during walking and galloping. International Journal of Primatology. 31:191-208.

15. * [G]DiBerardino III LA, **Polk JD,** Rosengren KS Spencer-Smith JB, Hsiao-Wecksler ETH. (2010) Quantifying complexity and variability in phase portraits. Clinical Biomechanics. 25:552- 556.

16. * **Polk JD,** [G]Williams SA, [U]Peterson JV, Roseman CC and Godfrey LR. **(**2010**)** Subchondral bone apparent density and locomotor behavior in extant primates and subfossil lemurs *Pachylemur* and *Hadropithecus*. International Journal of Primatology. 31: 275-299

17. * Hsiao-Wecksler ET, **Polk JD,** Rosengren KS, Sosnoff JJ and Hong S (2010) A review of new analytic techniques for quantifying symmetry in locomotion. Symmetry *2*:1135-1155

18. * [G]Grabowski MW, **Polk JD,** and Roseman CC (2011) Divergent patterns of integration and reduced constraint in the human hip and the origins of bipedalism. Evolution 65:1336-1356.

19. * [G]Helwig NE, Hong S, Hsiao-Wecksler ET, **Polk JD** (2011) Methods to temporally align gait cycle data. Journal of Biomechanics 44:561-566.

20. * [G]Helwig NE, **Polk JD,** Hong S (2012) Parallel Factor Analysis of gait waveform data multimode extension of Principal Component Analysis. Human Movement Science 31:487-748.

21. * Ross CF, Blob RW, Carrier DR, Daley MA, Deban SM, Demes B, Gripper J, Iriarte-Diaz J, Kilbourne BM, Landberg T, **Polk JD,** Schilling N, and Vanhooydonck B (2012) The evolution of tetrapod rhythmicity. Evolution. DOI 10.1111/evo.12015

22. *Raichlen DR and **Polk JD** (2013) Linking Brains and Brawn Exercise and the evolution of the human neurobiology. Proceedings of the Royal Society of London B. 280:2012:2250.

23. * Stumpf RM, Wilson BA, [G]Rivera A, [G]Yildirim S, [P]Yeoman CJ, **Polk JD,** White BA, and Leigh SR (2013) The primate vaginal microbiome comparative context and implications for human health and disease. Yearbook of Physical Anthropology. doi 10.1002/ajpa.22395

24. * [P]Wallace I, Demes B, [G]Mongle C, Pearson O, **Polk J,** Lieberman DE (2014) Exercise-Induced Bone Formation is Poorly Linked to Local Strain Magnitude in the Sheep Tibia. PLOS-One. DOI 10.1371/journal.pone.0099108.

25. * Stumpf RM, [G]Gomez A, Amato KR, [P]Yeoman CJ, **Polk JD,** Wilson BA, Nelson KE, White BA, Leigh SR (2016) Microbiomes metagenomics and primate conservation New strategies tools and applications. Biological Conservation. doi10.1016/j.biocon.2016.03.035.

26. * Burgess ML, Schmitt D, Zeininger A, McFarlin SC, Zihlman AL, **Polk JD,** Ruff CB (2016) Ontogenetic scaling of fore- and hind limb joint posture and limb bone cross-sectional geometry in vervets and baboons. American Journal of Physical Anthropology 16:172-83.

27. * **Polk JD,** Stumpf RM and Rosengren KS (2017) Foot posture balance and propulsion during walking gait. Gait and Posture 52:140-146.

28. * [U]Hill T and **Polk JD**. (2019). BDNF, Endurance Activity and the Evolution of Hominin Brain Size. Yearbook Phys Anthropol.168:S67:47–62. Doi: 10.1002/ajpa.23762

29. * [U]Ang IC, [G]Fox M, **Polk JD**, Kersh ME (2019) An Algorithm for Automated Separation of Trabecular Bone from Variably Thick Cortices in High-Resolution Computed Tomography Data. IEEE Transactions in Biomedical Engineering. doi: 10.1109/TBME.2019.2924398.

30. * [G]Song H, **Polk JD**, Kersh ME (2019) Rat bone properties and their relationship to gait during growth. J. Exp. Biol. doi: 10.1242/jeb.203554

31. * [G]Moshage SG, McCoy AM, **Polk JD**, Kersh ME (2020) Temporal and spatial changes in bone accrual, density, and strain energy density in growing foals. Journal of Mechanical Behavior of Biomedical Materials. 103: 103568. doi: 10.1016/j.jmbbm.2019.103568

32. * Roseman CC, Capellini TD, Jagoda E, Williams SA, Grabowski MW, O'Connor C, **Polk JD**, Cheverud JM (2020) Variation in mouse pelvic morphology maps to locations enriched in Sox9 Class II and Pitx1 regulatory features. Journal of Experimental Zoology B: Molecular and Developmental Evolution. 334: 100-112.

33. * [G]Fox M, Konigsberg L, Hsiao-Wecksler ET, **Polk JD** (2021) Scaling of linear body shape variables in living humans. Am J Phys Anthropol.176: 134-143. http://doi.org/10.1002/ajpa.24275

34.* [G]Thomas OO, [G]Shen H, Raaum RL, Harcourt-Smith WEH, **Polk JD', ** Hasegawa-Johnson M. (2023) Learning biological shape descriptors for automated morphological phenotyping and nonlandmarkbased geometric morphometrics. PLOS Computational Biology doi.org/10.1371/journal.pcbi.1009061

35.* [G]Mandahar, S, [G]Song H, [G]Moshage S, [G]Craggette J, **Polk JD,** Kersh ME (2023) Spatial variation in young ovine cortical bone properties. *J Biomech Eng*. Jun 2023, 145(6): 061002

Unrefereed Articles:

1. [U]Ang, IC, [G]Fox MC, **Polk JD** and Kersh ME (2018) A structure-based algorithm for automated separation of subchondral bone in micro-computed tomography data. engrXiv. 10.31224/osf.io/w86ke

2. + [G]Song H, **Polk JD**, Kersh ME (2018) Murine bone properties and their relationship to gait during growth. bioRxiv, doi: http://dx.doi.org/10.1101/465948.

3. + [G]Thomas OO, [G]Shen H, Raaum RL, Harcourt-Smith WEH, **Polk JD', ** Hasegawa-Johnson M (2021) Learning biological shape descriptors for automated morphological phenotyping and nonlandmark-based geometric morphometrics. Biorxiv. https://doi.org/10.1101/2021.05.18.444628

4. [G]Fox MC, Hsiao-Wecksler ET, **Polk JD** (2022) Effects of Body Mass on Leg and Vertical Stiffness in Running Humans. bioRxiv https://doi.org/10.1101/2022.05.04.490639

5. [G]Mandahar S, [G]Moshage S, [U]Craggette J, **Polk JD**, Kersh ME Effect of local mechanical strain in young cortical bone growth. Engrxiv https://doi.org/10.31224/2397

Book Chapters:

1. Stumpf RM **Polk JD** Oates JF Jungers WL Heesy CP Groves CP and Fleagle JG. (2003) Patterns in gorilla cranial morphology. In Taylor AB and Goldsmith ML (eds). Gorilla Biology A Multidisciplinary Perspective. Pp. 35-61. Cambridge: Cambridge University Press

Encyclopedia Entries:

2. Rosengren KS and **Polk JD** (2017) Humans Crawl: Species Atypical Movement. Encyclopedia of Evolutionary Psychological Science. Springer. doi:10.1007/978-3-319-16999-6_2371-1).

