

ADAM D. SYLVESTER, PH.D.

CURRICULUM VITAE

Center for Functional Anatomy and Evolution
The Johns Hopkins University School of Medicine
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EDUCATION

- | | |
|-----------|---|
| 2001-2006 | Ph.D. in Anthropology
The University of Tennessee |
| 1998-2000 | M.A. in Anthropology
The University of Tennessee |
| 1992-1996 | B.S. in Zoology (<i>magna cum laude</i>)
The University of Tennessee |

PROFESSIONAL APPOINTMENTS

- | | |
|--------------|---|
| 2015-Present | Assistant Professor
Center for Functional Anatomy and Evolution
The Johns Hopkins University School of Medicine |
| 2013-2015 | Lecturer
School of Life Sciences
Institute of Biodiversity, Animal Health and Comparative Medicine
University of Glasgow |
| 2009-2013 | Junior Researcher
Department of Human Evolution
Max Planck Institute for Evolutionary Anthropology |
| 2007-2009 | Postdoctoral Fellow
Center for Functional Anatomy and Evolution
The Johns Hopkins University School of Medicine |
| 2006-2007 | Postdoctoral Research Associate
Department of Mechanical, Aerospace, and Biomedical Engineering
The University of Tennessee |

PUBLICATIONS

- Sylvester AD.** 2013. A geometric morphometric analysis of the hominid medial tibial condyle. *The Anatomical Record* 296:1518-1525.
- Kramer PA, **Sylvester AD.** 2013. Humans, geometric similarity, and the Froude number: Is “reasonably close” really close enough? *Biology Open* 2: 111-120.
- Sylvester AD,** Pfisterer T. 2012. Quantifying lateral femoral condyle ellipticalness in chimpanzees, gorillas, and humans. *American Journal of Physical Anthropology* 149:458-467.
- Auerbach BM, **Sylvester AD.** 2011. Allometry and Apparent Paradoxes in Human Limb Proportions: Implications for Scaling Factors. *American Journal of Physical Anthropology* 144: 382-391.
- Sylvester AD,** Mahfouz MR, Kramer PA. 2011. The Effective Mechanical Advantage of A.L. 129-1a for Knee Extension. *The Anatomical Record* 294: 1486-1499.
- Kramer PA, **Sylvester AD.** 2011. The Energetic Cost of Walking: A Comparison of Predictive Methods. *PLoS One* 6(e21290): 1-11.
- Sylvester AD,** Garofalo E, Ruff C. 2010. Technical Note: A R Program for Automating Bone Cross Section Reconstruction. *American Journal of Physical Anthropology* 142:665-669.
- Sylvester AD,** Organ JM. 2010. Curvature Scaling in the Medial Tibial Condyle of Large Bodied Hominoids. *The Anatomical Record* 293:671-679.
- Kramer PA, **Sylvester AD.** 2009. Bipedal Form and Locomotor Function: Understanding the Effects of Size and Shape on Velocity and Energetics. *PaleoAnthropology*: 238-251.
- Sylvester AD,** Kramer PA, Jungers WL. 2008. Humans are not (quite) isometric. *American Journal of Physical Anthropology* 137: 371-383.
- Sylvester AD,** Merkl BC, Mahfouz MR. 2008. Assessing A.L. 288-1 femur length using computer-aided three-dimensional reconstruction. *Journal of Human Evolution* 55: 665-671.
- Christensen AM, **Sylvester AD.** 2008. Physical matches in bones, shells and teeth: A validation study. *Journal of Forensic Sciences* 53: 694-698.
- Sylvester AD,** Kramer PA. 2008. Stand and Shuffle: When does it make energetic sense? *American Journal of Physical Anthropology* 135: 484-488.
- Sylvester AD.** 2006. Locomotor decoupling and the origin of hominin bipedalism. *Journal of Theoretical Biology* 242(3): 581-590.

Sylvester AD, Christensen AM, Kramer PA. 2006. Factors influencing osteological changes in the hands and fingers of recreational rock climbers. *Journal of Anatomy* 209: 597-609. [Cover article]

MANUSCRIPTS IN PREPARATION

Sylvester AD. Femoral condyle curvature and mammalian midstance. In review: *Anatomical Record*.

Reeves NM, Auerbach BM, **Sylvester AD**. Directional and non-directional asymmetry in tamarin (*Saguinus oedipus*) limb bones: implications for generalized patterns among primates. In review: *American Journal of Physical Anthropology*.

Sylvester AD, DeSilva JM, Churchill SE, Berger LR. The comparative and functional anatomy of knee of *Australopithecus sediba*. Submitting to: *Journal of Human Evolution*, Summer 2015.

