

CURRICULUM VITAE

Name: Christopher B. Ruff, Ph.D.

Address: Center for Functional Anatomy and Evolution
Johns Hopkins University School of Medicine
1830 E. Monument St., Baltimore, MD 21205
(e-mail: cbruff@jhmi.edu)

Date of Birth: January 15, 1953

Place of Birth: Ramsey, New Jersey

Education:

1975 B.A. Stanford University (anthropology)

1981 Ph.D. University of Pennsylvania (biological anthropology)

Postdoctoral Training:

1981-1983 Research Fellow, Department of Orthopaedic Surgery,
Beth Israel Hospital and Harvard Medical School, Boston, MA

Academic Appointments:

1978-1980 Instructor, Department of Anthropology
Boston University, Boston, MA

1980-1981 Lecturer, Department of Health Sciences, Sargent College
of Allied Health Professions, Boston University,
Boston, MA

1983, 1988, 1994 Assistant, Associate, Full Professor, Department of Cell Biology
and Anatomy (from 2001, Center for Functional Anatomy and
Evolution), and Department of Orthopaedic Surgery,
Johns Hopkins University School of Medicine,
Baltimore, MD

2001- Director, Center for Functional Anatomy and Evolution, Johns Hopkins University School of Medicine, Baltimore, MD

Research Appointment:

1986- Guest Researcher, Gerontology Research Center, NIA/NIH, Francis Scott Key Medical Center, Baltimore, MD

Awards and Honors:

1975 Phi Beta Kappa, Stanford University

1975-1978 University Fellowship, University of Pennsylvania

1982-1983 NIH Traineeship, Harvard University Medical School

1982-1983 William F. Milton Fund Fellow, Harvard University

1994-1995 Excellence in Teaching Award, Medical Student Society, Johns Hopkins University School of Medicine

1999 Paul T. Baker Distinguished Lecturer Award, Pennsylvania State University

2002 Fellow, American Association for the Advancement of Science, Anthropology Section

Major Research Interests:

1. Skeletal biology and biomechanics
2. Primate functional morphology and evolution
3. Osteoporosis
4. Climatic adaptation

Research Grants:

1983-1985 NIH New Investigator Research Award: "Geometrical Remodeling of the Adult Human Femur and Tibia", \$65,476.

- 1984-1986 NSF: "Cross-sectional Geometric, Trace Element and Stable Isotope Analysis of Skeletal Material", \$10,447 (Co-PI; subcontract of research grant to C.S. Larsen).
- 1985-1986 L.S.B. Leakey Foundation: "Biomechanical Analysis of Lower Limb Cross-sectional Geometry in Early Hominids from Lake Turkana and Olduvai Gorge", \$4000. (returned)
- 1986-1988 NSF: "Biomechanical Analysis of Lower Limb Cross-sectional Geometry in Early Hominids from Lake Turkana and Olduvai Gorge", \$41,819.
- 1986-1988 Orthopaedic Research and Education Foundation: "Effects of Long-term Exercise on Bone Loss in Older Dogs", \$69,221.
- 1987-1988 NSF: "Biomechanical Analysis of Femoral and Humeral Cross Sections in the Santa Catalina de Santa Maria Skeletal Sample", \$5,262 (Co-PI; subcontract of research grant to C.S. Larsen).
- 1988-1989 Johns Hopkins University Institutional Research Grant: "Effects of Long-term Exercise on Bone Loss in Older Dogs: In-Vitro Skeletal Analyses", \$10,309.
- 1988-1991 Wenner-Gren Foundation for Anthropological Research: "Structural Analysis of the Hominoid Forelimb Skeleton", \$9,000.
- 1990-1993 NSF: "Cross-sectional and Articular Structure of the Anthropoid Limb Skeleton", \$94,914.
- 1990-1993 NIH: "Effects of Aging and Exercise on Bone Mass in Beagles", \$235,000.
- 1990-1994 NIH: "Structural Analysis of Hip Bone Mineral Image Data", \$468,000 (Co-PI; T.J. Beck, PI).
- 1992 NSF Dissertation Improvement Grant (for J.A. Runestad, Ph.D. candidate): "Structural Properties of Prosimian and Small Anthropoid Limb Bones: Estimation of Body Mass and Locomotor Mode in Fossil Prosimians", \$10,693.
- 1992-1995 U.S. Navy: "Use of Non-invasive Bone Structural Measurements for Stress Fracture Prediction", \$113,008 (Co-PI; T.J. Beck, PI).
- 1994-1995 NSF Dissertation Improvement Grant (for K.L. Rafferty, Ph.D. candidate): "Joint Structure and Function in Extant Primates and Subfossil Lemurs", \$10,690.