3. **Polk JD** Cross-sectional properties. (2018) SAS Encyclopedia of Archaeological Sciences

Book Reviews:

1. **Polk JD.** Review of Vogel S. (2005) Comparative Biomechanics: Life's Physical World. Princeton Princeton University Press. In American Journal of Physical Anthropology 127126- 127.

Works in Progress and Submitted manuscripts:

1. [G]Fox M, Kersh ME, Hsiao-Wecksler E, **Polk JD** (in review.) Scaling patterns in bone microstructure of the human femur American Journal of Biological Anthropology.

2. [G]Fox M, Hsiao-Wecksler E, Kersh ME, **Polk JD** (submitted) Bone microstructure variability and spatial patterning in the human distal femur. American Journal of Biological Anthropology.
3. **Polk JD** and Kersh ME (revising). Functional inferences from subchondral and trabecular morphology: a review. Evolutionary Anthropology
4. [G]Thomas O, Harcourt-Smith WEH, Raaum RR, **Polk JD** and Roseman CC (in prep) Morphological diversity in the primate cuboid is the product of a complex mix of random and adaptive evolutionary processes. Journal of Human Evolution.
5. [G]Thomas O, [U]Guzman M, [G]Fox M, **Polk JD** (in prep) An inexpensive inertial measurement system for analyzing human and animal locomotion. Journal of Experimental Biology.
6. **Polk JD** and [U]Kendziera D (in prep.) Asymmetry of accelerational forces during sprinting starts. Target: Gait and Posture.
7. [G]Fox M, **Polk JD,** Hsiao-Wecksler E (in prep.), Multivariate analysis of body size and stance characteristics on postural sway. Gait and Posture
8. [G]Thomas OO, [G]Shen H, Moulin P, Roseman CC, **Polk JD** (in prep) HINDSIGHTVAE: A recurrent convolutional autoencoder for complex motion analysis. Target: Gait and Posture.
9. [G]Song, H, **Polk JD,** Kersh ME (in prep) Effect of targeted exercise intervention on subchondral and trabecular bone properties Target: Proceedings of the National Academy of Sciences
10. [G]Thomas OO, Harcourt-Smith W, **Polk JD** (in prep). Learning-based approaches to morphological analysis.
11. **Polk JD**, [U]Dorvilier L, [U]Sahibdeen L, [U]Teale M, [U]Vadeboncoeur N (in prep) Effects of hopping frequency on limb stiffness in collegiate sprinters. Target: Gait and Posture

Grants Received:
([PI] -responsible principal investigator; [coequal-PI] – equally responsible investigator; [co-PI] subordinate investigator)

Federal
1. Demes B and **Polk JD[PI].** National Science Foundation Doctoral Dissertation Improvement grant. SBR9803079 1998 "The influence of body size and body proportions on primate quadrupedal locomotion." $11910.

2. **Polk JD[PI]**. National Science Foundation. BCS-0639630. 02/01/07-01/31/09. "Comparative Analyses of Subchondral Bone Density in Primates." $32974.

3. **Polk JD[PI]**. National Science Foundation Research Experience for Undergraduates (REU) supplement BCS-0639630. 2007. 06/30/2007-01/31/09 "Comparative Analyses of Subchondral Bone Density in Primates." $4000.

4. Hsiao-Wecksler E, Dankowitz H, **Polk JD[(co-PI),]** Hong S. National Science Foundation. CMMI 07-27083 1 Jan 2008-31 Dec 2010. "Quantitative characterization of complex motion patterns using shape-based and multivariate techniques." $303109.

5. **Polk JD[PI]**, Williams SA. National Science Foundation**.** BCS-0925734. 15 Sep 2009-31 Aug 2010. Doctoral Dissertation Improvement Morphological Integration and Evolution in the Hominoid Vertebral Column $11235. Role PI with Co-PI S. Williams.

6. Roseman C [(co-equal PI)]., **Polk JD**[(co-equal PI)]. National Science Foundation. BCS 0962903. Integration and evolution of human and non-human primate postcranial morphology. $149773. Jun 2010 – May 2013.

7. **Polk JD**[(PI)] and Kersh M. **(**2017**)** Reconstructing individual posture and movement patterns from subchondral and trabecular structure. National Science Foundation Biological Anthropology Program $440872. 02/01/2017-01/31/2020

8. Lee KM, **Polk JD**[(co-PI)]**,** Clancy K (2017) National Science Foundation. Doctoral Dissertation Research Life history tradeoffs affecting bone maintenance and development in premenopausal Polish and Polish-American women. $31720.

Foundations

1. **Polk JD**[(PI)]. Sigma Xi The Scientific Research Society. 1995. "Patterns of bone breakage at the middle Miocene site of Paşalar Turkey. $1000

2. Demes B and **Polk JD**[(PI)]. The Leakey Foundation. 1997. The influence of body size and body proportions on primate quadrupedal locomotion." $7829.

3. **Polk JD** [(PI)] University of Illinois at Urbana Champaign Campus Research Board. 2004. "Mechanical influences on subchondral bone density." $20000.

4. Hsiao-Wecksler E, **Polk JD**[(co-equal PI)] and Rosengren K. Mary Jane Neer Research Fund University of Illinois at Urbana Champaign. 2004. "Assessing gait disability and recovery from injury using directional and variance asymmetry." $13000.

5. **Polk JD**[(PI)]. University of Illinois at Urbana Champaign Scholars Travel Fund. 2004 American Association of Physical Anthropology Annual Meeting Tampa. $640.

6. Ebersole K and **Polk JD** [(co-PI)]. Mary Jane Neer Research Fund University of Illinois at Urbana Champaign. 2005."Quantitative examination of the covariation between kinematic and physiological factors that underlie the movement disabilities associated with patellofemoral pain syndrome." $10000.

7. **Polk JD**[(PI)]**.** University of Illinois at Urbana Champaign Scholars Travel Fund. 2005. American Association of Physical Anthropology Annual Meeting. Milwaukee WI $540.

8. **Polk JD**. [(PI)] University of Illinois at Urbana Champaign Scholars Travel Fund. 2006 American Association of Physical Anthropology Annual Meeting. Anchorage AK $940.