Auerbach BM, King K, **Sylvester AD**. Differential mortality and the narrow maiden. Submitting to: *American Journal of Physical Anthropology*, Fall 2015.

FUNDING

- | | |
|------|--|
| 2015 | Osís F, Sylvester AD . Behavioural and skeletal asymmetry in non-human primates. University of Glasgow Undergraduate Summer Studentship (\$1,500) |
| 2014 | Sylvester AD . Reconstructing walking kinematics from femoral condyle curvature in fossil hominins. The Leakey Foundation (\$13,745) |
| 2014 | Sylvester AD . Primate walking: connecting skeletal shape and animal movement. The Carnegie Trust for the Universities of Scotland (\$4,250) |
| 2014 | Mancy R, Haydon D, Sylvester AD , Spatharis S. Development of an integrated curriculum in quantitative skills for biology: background work package. Learning and Teaching Development Fund, University of Glasgow (\$6,900) |
| 2010 | Auerbach BM (PI), Sylvester AD (Co-PI), Kathryn King (Co-PI). Pelvic shape and differential mortality: obstetric variation among indigenous North American populations. National Science Foundation (\$15,186) |

TEACHING EXPERIENCE

- | | |
|--------------|--|
| 2013-Present | University of Glasgow
Human Form and Function (Lower limb and walking modules)
Integrated Human (Neuroanatomy, thorax, histology modules)
Anatomy 3 (Statistics and biomechanics modules, tutorials)
Cells and Tissues (Skin and glands modules)
Articulation Biomechanics (Course coordinator) |
| 2009 | The Leipzig School of Human Origins - IMPRS
Gorilla Musculoskeletal Limb Anatomy (Dissection course) |
| 2007-2009 | The Johns Hopkins University School of Medicine
Human Anatomy (Medical student anatomy)
Introduction to Computer Programming (Graduate course)
Biomechanics of Primate Locomotion (Graduate course) |
| 2007 | Dept. of Mechanical, Aerospace & Biomedical Engineering, UTK
Human Gross Anatomy (Graduate course) |
| 1999-2005 | Graduate Teaching Associate, Department of Anthropology, UTK
Human Origins (Introductory course, Lecture)
Human Paleontology (Laboratory Component)
Human Osteology (Laboratory Component) |

INVITED LECTURES

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| 2012 | “Australopiths did not use a ‘bent-hip and bent-knee’ gait”
Department of Anthropology, The University of Tennessee |
| 2011 | “The effective mechanical advantage of australopithecine knee extension” Institute for Systematic Zoology and Evolution, Friedrich-Schiller University |
| 2010 | “Does size matter in hominin locomotion?”
Department of Anthropology, The University of Tennessee |

AWARDS AND HONORS

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|------|--|
| 2015 | Honourable Mention: Most Innovated Teacher, University of Glasgow
Student Teaching Awards |
| 2005 | Graduate Student Travel Award, Department of Anthropology
The University of Tennessee |
| 1995 | Phi Beta Kappa, Epsilon Chapter, The University of Tennessee |

CONFERENCE PRESENTATIONS

Squyres N, **Sylvester AD**, Ruff CB. Morphological Variation in the Distal Femur of Three Modern Human Populations. Submitted for 2015 Experimental Biology Meetings, American Association of Anatomists (Boston, MA).

Tyas C, **Sylvester AD**. Assessing Shape Asymmetry in Human Femora and Humeri. Submitted for 2015 Experimental Biology Meetings, American Association of Anatomists (Boston, MA).

Harris E, **Sylvester AD**. Femoral Condyle Curvature and the Chondral Modeling Theory. Submitted for 2015 Experimental Biology Meetings, American Association of Anatomists (Boston, MA).

Bryce A, Terhune C, **Sylvester AD**. User Variance in Defining the Trabecular-Cortical Interface Using Micro-CT Images. Submitted for 2015 Experimental Biology Meetings, American Association of Anatomists (Boston, MA).

Sylvester AD, DeSilva JM, Churchill SE, Berger LR. Three-dimensional shape analysis of the distal femur of *Australopithecus sediba*. Submitted for 2015 Meeting of the American Association of Physical Anthropologists (St. Louis, MO).

Sylvester AD. 2013. Femoral condyle curvature and walking midstance in mammals. *Folia primatologica* 84: 327.

Sylvester AD. 2013. Reconstructing australopithecine midstance using femoral condyle curvature. *Am J Phys Anthropol* S56:268.