- 1995-1997 Defense Women's Health Research Program (U.S. Army): "Structural Indices of Stress Fracture Susceptibility in Female Military Recruits", \$542,494 (Co-PI; T.J. Beck, PI).
- 1996-1997 Johns Hopkins Hospital: "Non-Destructive Skeletal Analysis of Human Remains, Hampstead Hill Site (18BC111)", \$33,839.
- 1996-1998 Wenner-Gren Foundation for Anthropological Research: "Ontogenetic Changes in Limb Bone Structure in the Denver Growth Study Sample", \$6100.
- 1997-2000 NASA: "Skeletal Structural Consequences of Reduced Gravity Environments", \$349,000 (PI).
- 1998-1999 L.S.B. Leakey Foundation : "Long Bone Structural Analysis of South African Early Hominids", \$5668 (PI).
- 1998-2000 NIH: "Structural Analysis of DEXA Scans from Osteoporosis Studies", \$520,000 (Co-PI, T.J. Beck, PI).
- 2001-2004 NASA: "Defining and Preventing Bone Loss: A Microgravity Model" (subcontract), \$86,970 (Co-PI, J. Shapiro, PI).
- 2001-2004 NIH: "Structural Analysis of DEXA Scans from Osteoporosis Studies", \$871,000 (Co-PI, T.J. Beck, PI).
- 2002 NSF Dissertation Improvement Grant (for A.Zumwalt, Ph.D. candidate): "The Effect of Exercise on the Morphology of Muscle Attachment Scars", \$11,977.
- 2005-2006 NSF Dissertation Improvement Grant (for M. O'Neill, Ph.D. candidate): "Energetics and Mechanics of Quadrupedal Walking and Running in Prosimians", \$11,991.
- 2006-2007 NSF Dissertation Improvement Grant (for B. Auerbach, Ph.D. candidate): "Human Skeletal Variation in the Prehistoric New World: Geographic, Temporal, and Climatic Effects", \$11,158.
- 2007-2011 NSF: "On the Verge of Modernity: Post-Pleistocene Evolution of the European Skeleton", \$160,000 (PI).
- 2011-2012 NSF Dissertation Improvement Grant (for H. Garvin, Ph.D. candidate): "Environmental Effects on Human Cranial and Post-cranial Sexual Dimorphism", \$14,582.

Memberships, Offices and Committee Assignments:

1977-	American Association of Physical Anthropologists
1982-	American Association for the Advancement of Science
1985-2004	Orthopaedic Research Society
1985-1994	State Anatomy Board of Maryland; Chairman 1992-1994
1989-1991	Medical School Council, Johns Hopkins University
1990-1994	Associate Editor, <i>American Journal of Physical Anthropology</i>
1991-1994	Advisory Panel for Physical Anthropology, National Science Foundation
1993	External Review Committee, Department of Anatomical Sciences, State University of New York at Stony Brook
1995-1998	Associate Editor, <i>Journal of Human Evolution</i>
1996-1997	Basic Science Faculty Compensation Committee, Johns Hopkins University School of Medicine
1997-2001	Member-at-Large, Section Committee on Anthropology, American Association for the Advancement of Science
1997-1999	Science and Grants Committee, LSB Leakey Foundation
1998-2002	Editor, <i>Yearbook of Physical Anthropology</i>
1998-2003	Member, Executive Committee and Publications Committee; Chair, Nominating Committee (1999-2000); Chair, American Journal of Physical Anthropology Editor Search Committee (2000-2001); American Association of Physical Anthropologists
1999-	American Society for Bone and Mineral Research
2000-	Editorial Board, <i>Anthropological Science (Journal of the Anthropological Society of Nippon (Japan))</i>
2002-	Sigma Xi
2006	Student Prize Award Committee, American Association of Physical Anthropologists annual meeting

2006 Member, *Yearbook of Physical Anthropology* Editor Search Committee; American Association of Physical Anthropologists.