9. **Polk JD**[(co-equal PI)]**,** Hsiao-Wecksler E and Rosengren K. Mary Jane Neer Research Fund University of Illinois at Urbana Champaign. 2006. "Multivariate analysis of simulated gait asymmetry."$7853

10. **Polk JD**[(PI)]. University of Illinois at Urbana Champaign Scholars Travel Fund. 2007. American Association of Physical Anthropology Annual Meeting. Philadelphia PA. $540.

11. **Polk JD(co-equal PI),** Hsiao-Wecksler ET, Dankowicz H, Park K University of Illinois at Urbana Champaign Campus Research Board. Quantitative characterization of pathological gait. $22620 3/10/2010-12/31/2011.

12. **Polk JD(PI)** and Carlson K. Lower limb posture in *Australopithecus sediba* and extant apes. Leakey Foundation. $5000

13. **Polk JD(PI)** (2014). Reconstructing posture and locomotion in early human ancestors. UIUC Research Board. $14000.

21. **Polk JD(PI)** and McCoy A. (2017) University of Illinois at Urbana Champaign Campus Research Board Ontogenetic changes in limb biomechanics and gait in horses. $20000. 03/13/2017 – 08/13/2018.

23. Fox MC, **Polk JD (PI)** (2017) Influences of body size on human locomotor biomechanics. Wenner-Gren Foundation. $18156.

24. McCoy A, **Polk JD** (co-PI) and Kersh ME (2018) Biomechanical changes and fracture risk in the equine first phalanx. Veterinary Medicine Clinical Research Program. ($10000).

Grants Submitted:

1. **Polk JD(PI)**, Teale A, Yu X (Submitted). Quantifying fall risk using accelerometry and machine learning in elderly subjects. Trinity Health $275000.

2. **Polk JD (PI)** Ontogeny of epiphyseal structure in *Macaca mulatta*. (submitted) Faculty Research Assistance Program. University at Albany

Planned grant submissions:

1. **Polk JD(PI)**, Teale A, Yu X (February 2023). Quantifying fall risk using accelerometry and machine learning in elderly subjects. NIH R21 $275000.

2. **Polk JD(PI)**, Teale A, Yu X (February 2023). Quantifying fall risk using accelerometry and machine learning in elderly subjects. NIH R01 $2.5M

3. **Polk JD(PI)**, Turcotte C (in prep) Ontogeny of epiphyseal structure in *Macaca mulatta*. Leakey Foundation (January 2024).

4. **Polk JD(PI)** Genetics of central pattern generators and the evolution of hopping gait in mammals. NSF IOS Physiological and Structural Systems. (Jan 2024).

Published Abstracts and Conference Presentations:

1. **Polk JD** (1996) Evidence for carnivore activity at the Middle Miocene hominoid locality at Paşalar Turkey. Journal of Vertebrate Paleontology 16 (suppl to No. 3):58A.

2. **Polk JD** (1996) Sacral indicators of tail loss in primates implications for fossil primates. American Journal of Physical Anthropology. Supplement 22:187-188.

3. **Polk JD,** Demes B, Jungers WL, Heinrich RE, Biknevicius AR and Runestad JA. (1997) Crosssectional properties of primate and nonprimate limb bones. American Journal of Physical Anthropology. Supplement 24:188.

4. **Polk JD,** Chen X and MacLatchy LM (1998) A comparison of EMG- and optimization-based estimates of force in hip abductor muscles during level walking. American Journal of Physical Anthropology. Supplement 26:179.

5. **Polk JD** (2000) The kinematics of cursoriality how patas monkeys differ from other primate quadrupeds. American Journal of Physical Anthropology Supplement 30:252

6. Strait DS, Richmond BG, and **Polk JD**. (2000) The locomotor anatomy of hominoid and hominid ancestors. American Journal of Physical Anthropology Supplement 30:294.

7. **Polk JD** (2001) Limb lengths body mass and musculoskeletal design. American Zoologist 41:15581559.

8. Lieberman DE, Pearson OM and **Polk JD**. (2001) Growth versus repair responses to loading in mammalian limb bones. American Zoologist 41:1506-1507.

9. **Polk JD** (2001) The influences of body size and body proportions on primate quadrupedal locomotion. International Congress on Vertebrate Morphology. July 21-26 2001 Jena Germany. Journal of Morphology 248(3):271.

10. **Polk JD**. (2002) Limb proportions and joint postures in *Homo* and australopithecines. American Journal of Physical Anthropology Supplement 34:126.

11. Demes B, Jungers WL and **Polk JD** (2002) Chimpanzee walking. American Journal of Physical Anthropology Supplement 34:62.

12. Lieberman DE, Pearson OM and **Polk JD**. (2002) Growth versus repair responses to loading in mammalian limb bones. American Journal of Physical Anthropology Supplement 34:102.

13. **Polk JD,** Psutka S, Cote S and Lieberman D. (2003) Running in Human Evolution. American Journal of Physical Anthropology Supplement 36:170.

14. **Polk JD,** Lieberman D and Demes B. (2003) Predicting long bone loading from cross-sectional geometry. Integrative and Comparative Biology 42:1295-1296.

15. Devlin MJ, Pontzer H, Lieberman DE and **Polk JD** (2003) Trabecular bone orientation in flexed versus extended postures in guinea fowl A test of Wolff's Law. American Journal of Physical Anthropology Supplement 36:88.

16. Lieberman D, **Polk JD** and Demes B (2003). Predicting long bone loading from cross-sectional geometry. American Journal of Physical Anthropology Supplement 36:140.

17. **Polk JD,** Lieberman DE, Betz AE and Demes B **(**2004**)** Validation of a non-invasive model for predicting long bone loading. American Journal of Physical Anthropology Supplement 38:171.

18. Pontzer H, Lieberman DE, Momin EN, Devlin MJ, **Polk JD,** Hallgrimsson B and Cooper DML. (2004) The effect of a "bent-knee" gait on trabecular orientation an experimental test of Wolff's Law. American Journal of Physical Anthropology Supplement 38:172.

19. **Polk JD,** Lieberman DE, Betz AE and Demes B. (2005) Validation of a non-invasive model for predicting long bone loading. Integrative and Comparative Biology 45:1179.

20. **Polk JD,** Blumenfeld J and Ahluwalia K. (2006) Experimental test of the relationship between joint posture and subchondral bone density. American Journal of Physical Anthropology Supplement 42:148.

21. **Polk JD,** Schwarz J, Godfrey LR. (2006) Subchondral bone density and joint posture in subfossil Malagasy lemurs. Journal of Vertebrate Paleontology 26:111A.

22. **Polk JD,** Schwarz J, Godfrey LR. (2006) Subchondral bone density and joint posture in subfossil Malagasy lemurs. Midwest Primate Interest Group Annual Meeting. Champaign IL. Oct 13-14 2006.