Ouchida M, **Sylvester AD**, Kramer PA. 2012. Using musculoskeletal simulations to model the cost of locomotion: the OpenSim experiment. *Am J Phys Anthropol* S54: 230.

Sylvester AD, D'Août K, Kramer PA. 2012. GRF moment arms about the knee in A.L. 288-1. *Am J Phys Anthropol* S54: 281.

Sylvester AD. 2012. Quantifying the ellipticalness of the lateral femoral condyle in Gorilla, Pan, and Homo. *The FASEB J* 26:723.9.

Campbell ML, Campbell RM, Auerbach BM, King KA, **Sylvester AD**. 2011. Survival is in the balance? Asymmetry in obstetric dimensions and mortality. *Am J Phys Anthropol* S52: 102.

Campbell RM, Campbell ML, **Sylvester AD**, Auerbach BM, King KA. 2011. Quantifying a twisted curve: 3D digitization of sciatic notch shape using a microscribe. *Am J Phys Anthropol* S52: 102.

Feeney RNM, **Sylvester AD**, Hublin JJ. 2011. Dental tissue allometry in modern human males and females. *Am J Phys Anthropol* S52: 134.

- King KA, Auerbach BM, **Sylvester AD**, Campbell ML, Campbell RM. 2011. Death and the (narrow) maiden: pelvic dimensions, mortality, and obstetric versus thermoregulation. *Am J Phys Anthropol* S52: 186.
- Reeves NK, **Sylvester AD**, Auerbach BM. 2011. Behavioral laterality and skeletal directional asymmetry in cottontop tamarins. *Am J Phys Anthropol* S52: 251.
- Sylvester AD**, Auerbach BM. 2011. Obscuring limb allometry: The geometric mean and limb indices. *Am J Phys Anthropol* S52: 288.
- Reeves N, **Sylvester AD**, Auerbach B. 2011. Patterns of asymmetry in primate long bone dimensions: a widespread pattern? *The FASEB J* 25:188.1.
- Sylvester AD**. 2010. Asymmetry in *Saguinus oedipus* limb bone dimension. *Am J Phys Anthropol* S50: 227.
- Sylvester AD**. 2010. Proximal tibia shape and locomotion. *The FASEB J* 24:171.1.
- Sylvester AD**, Mahfouz MR. 2009. Quantifying relative shape variation in modern human femora and humeri. *The FASEB J* 23:648.4.
- Sylvester AD**, Kramer PA. 2009. Predicting the metabolic energy consumption of human walking with mechanical energy calculations. *Am J Phys Anthropol* S48: 252.
- Garofalo EM, **Sylvester AD**. 2009. A R program for automating bone cross-section reconstruction. *Am J Phys Anthropol* S48: 131-132.
- Sylvester AD**, Mahfouz MR. 2008. The effective mechanical advantage of the australopithecine knee. *Am J Phys Anthropol* S46: 203.
- Kramer PA, **Sylvester AD**. 2008. Humans, geometric similarity and the Froude number: Is “reasonably close” really close enough? *Am J Phys Anthropol* S46: 134.
- Hendrix RB, **Sylvester AD**. 2008. The truth, the whole truth, and nothing but the truth – so help me Darwin: Legal decisions and evolution on the classroom. *Am J Phys Anthropol* S46: 115.
- Sylvester AD**, Merkl BC, Mahfouz MR. 2007. Reconstructing the A.L. 288-1 femur using three-dimensional computer models. *Am J Phys Anthropol* S44:228.
- Merkl BC, **Sylvester AD**, Mahfouz MR. 2007. A three-dimensional shape comparison of A.L. 129-1a and modern human distal femora. *Am J Phys Anthropol* S44:171.
- Mendenall MC, **Sylvester AD**, Kramer PA. 2007. Walking energetics and leg length: Are modern humans geometrically similar? *Am J Phys Anthropol* S44:170.
- Kramer PA, Mendenall MC, **Sylvester AD**. 2007. Geometric similarity in primates as assessed from long bone length. *Am J Phys Anthropol* S44:147.

Christensen AM, **Sylvester AD**. 2007. Physical Matches of Bone, Shell and Teeth. A validation study. Presented at the American Academy of Forensic Sciences 59th Annual Scientific Meeting, San Antonio, Texas.

Moore MK, **Sylvester AD**, Merkl BC, Kuhn MJ, Mahfouz MR. 2006. Creating a statistical atlas of the femur from three-dimensional CT data. *Am J Phys Anthropol* S42: 134.

Sylvester AD. 2005. Decoupling the shoulders from above-substrate locomotion: a new idea for the origin of hominid bipedalism. *Am J Phys Anthropol* S40: 202.