2007-2013 Editor, *American Journal of Physical Anthropology*

Teaching Experience:

1978 Department of Anthropology, Rutgers University, Camden, NJ (biological and cultural anthropology)

1978-1980 Department of Anthropology, Boston University, Boston, MA (biological anthropology)

1979-1981 Department of Anthropology, University of Massachusetts, Boston, MA (biological anthropology and archaeology)

1980-1981 Department of Health Sciences, Sargent College of Allied Health Professions, Boston University, Boston, MA. (human gross anatomy)

1983- “Human Anatomy” (Course Director, 1993-1995), “Functional Morphology and its Applications”, “Biomechanics”, “Topics in Allometry”, Department of Cell Biology and Anatomy, and Center for Functional Anatomy and Evolution, Johns Hopkins University School of Medicine, Baltimore, MD

1999 “Introduction to Skeletal Biology”, Department of Biology, Johns Hopkins University, Baltimore, MD

2004, 2005 “Introduction to the Human Skeleton”, Department of Biology, Johns Hopkins University, Baltimore, MD

Field and Other Experience:

1973 Denali Range, Alaska: Archaeological Field School (sponsored by Alaska Methodist University), June-July.

1985 St. Catherine's Island, Georgia: Excavation of early historic cemetery (with C.S. Larsen), July.

1986 Nairobi, Kenya: Work in Kenya National Museums on early hominid and hominoid fossil material, June.

1988 Reno, Nevada: CT scanning of Great Basin human archaeological

sample (with C.S. Larsen and R.L. Kelly), Nevada State Museum and Veterans Administration Hospital, May.

- 1992 Kampala, Uganda and Nairobi, Kenya: Work at Makerere University Medical School and Kenya National Museums on modern and fossil hominid, hominoid, and cercopithecoid material, July-August.
- 1998 Pretoria and Johannesburg, South Africa: Work at Transvaal Museum and Dept. Anthropology, University of the Witwatersrand, CT scanning of early hominid material, July.
- 1999 Lisbon, Portugal: CT scanning of juvenile Upper Paleolithic skeleton from Lagar Velho, Portugal, July.
- 2005-2006 Konya, Turkey: Work at early Neolithic site of Çatalhöyük, July.
- 2007-2010 Radiography and CT of Holocene human skeletal material in London, Bradford, and other locations in the UK; Jena, Germany; and Lisbon.

Student Advising and Thesis Supervision (external advisor or primary internal advisor only):

- 1982-1983 Deborah Stevens: "Skeletal Aging and Exercise in a Hamster Model", B.S. Senior Thesis, Massachusetts Institute of Technology.
- 1982-1983 Jim Prizant: "Cross-sectional Geometry of the Human Tibia: General Morphology, Sex and Age Differences", B.S. Senior Thesis, Massachusetts Institute of Technology.
- 1984-1985 Sharon L. Brock: "Biomechanical Adaptation of the Lower Limb Bones Through Time in the Prehistoric Southwest", Ph.D. Thesis, Dept. Anthropology, University of New Mexico.
- 1986-1988 Thomas Beck: "Non-invasive Estimation of Structural Geometry in the Human Hip from Bone Mineral Data", Sc.D. Thesis, School of Hygiene and Public Health, Johns Hopkins University.
- 1986-1988 Michael Torchia: "Quantitative Femoral Remodeling Following Hip Arthroplasty", Student Research Internship, awarded the 1988 Paul Ehrlich Medical Student Award, School of Medicine, Johns Hopkins University.