23. **Polk JD (**2007**)** Comparative analyses of body support and joint posture in primates. American Journal of Physical Anthropology Supplement 44:190-191.

24. Scott JE, **Polk JD (**2007**)** *In vitro* study of shock absorption in simulated intervertebral disks and the implications for bipedal distance running. American Journal of Physical Anthropology Supplement 44:212.

25. Shorter KA, **Polk JD,** Rosengren KS, Hsiao-Wecksler ET. (2007) A new method for assessing gait symmetry 18th meeting of the International Society of Posture and Gait Research Burlington VT July 14-18 2007.

26. Shorter KA, **Polk JD,** Rosengren KS, Hsiao-Wecksler ET (2007) Detecting asymmetries in braced and unbraced limbs. American Society of Biomechanics.

27. Patel BA, Uppal K, **Polk JD. (**2007**)** Primate hand postures across symmetrical and asymmetrical gaits. Integrative and Comparative Biology. 47 :e215.

28. **Polk JD,** Peterson J. (2008) Sexual dimorphism body size and joint posture in primates. American Journal of Physical Anthropology Supplement 46:173.

29. Williams SA, Grabowski MW, **Polk JD,** Roseman CC. (2008) Phenotypic integration and evolution of the African ape 3rd manual ray. American Journal of Physical Anthropology Supplement 46:223.

30. Grabowski MW Williams SA Roseman CC **Polk JD.** (2008) Phenotypic integration in the macaque postcranial skeleton. American Journal of Physical Anthropology Supplement 46:106.

31. Shorter KA, **Polk JD,** Rosengren KS, Hsiao-Wecksler ET. (2008) Tracking gait asymmetries during rehabilitation using regions of deviation measures A case study. American Society of Biomechanics.

32. DiBerardino LA, Spencer-Smith JB, **Polk JD,** Rosengren KS and Hsiao-Wecksler ET. (2008) Elliptical Fourier analysis of joint angle phase portraits application to simulated injury." 45th Annual Society of Engineering Science Conference Urbana IL Oct. 12-15 2008

33. DiBerardino L, **Polk JD,** Rosengren K, Hsiao-Wecksler ET (2009) Quantifying Complexity and Variability of Gait Phase Portraits. ASME Summer Bioengineering Conference Lake Tahoe CA June 1720

34. Hsiao-Wecksler ET, Dankowicz H, Hong S, Lague MR, **Polk JD,** Rosengren KS, DiBerardino LA, Helwig NE and Park K. (2009) Quantitative Characterization of Complex Motion Patterns Using Shape-based and Multivariate Techniques. Proceedings of 2009 NSF Engineering Research and Innovation Conference Honolulu HI June 22-26

35. Rosengren KS, **Polk JD,** Sosnoff J. (2009) Dynamic Gait Adaption as a Function of Age and Task Demands in Young Children. North American Society for the Psychology of Sport and Physical Activity. June 11-13 2009 Austin TX.

36. **Polk JD** and Rosengren KS (2010) Gait acclimatization as a function of age and task in young children. American Journal of Physical Anthropology Supplement

37. Rosengren K and **Polk JD** (2010) Gait adaptation as a function of age and task demands in young Children. 3rd International Congress on Gait and Mental Function. Feb 26-28 2010. Washington DC.

38. **Polk JD** and Rosengren KS (2010) Functional asymmetry and walking gait. 3rd International Congress on Gait and Mental Function. Feb 26-28 2010. Washington DC.
39. **Polk JD** and Rosengren KS (2010) Asymmetry limb dominance and foot orientation during walking gait. American Society of Biomechanics Annual Meeting Aug 18-21 2010 Providence RI.

40. Helwig NE, Hong S, **Polk JD,** and Lague MR (2010) Analysis of gait cycle shapes using parallel factor analysis. American Society of Biomechanics Annual Meeting Aug 18-21 2010 Providence RI.

41. **Polk J,** Leigh S, Stumpf R, Rosengren K, and Kramer A. (2011) Brain size and endurance running in human evolution. American Association of Physical Anthropology Annual Meeting April 13-16 2011. Minneapolis Minnesota. Am. J. Phys Anthropol. 52:241.

42. **Polk JD** (2011) Experimental approaches to understanding posture and locomotion in living and fossil primates." American Anatomical Association Annual Meeting April 9-132011. Washington DC.

43. Roseman CC, Williams SA, Grabowski MW, O'Connor C, Cheverud J, **Polk JD** (2011) A genotype-phenotype map of a mammalian pelvis using a mouse model . American Association of Physical Anthropology Annual Meeting April 9-13 2011. Minneapolis MN Am. J. Phys. Anthropol. 144 (suppl 52) 257.

44. **Polk JD,** Williams S, Grabowski M, and Roseman C (2014) Phenotypic integration and the evolution of suspensory behavior in primates. American Association of Physical Anthropology Annual Meeting April 2014. Calgary Alberta Canada. Am. J. Phys. Anthropol. (suppl 54).

45. **Polk JD,** Williams SA, Grabowski MW, Fortney C and Roseman CC (2014). Integration and the evolution of suspensory behavior in primates. XXV Congress of the International Primatology Society. Hanoi Vietnam 11-16 August 2014.

46. Stumpf RM, Amato KR, Yeoman C, Wilson BA, **Polk JD,** White B and Leigh SR (2014) The importance of microbial ecology for primate conservation in West Africa XXV Congress of the International Primatology Society. Hanoi Vietnam 11-16 August 2014.

47. **Polk JD,** Williams S, Grabowski M and Roseman C (2015) Evolvabiilty and Autonomy of Limb Proportions in *Homo* and other Hominoids. American Association of Physical Anthropology Annual Meeting St Louis MO.

48. Lee KM, Rogers MP, Galbarczyk A, Jasieńska G, Clancy KBH, **Polk JD** (2015) Physical activity levels in women of reproductive age in rural Poland. American Association of Physical Anthropology Annual Meeting St Louis MO.

49. Fox M, Carlson K, Ryan T, Kersh M and **Polk JD** (2016) Knee posture and range of motion in humans chimpanzees and gorillas subchondral and trabecular signals. American Association of Physical Anthropology Annual Meeting Atlanta GA.

50. Kersh M, **Polk JD** and Fox M (2016) Quantifying trabecular structure across joint surfaces. American Association of Physical Anthropology Annual Meeting Atlanta GA.

51. Polk JD, Fox M, Kersh M (2016) Which trabecular properties provide the best indication of habitual posture? American Association of Physical Anthropology Annual Meeting Atlanta GA

52. Mazumdar N, Roseman C & **Polk JD** (2016) Testing models of brain size evolution in Canids. American Association of Physical Anthropology Annual Meeting Atlanta GA

53. Zachwieja AJ, Demes B, Jungers WL, Carlson KJ, Grine FE, Pearson OM, Schackelford LL & **Polk** JD (2016) Ratios of humeral to femoral mid-shaft cortical area reflect differences in locomotor behavior in primates including fossil hominins. American Association of Physical Anthropology Annual Meeting Atlanta GA.