Christensen AM, **Sylvester AD**, Kramer PA, Lubke GH. 2005. Factors influencing osteological changes in the hands of rock climbers. *Am J Phys Anthropol* S40: 88.

Sylvester AD. 2005. The Decoupling Hypothesis: A new idea for the origin of hominin bipedalism. Abstracts of the PaleoAnthropology Society 2005 Meetings: A25.

Sylvester AD. 2004. Geometric modeling of the center of gravity in Pan troglodytes. *Am J Phys Anthropol* S38: 192.

Sylvester AD. 2001. Surface area proportions, articular curvature, and the locomotor repertoire of AL 288-1. *Am J Phys Anthropol* S32: 146-147.

PROFESSIONAL SERVICE

- | | |
|--------------|---|
| 2014-Present | College Ethics Committee, College of Medical, Veterinary and Life Sciences, University of Glasgow |
| 2013 | Chair: Paleoanthropology Poster Symposium at the 82 nd Meeting of the American Association of Physical Anthropologists, Knoxville, TN |
| 2011 | Guest Co-Editor, special issue of <i>Anatomy Research International: New Models and Insights into Primate Evolutionary Morphology</i> |
| 2011 | Organizer: Biological Anthropology Symposium at the Meeting of American Association of Anatomists in Washington, D.C. |
| 2010 | Freeware: R programs for reconstructing long bone cross-sections and calculating cross-sectional properties
Available at: www.hopkinsmedicine.org/fae/cbr.htm |
| 2008 | Co-organizer: Teaching Evolution & Promoting Quality Science Education Symposium at the 77 th Meeting of American Association of Physical Anthropologists, Columbus, OH |
| 2001-2006 | Docent: McClung Museum Education Program, Knoxville, TN. The Origins of Humanity: Searching for Our Fossil Ancestors |

AD SYLVESTER

2004-2005 Graduate Student Representative to the Faculty: Department of Anthropology, The University of Tennessee

STUDENTS ADVISED

Present Nicole N. Squyres (Ph.D. committee, The Johns Hopkins University)
Steven Lautzenheiser (Ph.D. committee, University of Washington)
Rachel Frigot (Ph.D. committee, The Johns Hopkins University)

2014 Caitlin Tyas (B.Sc. Honours thesis, University of Glasgow)
Laura Williamson (B.Sc. Honours thesis, University of Glasgow)
Emma Harris (B.Sc. Honours thesis, University of Glasgow)
Amy Bryce (B.Sc. Honours thesis, University of Glasgow)
Lori Christie (M.Sc. University of Glasgow)

2013 Mhairi Charlton (B.Sc. Honours thesis, University of Glasgow)
Cameron Morrice (B.Sc. Honours thesis, University of Glasgow)
Anne Walsh (B.Sc. Honours thesis, University of Glasgow)

2012 François Gould (Ph.D. committee, The Johns Hopkins University)

RESEARCH EXPERIENCE

2011, 2004 National Museum of Natural History, Washington, D.C.
Data collection on primate postcranial skeletons

2010 Ditsong National Museum of Natural History, Pretoria, South Africa
High-resolution CT scans of South African hominin fossils

2005 William M. Bass Skeletal Collection, University of Tennessee
Computed tomography of 400+ modern human skeletons

2004 Cleveland Museum of Natural History, Cleveland, OH

FIELD EXPERIENCE

2008 Eocene mammals in the Big Horn Basin, WY
1999 Historic archaeology at Ramsey House, Knoxville, TN

CONSULTING EXPERIENCE

2005 Consultant: Zimmer Orthopedics

PROFESSIONAL MEMBERSHIPS

2000-Present American Association of Physical Anthropologists
2004-Present Paleoanthropology Society
2008-Present American Association of Anatomists

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REVIEWER

American Journal of Physical Anthropology

Naturwissenschaften

The Anatomical Record

Journal of Anatomy

Journal of Human Evolution

Current Biology

PLOS ONE

National Science Foundation

The Leakey Foundation

REFERENCES

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Department of Anthropology
University of Washington
Box 353100
Seattle, WA 98195-3100
Phone: (206) 543-5240
Email: pakramer@u.washington.edu

Mark Teaford, Ph.D.
Professor
Department of Physical Therapy
Co-Editor, Journal of Human Evolution
School of Health Sciences
High Point University
833 Montlieu Avenue
High Point, NC 27262-3598
Phone: (336) 841-9340
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Andrew Kramer, Ph.D.
Associate Dean of Academic Personnel
Professor of Anthropology
Department of Anthropology
The University of Tennessee
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Knoxville, TN 37996-0720
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