- 1987-1989 Marvin Ashford: "Mechanical Analysis of the Aging Beagle Skeleton", M.E.B.E. Thesis, School of Medicine, Johns Hopkins University.
- 1991-1994 Jacqueline Runestad: "Humeral and Femoral Diaphyseal Cross-Sectional Geometry and Articular Dimensions in Prosimii and Platyrrhini (Primates) with Application for Reconstruction of Body Mass and Locomotor Behavior in Adapidae (Primates: Eocene)", Ph.D. Thesis, School of Medicine, Johns Hopkins University.
- 1992-1994 Steven Churchill: "Human Upper Body Evolution in the Eurasian Later Pleistocene", Ph.D. Thesis, Dept. Anthropology, University of New Mexico.
- 1993-1995 Ronald Heinrich: "Limb Biomechanics in Caniform Carnivora: Relationships of Size, Function, and Phylogeny to Cross-Sectional Geometry in Extant and Fossil Taxa", Ph.D. Thesis, School of Medicine, Johns Hopkins University.
- 1993-1996 Katherine Rafferty: "Joint Structure and Function in Extant Primates and Subfossil Lemurs", Ph.D. Thesis, School of Medicine, Johns Hopkins University.
- 1994-1995 Trenton Holliday: "Body Size and Proportions in the Late Pleistocene Western Old World and the Origins of Modern Humans", Ph.D. Thesis, Dept. Anthropology, University of New Mexico.
- 1996-1999 Naoko Egi: "Functional Morphology of the Appendicular Skeleton in Eocene Hyaenodontid Creodonta", Ph.D. Thesis, School of Medicine, Johns Hopkins University.
- 1999-2002 Yisheng Li: "Postnatal Development of Pelvic Sexual Dimorphism in Four Anthropoid Primates", Ph.D. Thesis, School of Medicine, Johns Hopkins University.
- 1999-2000 Sachin Rastogi: "Development of Mechanical Countermeasures to Prevent Bone Loss Associated with Microgravity", M.S. Thesis, Dept. Biomedical Engineering, Johns Hopkins University.
- 1999-2000 Marsha Ogilvie: "The Skeletal Biology of Late Archaic Populations with the Adoption of Agriculture in the American Southwest", Ph.D. Thesis, Dept. Anthropology, University of New Mexico.
- 2000-2001 Elizabeth Weiss: "A Cross-Cultural Study of Humeri: Environmental Causes of Morphology", Ph.D. Thesis, Dept. Anthropology, University of Arkansas.

- 2000-2004 Ann Zumwalt: "The Effect of Exercise on the Morphology of Muscle Attachment Scars", Ph.D. Thesis, School of Medicine, Johns Hopkins University.
- 2004-2006 Katherine Whitcome: "Obstetric Load and the Evolution of Human Lumbopelvic Sexual Dimorphism", Ph.D. Thesis, University of Texas.
- 2003-2007 Benjamin Auerbach: "Human Skeletal Variation in the Prehistoric New World: Geographic, Temporal and Climatic Effects", Ph.D. Thesis, School of Medicine, Johns Hopkins University.
- 2003-2007 Jason Organ: "The Functional Anatomy of Prehensile and Nonprehensile Tails of the Platyrrhini (Primates) and Procyonidae (Carnivora)", Ph.D. Thesis, School of Medicine, Johns Hopkins University.
- 2005-2007 James Gosman: "Patterns in Ontogeny of Human Trabecular Bone from Sunwatch Village in the Prehistoric Ohio Valley", Ph.D. Thesis, Ohio State University.
- 2006-2008 Libby Cowgill: "The Ontogeny of Recent and Late Pleistocene Human Postcranial Robusticity", Ph.D. Thesis, Washington University, St. Louis.
- 2003-2009 Matthew O'Neill: "The Structural Basis of Locomotor Cost: Gait, Mechanics and Limb Design in Ringtailed Lemurs (*Lemur catta*)", Ph.D. Thesis, School of Medicine, Johns Hopkins University.
- 2004-2011 Michael Habib: "The biomechanics and evolution of flight in birds and pterosaurs", Ph.D. Thesis, School of Medicine, Johns Hopkins University.
- 2006- Michelle Raxter: Ph.D. Thesis, University of South Florida.
- 2007- Evan Garofalo: Ph.D. Thesis, School of Medicine, Johns Hopkins University.
- 2008- Heather Garvin, Ph.D. Thesis, School of Medicine, Johns Hopkins University.
- 2009- Ryan Higgins, Ph.D. Thesis, School of Medicine, Johns Hopkins University.