54. Lee KM, Rogers MP, Galbarczyk A, Jasienska G, **Polk JD,** Clancy KB (2016) Physical activity and anthropometry effects on bone turnover biomarkers in rural Polish women. American Journal of Physical Anthropology. 159:205-206

55. Stumpf RM, Gomez A, Amato K, **Polk JD,** Leigh SR (2016) The Microbiome and Primate Conservation New Tools and Applications. American Journal of Physical Anthropology 159:306-306

56. Thomas OO, Roseman CC, Harcourt-Smith WE, **Polk JD,** Raaum RL. (2016). Investigating primate cuboid shape within the context of adaptive evolution allometry and locomotion American Journal of Physical Anthropology 159:313-313.

57. Lee KM, Rogers M, Galbarczyk A, Jasienska G, **Polk JD,** Clancy KBH (2016) Habitual physical activity considering health behavior with an evolutionary perspective. International Society for Evolution Medicine and Public Health. Durham NC June 2016.

58. Fox MC, Whitcome KK, **Polk JD** (2017) Kinematic Effects of Body Size Differences during Walking. American Journal of Physical Anthropology

59. Song H, Moshage SG, McCoy A, **Polk J**, Kersh ME. (2018) Comparison of bone growth in quadrupeds of different size. Orthopedic Research Society.

60. Rahman, M, Fox MC, Conrad BD, Kersh ME, **Polk JD (**2018**)** Exercise and postural effects on subchondral and trabecular bone. Society for Integrative and Comparative Biology

61. Guzman M, Thomas OO, Julian A., Fox M, and **Polk JD** (2018) Validation of a multi-sensor, highspeed IMU-based motion measurement system. American Association of Physical Anthropology

62. Thomas OO, Lee E, Roseman CC, Psutka SP, Lieberman DE, Moulin P, **Polk JD** (2018) Recurrent Variational Ladder Auto-Encoders: A self-supervised deep learning approach to obtaining structured representations of locomotor characteristics from sequential kinematic data. American Association of Physical Anthropology

63. Lee KMN, Rogers MP, Galbarczyk A, Jasienska G, **Polk JD**, Clancy KBH (2018) Lifestyle factors influencing frame size, grip strength, and bone density in two related populations. American Association of Physical Anthropology

64. Fox M, Thomas OO, Psutka SP, Lieberman DE and **Polk JD** (2018) Running training alters limb stiffness and lowers the cost of locomotion. American Society of Biomechanics
65. Moshage SG, Vining R, McCoy A, **Polk JD**, Kersh ME (2018) Structural changes in equine P1 during the first year of growth. American Society of Biomechanics.

66. Rahman M, Alvarez A, **Polk JD** and Kersh ME (2018) Effects of exercise and posture on subchondral bone thickness. American Society of Biomechanics.

67. Moshage S, McCoy A, Vining R**, Polk JD**, Kersh M (2019) Structural changes in equine proximal phalanx during growth. Journal of Equine Veterinary Science 76, 52-53

68. Lee K, Rogers MP, Galbarczyk A, Jasienska G, **Polk JD,** Clancy KBH (2019) Estrogen, energy, and skeletal biology: Life history approaches to understanding skeletal phenotype in living women of reproductive age. American Journal of Physical Anthropology 168, 140-140

69. Mazumdar NY**, Polk JD**, Garland T, Shackelford LL, Rhodes JS (2019) Expression of the mu-opioid receptor gene in the frontal cortex of a mouse model for the evolution of human endurance running. American Journal of Physical Anthropology 168, 158-159

70. Fox MC, Hsiao-Wecksler ET, **Polk JD** (2019) Body Size Differences in Vertical and Leg Stiffness in Running Humans. American Society of Biomechanics. August 2019**.**

71. Moshage SG, McCoy AM, **Polk JD**, Kersh ME (2019) The effect of changes in mineral density and bone area fraction on strain energy density in growing foals. Society of Engineering Science October 2019.

72. Moshage SG, McCoy AM, **Polk JD**, Kersh ME (2019) Spatial heterogeneity in bone structure and composition during growth. Bone and Muscle Interactions: the Mechanical and Beyond IUPUI August 2019

73. Song H, Kersh ME, **Polk JD** (2020) Exercise and postural effects on trabecular and subchondral bone properties in the medial femoral condyle. American Association of Physical Anthropology Annual Meeting

74. Thomas OO, Depret-Gillaume PJ, Raaum RL, Harcourt-Smith WEH, Hasegawa-Johnson MA, **Polk JD** (2020) Automated and Semi-Automated Rapid Morphological Phenotyping using Geometry Processing. American Association of Physical Anthropology Annual Meeting

75. **Polk JD**, Song H, Kersh ME (2020) Subchondral and Trabecular Bone Respond Differently to Exercise in Juvenile Sheep. Experimental Biology.

76. Song H, **Polk JD**, Kersh ME (2020) Differences In Subchondral And Trabecular Bone Response To Increased Mechanical Loading. Orthopaedic Research Society.

77. **Polk JD**, Song H, Kersh ME, (2022) Effects of exercise on spatial variation in subchondral and trabecular bone properties American Journal of Biological Anthropology. 177: 145-146.

78. **Polk JD**, Kendziera D (2022) Asymmetry in propulsive forces during the acceleration phase of sprinting. North American Congress on Biomechanics. Ottawa, August 2022.

Other Presentations:

1. Invited Lecture: “Form and Function in Human and Primate Locomotion.” Department of Anatomical Sciences, Hull-York Medical School, Hull UK. January 2003.

2. Invited Lecture: “Form and Function in Mammalian Limbs.” Department of Organismal Biology and Anatomy, University of Chicago February 2003

3. Invited Lecture: “Form and Function in Human and Primate Locomotion.” Department of Anthropology. University of Montreal. April 2003.

4. “Imaging techniques for analyses of bone density and posture.” Imaging Technology Group Beckman Institute for Advanced Science and Technology. March 28 2006.

5. Roundtable panelist “Integrative kinematic approaches for studying primate locomotion” Panel New Technologies in Field Primatology. Midwest Primate Interest Group. UIUC October 13-14 2006

6. Invited Symposium Participant “Comparative analyses of body support and joint posture in Primates.” American Association of Physical Anthropologists. Symposium Principles of Primate Locomotion How Unique is Primate Walking Running and Climbing? March 31 2007.

7. Invited Lecture “Comparative Analyses of Primate Joint Posture” University of Cincinnati Department of Biological Sciences. May 14 2007

8. Invited Lecture “Form and Function in Human and Primate Locomotion” University of Victoria Department of Anthropology. March 31 2008.

9. Invited Lecture “Why We Run”. Chicago Humanities Festival Nov 14 2010

10. Invited Lecture "Experimental approaches to understanding posture and locomotion in living and fossil primates." American Anatomical Association Annual Meeting Washington DC April 9-13 2011. Symposium Bones behavior and evolution Where do we stand where are we moving?

11. Invited Lecture “Effects of endurance exercise on brain size and function” Department of Anthropology New York University. November 2011.

12. Invited Lecture “Baby we were born to run”. McGill University Darwin Day lecture. 12 February 2012.

13. Invited Lecture “Form and Function in Human and Primate Locomotion”. Georgia State University. March 2013.

14. Invited Lecture: “Primate Locomotion: Evolution, Functional Adaptation and Aerobic influences on Brain size”. Department of Anthropology. University of Texas Austin. 7 Dec 2015.

15. Invited Lecture: “Functional Morphology of Subchondral and Trabecular Bone”. Department of Organismal Biology and Anatomy, University of Chicago. 21 Feb 2018

16. Invited Lecture: “Locomotor Influences on Bone and Brains.” Department of Anthropology, Washington University St. Louis. 18 April 2018

17. Invited Lecture: “Functional Morphology of Subchondral and Trabecular Bone.” College of Veterinary Medicine. Purdue University. October 2018

18. Invited Lecture: “Exercise and the Evolution of Hominin Brain Size” Department of Biology, Wabash College. Biology Department. February 21, 2019

19. Invited Lecture: “Human Biology: Bones, Brains and Biomechanics” Department of Anthropology, Albany University. April 15, 2019.

20. Invited Lecture: “Bone, Biomechanics, Health and Performance” Department of Kinesiology, University of Illinois, Urbana-Champaign. November 15, 2019.

21. Invited Lecture: “Bone, Biomechanics, Health and Performance” Department of Anatomical Sciences, University of North Texas Health Sciences Center. January 9, 2020.

22. Invited Lecture: “Anatomy of Stroke” Department of Anatomy and Cell Science, University of Manitoba. December 17, 2020.

23. Invited Lecture: “Adaptive responses of cortical and trabecular bone across the lifespan” Department of Anatomy and Cell Science, University of Manitoba. December 17, 2020.

24. Invited Lecture: “Effects of exercise and posture on the spatial distribution of bone properties” Departments of Neurobiology and Anatomy, Northeast Ohio Medical University. May 12, 2022

25. Invited Lecture: “Effects of growth, exercise and posture on epiphyseal development” Central Michigan University College of Medicine. May 2022.

Teaching

Courses Offered:

Courses at UAlbany:
AANT 304 Human Biomechanics (SP22, FA22)
AANT 317 Exercise Physiology (SP23)
AANT 416 Human Evolutionary Anatomy (SP22)
AANT 416 Advanced Bone Biology (FA23)
AANT 481 Honors Research Projects (FA22)

Courses at University of Illinois
ANTH 102 Human Origins and Culture (SP21, FA20, SP17, SP14, SP13, FA10, SP10, FA09, SP09, FA08, SP08, SP07, SP05)
ANTH 143 Biol. Basis of Human Behavior (FA03)
ANTH 240 Biological Anthropology (SP04, SP05, SP06)
ANTH 408 Human Evolutionary Anat (FA19, FA16, FA04)
ANTH 409 Human Evolutionary Anat Lab (FA04)
ANTH 440 Human Paleontology (SP21, SP18, SP17, SP13, SP10, SP08, SP04)
ANTH 444 Research Methods (FA18, FA17, SU17, SP16, FA15)
ANTH 445 Undergraduate Research (SP19, SU18, FA17, SU17, SP17, FA15, SP07, FA06)
ANTH 446 Behavioral Inference in Fossils (SP17, SP11)
ANTH 447 Advanced Skeletal Biology (SP18, FA08)
ANTH 390, 391, 494, 485, 497 Honors Thesis Research (FA18, SP17, FA17, SP16, FA16, SP15, SP10, SP09, FA09, FA08, SU08, FA06, SP06 (2), FA05, SP05, FA04)
ANTH 456 Human Osteology (FA16, SP10, FA08, FA07) KIN 385 Research in Kinesiology (SP17, SP11)

ANTH 515 541 Graduate Research Methods (SP17, FA07, SP08)

ANTH 589 Graduate Readings (SP20, FA19, SP18, FA16, SU15, FA14, SP14, FA13, FA11, SP08)
ANTH 590 Graduate Independent Study (SP20, FA19, SP17, FA16, Su16, FA15, SP15, F09, SP09)
ANTH 599 PhD Dissertation Research (FA22, SP22, SP21, FA20, Sp20, FA19, SP19, FA18, SP18, FA17, SU11, SP11, FA10, SP10, FA09, SP09)

Courses at University of Illinois College of Medicine
BMS 622/23 Human Gross Anatomy (SP16, FA15, FA14, FA13, FA12, FA09, FA07, FA06, FA05)

Courses at Carle Illinois College of Medicine
Musculoskeletal Medicine (SP18, SP19, SP20, SP21)

Other course competencies:
Tissue biomechanics
Measurement and analysis of human gait
Introductory and Advanced Biomechanics
Exercise Physiology
Fundamentals of Human Biology
Embryology
Neuroanatomy

Supervision of Graduate Students Doctoral Students

Name	Department	Committee Role
Current students:		
Mandahar, Sony	Mechanical Science & Engr.(Illinois)	Committee member
Antonio Otero	Anthropology (Albany)	Committee member
Christianne Ormsby	Anthropology (Albany)	Committee member
Previous students:		
1. Thomas, Oshane	Anthropology	Advisor, Chair of Dissertation, Director of Research

PhD 2023: Evolution of pedal form and the application of learning methods for the analysis of morphological and behavioral phenotypes

2. Fox, Maria Anthropology Advisor, Chair of Dissertation Committee and Director of Research

PhD 2020: The biomechanical consequences of body size differences in humans.