Invited Lectures:

- 1980 "Bones and Behavior: The Application of Biomechanics Theory to Biological Anthropological Problems", Department of Anthropology, Boston University, April.
- 1981 "Osteoporosis, Skeletal Remodeling, and Fracture Incidence among the Elderly", Departments of Physical Therapy and Anatomy University of Southern California, July.
- 1983 "Femoral and Tibial Geometries: Use in Prosthesis Design", German Traveling Orthopaedic Fellows, Children's Hospital, Boston, March.
- 1983 "Structural Characterization of the Lower Limb Bones: Clinical Applications in Orthopaedics", Department of Orthopaedic Surgery, Beth Israel Hospital, Boston, February.
- 1983 "Geometrical Characterization of the Human Lower Limb Bones: Anthropological and Orthopaedic Applications", Department of Cell Biology and Anatomy, Johns Hopkins University Medical School, April .
- 1984 "Reading Behavior from Bones - New Approaches to Structural - Functional Analysis of the Skeleton", Department of Cell Biology and Anatomy, Johns Hopkins University Medical School, April.
- 1986 "Lower Limb Bone Remodeling in Adulthood: Relationship to Activity and Mechanical Loadings", Department of Orthopedic Surgery, Johns Hopkins University Medical School, April.
- 1986 "The Relative Thickness of the Long Bones in Primates - Adolf Schultz Revisited", Department of Cell Biology and Anatomy, Johns Hopkins University Medical School, April.
- 1986 "Biomechanics and the Analysis of Long Bone Structure", Kenya National Museums, Nairobi, Kenya, June.
- 1987 "Sex, Subsistence and Mobility: Evidence from the Lower Limb" Department of Cell Biology and Anatomy, Johns Hopkins University Medical School, April.
- 1987 "Biomechanics as a Method of Structural Analysis in Physical Anthropology", in American Anthropological Association Symposium "The Future of Evolutionary Studies in Physical Anthropology: Centennial of the Birth of Earnest A. Hooton

- (1887-1954)", Jon Marks, Organizer, Chicago, November.
- 1988 "Aging, Exercise, and Skeletal Remodeling in the Beagle Dog", Biogerontology Laboratory, University of Wisconsin Center for Health Sciences, Madison, March.
- 1988 "Sexual Dimorphism in Lower Limb Bones: Behavioral and Economic Implications", Department of Anthropology, University Of Wisconsin, Madison, March.
- 1988 "Beagles, Bones Scans, and Joints", Department of Cell Biology and Anatomy, Johns Hopkins University Medical School, April.
- 1989 "Hindlimb Bone Structure in Early Hominids and Hominoids", Department of Cell Biology and Anatomy, Johns Hopkins University Medical School, January.
- 1989 "Cross-Sectional Geometric Properties of the Femoral Midshaft: Mechanical and Behavioral Implications", in Smithsonian Institution Conference "Skeletal Biology in the Great Plains: A Multidisciplinary View", D. Owsley, Organizer, Washington, D.C., March.
- 1989 "New Approaches to Structural Evolution of Limb Bones in Primates", in Kartause Ittingen Symposium "New Quantitative Developments in Primatology and Anthropology", R.D. Martin, Organizer, Kartause Ittingen, Switzerland, September.
- 1990 "Climate, Body Size and Body Shape in Hominid Evolution", Department of Cell Biology and Anatomy, Johns Hopkins University Medical School, January.
- 1990 "Mechanical Properties of Bone", Department of Biomedical Engineering, Johns Hopkins University Medical School, February.
- 1990 "Exercise and Osteoporosis", Annual Meeting of the Inter-urban Orthopaedic Society, Johns Hopkins University Medical School, October.
- 1990 "Climatic Constraints on Hominid Pelvic Anatomy", in American Anthropological Association Symposium "Pelvic Anatomy, Obstetrics, and Hominid Evolution", R.G. Tague, organizer. New Orleans, November.
- 1991 "Robusticity in the Genus *Homo*", Department of Cell Biology and Anatomy, Johns Hopkins University Medical School, February.

- 1991 "Assessing and Interpreting Physical Activity in Prehistoric Populations", in Human Biology Council Symposium "Physical Activity and Human Biology", S. Pfeiffer, organizer, Milwaukee, April.
- 1991 "Effects of Exercise on Osteoporosis", Johns Hopkins Medical Institutions Bone Club meeting, May.
- 1992 "Interpreting Postcranial Robusticity in Recent and Earlier *Homo*", Department of Anthropology, University of New Mexico, Albuquerque, March.
- 1992 "Climate and Variation in Human Body Form", Dept. Anatomy, Makerere University School of Medicine, Kampala, Uganda, July.
- 1993 "Bilateral Asymmetry and Mechanical Adaptation of Bone", Johns Hopkins Medical Institutions Bone Club meeting, March.
- 1993 "Postcranial Robusticity in the Genus *Homo*", Department of Anthropology, University of Pennsylvania, Philadelphia, March.
- 1993 "Climatic Adaptations in Human Evolution", Department of Anthropology, Smithsonian Institution, Washington, DC, May.
- 1993 "Biomechanics as an Approach to Skeletal Biology", Department of Anthropology, University of Tennessee, Knoxville, September.
- 1993 "Climate and Body Form in Human Evolution", Department of Anthropology, University of Tennessee, Knoxville, September.
- 1994 "Body Form as a Response to Climate: What Happens When We're Left Out in the Cold", Smithsonian Campus on the Mall, Washington, DC, June.
- 1994 "Climate and Human Evolution", Department of Anthropology, Northern Illinois University, DeKalb, September.
- 1994 "Biomechanics of the Hip in Early *Homo*", Department of Anthropology, Northern Illinois University, DeKalb, September.
- 1994 "Birth and Human Evolution, or Why Was Early *Homo* So Hip?", Department of Cell Biology and Anatomy, Johns Hopkins University Medical School, October.
- 1995 "The Ontogeny of Robusticity", Department of Orthopedic Surgery, SUNY Stonybrook, January.

- 1995 "The Evolution of Birth, or What Made Early *Homo* so Hip?", Department of Anatomical Sciences, SUNY Stonybrook, January.
- 1995 "Evolution of the Hominid Hip", presented at the "Primate Locomotion - 1995" Conference, Davis, CA, March.
- 1995 "Climate, Body Size and Body Shape in Human Evolution", Department of Anthropology, CUNY Graduate Center, New York, April.
- 1995 "Birth and Biomechanics of the Hip in Early *Homo*", Department of Anthropology, NYU, New York, April.
- 1995 "Climatic Adaptation in Human Evolution", Quaternary Studies Group, Rutgers University, New Brunswick, April.
- 1996 "Body Size and Encephalization in *Homo*", Department of Biological Anthropology and Anatomy, Duke University, Durham, March.
- 1996 "Brains, Bodies, and Bipedality in Hominid Evolution", Department of Cell Biology and Anatomy, Johns Hopkins University Medical School, October.
- 1997 "Body Size and Body Shape in Hominid Evolution", Department of Anthropology, Smithsonian Institution, Washington, DC, November.
- 1998 "The Evolution of Hominid Body Form and Robusticity", Summer Workshop, Complutense University, "La Vida en la Prehistoria: La Paleobiología de Nuestros Antepasados", El Escorial, Spain, August.
- 1999 "The Significance of Skeletal 'Robustness' in Human Evolutionary Studies", and "Climate and the Evolution of Human Body Form", Dept. Anthropology, Pennsylvania State University, October.
- 1999 "The Evolution of Human Gait", Fall meeting of the La Jolla Initiative for Explaining the Origins of Humans (LOH), San Diego, November.
- 2000 "Physiology, II: Skeletal", in "Surgery for Engineers", a course offered through the Engineering Research Center for Computer Integrated Surgical Systems and Technology, Johns Hopkins University, January.