3. Asangba, Abigail Anthropology Committee Member

PhD 2019: Insights into Primate Microbial Ecology

4.Lee, Katherine Anthropology Co-Advisor, committee member

PhD 2020: Estrogen, energy, and bone: a life history approach to understanding skeletal phenotypes

5.Zachwieja, Alexandra Anthropology Committee member

PhD 2019: Climate, environment, and competition influenced human land preference in late pleistocene Australasia

6.Go, Matthew Anthropology Committee member

PhD 2020**:** Sex and ancestry estimation methods in modern Filipino crania

7. Mazumdar, Natasha Anthropology Advisor, then committee member

8. Song, Hyunggwi Mechanical Sci and Engr. PhD Committee

PhD 2019: The Effect of Mechanical Loading on Bone during Growth

9. DiBerardino, Louis Mechanical Sci and Engr. MSc and PhD Committees

PhD 2014 Neuromuscular control adaptation during recovery from injury

10. Williams, Scott Anthropology Advisor, Chair of Dissertation

PhD: 2011 Evolution of the Hominoid Vertebral Column

11. De Klerk, Bonita Faculty of Science Univ of Witwatersraand SA. External Dissertation Examiner

PhD: 2012 Size variation and body proportions in an isolated Holocene-aged population of hominids from Palau, Micronesia and its impact on our understanding of variation in extinct hominids

12. Grabowski, Mark Anthropology co-Advisor with Charles Roseman

PhD: 2012 Evolutionary dynamics of the hominin pelvis

13. Jelinek, Petra Anthropology Member of Intellectual Preliminary Exam and PhD Committees (PhD 2012)

PhD: 2012 Sexual Dimorphism in Sub-Cortical Structures in the Adult and Aging Human Brain: Patterns of Allometry and Integration

14. Park, Kiwon Mechanical Sci and Engr. PhD Dissertation Defense Committee

PhD: 2012 Quantitative assessment of human gait patterns using biomechanical and dynamical tools.

15. Nathan, Helwig Psychology Member of Intellectual Committee (2009-2010)

16. Riemer, Raziel Mechanical Sci and Engr. Preliminary Exam and PhD Dissertation Defence Committees
PhD:2007 Optimization-Based Inverse Dynamics to Reduce Errors in Estimated Joint Torques

17. Urbani, Bernardo Anthropology Member of Intellectual Preliminary Exam and PhD Defense Committees
PhD: 2009 Spatial Mapping in Wild White -Faced Capuchin Monkeys (Cebus Capucinus)

Masters Students:

1. Moshage, Sara Mechanical Engineering MA Thesis committee (current)
MSc: Biomechanical Assessment of Fracture Risk in the Equine First Phalanx

2. Tommy, Kimberleigh University of Witwatersrand MA Thesis examiner (2018)
MSc: 2018 A Comparative Study of Trabecular Architecture in the Distal Tibia of Humans, Hominoids and Australopiths from South Africa.

3. Hexum, Scott Anthropology MA Thesis Supervisor (MA 2016)

MA: Effects of exercise on murine knee morphology

4. Hernandez, Rafael Mechanical Engineering MA Research Supervisor (2009-10)

MSc: Inferring bone midshaft bending from external biomechanical measurements

5. Roberts, Ross Kinesiology MA Thesis Reader 2008

MSc: 2008 The Influence of Patellofemoral Pain on Symmetry in Gait

6. DiBerardino, Louis Mechanical Engineering MA Thesis Reader 2006-2008

MSc:2008 Assessing Gait Differences Through the Complexity and Variability of Motion Shapes

7. Sallenave, Ana Anthropology MA Thesis Reader 2005

8. Shorter, K. Alex Mechanical Engineering MA Thesis Reader 2005-2007

MSc: 2007 Detecting Asymmetries in Gait

9. Smith, Sarah Anthropology Member of Intellectual Committee

3. Supervision of Undergraduate Students Undergraduate Honors Thesis Research (2+ semesters of research)

1. S. Psutka (2001-2002) Harvard University. Impact forces and running experience.
2. K. Grosch (2004-2005) Evaluating the relationship between limb bone lengths and joint posture during bipedal locomotion in humans
3. N. Vadeboncoeur (2004-2005) Improving the bounce The effects of plyometric training on limb stiffness in elite sprinters.
4. A. Warmoth (2005-2006) Adaptation in articular cartilage.
5. J. Scott (2005-2006) Relationship between impact forces and intervertebral disk area.
6. S. Erwin (2008-2009) Relationships between premature puberty and patterns of skeletal growth
7. L. Hess (2008-2009) Generalizability analysis of footfall patterns in juveniles.
8. S. Schroeder (2009-2010) Effects of task and age on gait variability in children.
9. A. Zachwieja (2012-2013) Predicting Range of Motion and Joint Posture Subchondral Apparent Density In the Sheep Hind Limb.
10. K. Jabusch (2015-2016) Predicting individual postural differences from subchondral and trabecular bone apparent density
11. A. Guerra (2016-2017). Hips don't Lie. Inferring hip posture from subchondral and trabecular properties in chimpanzees, gorillas and humans.
12. P. Kalb (2022-2023) Factors Influencing Resilience in EMTs
13. L. Dorvilier (2022-2023) Effects of Hopping Frequency on Limb Stiffness in Collegiate Sprinters
14. L. Sahibdeen (2022-2023) Effects of Hopping Frequency on Limb Stiffness in Collegiate Sprinters 15. M. Teale (2022-2023) Effects of Hopping Frequency on Limb Stiffness in Collegiate Sprinters
16. C. Davi (2022-2023) Microdeletions on Chromosome 7.
17. L. Baral (2022-2023) Validation of the Notch wearable motion capture for kinematic measurements during walking.
18. E. Van Nostrand (2022-2023). Covid-related trauma in children.

Summer Research Opportunities Program (SROP) (research program for underrepresented minority students)

1.M. Guzman (2017) Calibration of an IMU based motion capture system. Harvey Mudd College

Researchers Initiative Students (1 semester research opportunity for freshman) 1. E. Herzog (2017s) Subchodral and trabecular properties in the distal femur.

2. S. Hussein (2017s) Subchodral and trabecular properties in the distal femur.
3. M. Kim (2017s) Subchodral and trabecular properties in the distal femur.
4. S. Wei (2017s) Convergent changes in EphA4 explain the evolution of hopping in mammals.
5. K. Zhagui (2017s) Preliminary analyses of horse gait.
6. G. Dandridge (2017s) Preliminary analyses of horse gait.
7. N. Kauffman (2018s) Ontogeny of horse P1 cross sectional properties.
8. A. Alvarez (2018s) Quantification of subchondral bone thickness patterns in sheep medial femoral condyles.
9. A. Josyula (2018s) Calibration of wearable IMU measurement system

James Scholar honors projects (1 semester-long introductions to research)

19 semester projects

Supervision of undergraduate volunteer researchers

33 semesters projects

Research Mentor for University in the Highschool Program

S. Girish (2023-2024) Effects of Stance Posture and Kinematic Correlates of Tennis Serve Accuracy

Other Contributions to Instructions Programs

Supervision of Graduate Language Translation Exams (French)

Service

Service to Department (Albany)

1. Director Human Biology Program (2021-Present)
2. Member, Department of Anthropology, Undergraduate Affairs Committee (2021-Present)
3. Member, Department of Anthropology, Executive Committee (2021-Present)
4. Member, Department of Anthropology, Search Committee for Human Biology Advisor (2021)

Service to Department (Illinois)

1. Member, Department of Anthropology Admissions Committee (2003-4, 2015-16,
2. Member, Department of Anthropology Financial Aid Committee (2004-5, 2005-6, 2006-7
3. Member, Department of Anthropology, Faculty Search Committee for Tenure-track faculty (20045, 2005-6 (two positions))
4. Member, Department of Anthropology, Development Committee (2006-7, 2007-8, 2008-9,
5. Member, Department of Anthropology, Committee on Community (2006-7)
6. Member, Department of Anthropology, Osteology and Collections Committee (2007-8, 2010-11, 2011-12, 2017-18, 2020-21
7. Member, Department of Anthropology, Professorial Committee (2019-21)
8. Member, University of Illinois College of Medicine, Basic Sciences Subcommittee (2005-6, 2006-7, 2015-16)
9. Member, Department of Anthropology, Graduate Grievance Committee (2008-9, 2009-10)
10. Member, Department of Anthropology Tenured Faculty Committee (2009-2020)
11. Member, Department of Anthropology Student Funding Committee (2011-12)
12. Chair, Department of Anthropology, Faculty Search Committee for Tenure-track faculty (2013-14)
13. Chair, Department of Anthropology Awards Committee (2012-13, 2014-15, 2016-17, 2017-18)
14. Chair, Department of Anthropology Courses and Curriculum Committee (2014-15, 2020-21)
15. Chair, Department of Anthropology Financial Aid Committee (2015-16)
16. Chair, Department of Anthropology Summer Funding Committee (2016-17)
17. Elected Anthropology Representative to Faculty Senate (three terms, 2004-2010)
18. Elected, Department of Anthropology Executive Committee (2007-8, 2008-9, 2009-10, 2010-11, 2012-13)
19. Editor, Department of Anthropology newsletter (2004-2007)
20. Assistant Course Director, Department of Biomedical and Translational Sciences, Carle-Illinois College of Medicine (2018-2021)

21. Ad Hoc Service: Coordinated transfer of primate and human skeletal material as well as fossil casts and mounted primates from collections at the Univ. of Illinois Natural History Museum to the Department of Anthropology (2005, 2006)

Service to School/College (Albany)
(none)

Service to School/College (Illinois)
1. Member, Graduate College Fellowship Board Block Grant Review Committee (2010-11) 2. Dean's Fellow College of Liberal Arts and Sciences – Responsible for promoting grantsmanship in social sciences. (2012-4)
3. Member, College of Liberal Arts and Sciences Dean's Cabinet (2012-13, 2013-14)
4. Member, Graduate College Fellowship Board (2012-13, 2013-14)
5. Member, Graduate College Fellowship Board Executive Committee (2012-13)
6. Elected member, Carle-Illinois College of Medicine Grievance and Appeals Committee (2020-23) 7. Elected member, College of Liberal Arts and Sciences Faculty Appeals Committee (2021-2022)

Service to University (Albany)
1. Member: Pre-Health Committee (2021-Present)

Service to University (Illinois)
1. Member, Institutional Review Board (three-year term: 2009-11)
2. Elected to Faculty Senate Three terms (2004-06, 2006-08, 2008-10)
3. Peer review: Campus Research Board Grant applications (2004-2018)

Service to Discipline
1. Secretary, Paleoanthropology Society (2022-present)
2. Associate Editor, American Journal of Biological Anthropology (2014-2019)
3. Associate Editor, Journal of Human Evolution (2007-2010)
4. Symposium Organizer (sole organizer): Bone Microstructure Imaging Analysis and Function. American Association of Physical Anthropology 2016.
5. Symposium Organizer (co-organizer with J. Young, N. Holowka, B Patel, N. Thompson, and I. Wallace): The necessity of experimental research in primate functional morphology: an homage to the Stony Brook Primate Locomotion Laboratory. American Association of Physical Anthropology 2018.
6. Member, Professional Development Grant Committee American Association of Physical Anthropology 2012
7. Member, Student Prize Committee American Association of Physical Anthropology. 2004
8. Peer Review of Grant Applications: Wenner-Gren Foundation for Anthropological Research 9. Peer Review of Grant Applications: Leakey Foundation

Peer review for Professional Journals
1. Acta Theriologica
2. American Journal of Human Biology
3. American Journal of Physical Anthropology
4. Biology Letters
5. Current Anthropology
6. Current Biology

7. Human Biology
8. Human Factors and Ergonomics in Manufacturing & Service Industries
9. International Journal of Primatology
10. Journal of Archaeological Science
11. Journal of Experimental Biology
12. Journal of Human Evolution
13. Journal of Motor Behavior
14. Journal of Theoretical Biology
15. Journal of Zoology
16. Paleobiology
17. PeerJ
18. Plos One
19. Proceedings of the National Academy of Sciences.

Service to National Organizations

1. Peer Review: National Science Foundation Grant Applications (Biological Anthropology and Integrated Organismal Systems Programs

Service to International Organizations

1. Chair: Natural Sciences and Engineering Research Council of Canada, Plant and Animal Sciences Grant Review Panel (2016-2017)
2. Panel Member: Natural Science and Engineering Research Council of Canada, Banting Postdoctoral Fellowship Review Committee (2019-2021)
3. Panel Member: Natural Sciences and Engineering Research Council of Canada, Plant and Animal Sciences Grant Review Panel 2014-2017 (Committee Chair 2016-7)
4. Reviewer: Natural Sciences and Engineering Research Council of Canada, Ad Hoc senior grant proposal review
5. Reviewer: Grant proposals University of Leuven, Belgium
6. Reviewer: National Research Foundation, South Africa

Public Engagement

1. Treasurer, Champaign Regional Speedskating Club 2016-2019
2. Clinic and discussion on barefoot and minimalist running 14 Nov 2010. Running Away Multisport. 1634 W. North St. Chicago, IL
3. Expert witness for criminal defense 2010 involving skull biomechanics. State of Illinois. 4. Presentations on human evolution in local schools: Leal Elementary, Montessori Habitat School, University Laboratory High School.

Press coverage:

1. Cover story, LAS Alumni Magazine Born to Run. 2011

2. Interview: WROK radio, “Running in Human Evolution” Rockford, IL 29 Nov. 2011

3. Reynolds, G. Exercise and the Ever-Smarter Human Brain. New York Times 31 December 2012. http://well.blogs.nytimes.com/2012/12/26/exercise-and-the-ever-smarter-human-brain

4. Quoted commentary on Apple Research Kit. 2015 https://www.punchkickinteractive.com/blog/2015/03/18/researchkit-gives-medical-researchers-newtoolsto-serve-patients

5. Quote in National Geographic 2018 https://www.nationalgeographic.com/animals/2018/08/langur-monkey-jump-tower-india-news/

6. Academic Minute: 2024. Exercise and Osteoporosis. https://www.npr.org/podcasts/564572329/the-academic-minute. Air date 1/2/2024.

Professional Affiliations

American Association of Anatomists
American Association of Biological Anthropology
(formerly: American Association of Physical Anthropology)
American Society of Biomechanics
Paleoanthropology Society
Society for Integrative and Comparative Biology