- 2001 “Does Size Matter? Reconstructing Body Mass in the Human Fossil Record”, Department of Anthropology, Washington University, St. Louis, November.
- 2002 “Does the Hominin Bipedal Pelvis Promote or Impair Human Reproductive Success?” Spring meeting of the La Jolla Initiative for Explaining the Origins of Humans (LOH), San Diego, March.
- 2002 “Reconstruction of Body Size, Body Shape, and Behavior in the Hominin Fossil Record”, Paleoanthropology Seminar, Smithsonian Institution, Washington, DC, April.
- 2003 “The Development of Bone Strength in Children and Adolescents: A Longitudinal Analysis”, Pediatric Working Group Session, American Society for Bone and Mineral Research, Minneapolis, September.
- 2004 "Skeletal Adaptation to Mechanical Loading During Growth and Development", Children’s Hospital of Philadelphia Nutrition Center Seminar Series, Philadelphia, May.
- 2004 “Trends in the Evolution of the Postcranial Skeleton in the Genus *Homo*”, Fall meeting of the La Jolla Initiative for Explaining the Origins of Humans (LOH), San Diego, November.
- 2004 “The Interpretation of Long Bone Robusticity in Hominin Evolution”, Arizona State University IGERT Program on Neural and Musculoskeletal Adaptation in Form and Function, Tempe, November.
- 2005 “Mechanical Influences on Skeletal Development”, Department of Anthropology, SUNY Albany, March.
- 2005 “Bone Anthropology”, Midwest Symposium on Pediatric Bone Health, Children’s Hospital, Omaha, April.
- 2006 “The Applicability of ‘Wolff’s Law’ to Paleontological Inference”, in meeting sponsored by the National Evolutionary Synthesis Center, “Behavioral Reconstruction in Paleoanthropology”, Durham, NC, February.
- 2006 “Interpreting the Juvenile Skeleton”, Department of Anthropology, Ohio State University, June.
- 2007 "Bone Development – from the Stone Age to the Internet Generation", Pediatric Bone Session of the International Bone and Mineral Society annual meeting, Montreal, June.

- 2008 "Biomechanics in Bioarchaeology", Department of Archaeology, Durham University, October.
- 2008 "Biomechanics in Bioarchaeology", Division of Archeological, Geographical and Environmental Sciences, University of Bradford, October.
- 2011 "Walking the Walk: Locomotor Diversity among Early Hominins", Department of Anthropology, University of Minnesota, April.
- 2011 "The Evolution of Hominin Bipedalism", Dept. Anthropology, Charles University, Prague, Czech Republic, July.
- 2011 "The Evolution of Hominin Bipedalism", Dept. Anthropology, New York University, November.

PUBLICATIONS

1. Ruff, C.B. (1980) Age differences in craniofacial dimensions among adults from Indian Knoll, Kentucky. *Am. J. Phys. Anthropol.*, 53: 101-108.
2. Ruff, C.B. (1981) A reassessment of demographic estimates for Pecos Pueblo. *Am. J. Phys. Anthropol.*, 54: 147-151.
3. Ruff, C.B. and Jones, H.H. (1981) Bilateral asymmetry in cortical bone of the humerus and tibia - sex and age factors. *Human Biology*, 53: 69-86.
4. Hayes, W.C., Snyder, B., Ruff, C.B., Ramaswamy, S., and White, A.A. III (1981) Some mechanics of bone architecture. In: *Osteoporosis: Recent advances in Pathogenesis and Treatment*, Deluca, H.F., Frost, H.M., Jee, W.S.S., Johnston, C.C., and Parfitt, A.M., eds., pp. 161-174. Baltimore: University Park Press.
5. Ruff, C.B. (1981) Structural Changes in the Lower Limb Bones with Aging at Pecos Pueblo. Ph.D. Thesis, University of Pennsylvania. Ann Arbor: University Microfilms International #8127066.
6. Ruff, C.B. and Hayes, W.C. (1982) Subperiosteal expansion and cortical remodeling of the human femur and tibia with aging. *Science*, 217: 945-948.
7. Ruff, C.B. and Hayes, W.C. (1983) Cross-sectional geometry of Pecos Pueblo femora and tibiae - a biomechanical investigation. I. Method and general patterns of variation. *Am. J. Phys. Anthropol.*, 60: 359-381.
8. Ruff, C.B. and Hayes, W.C. (1983) Cross-sectional geometry of Pecos Pueblo femora and tibiae - a biomechanical investigation. II. Sex, age and side differences. *Am. J. Phys. Anthropol.*, 60: 383-400.
9. Ruff, C.B. (1983) The contribution of cancellous bone to long bone strength and rigidity. *Am. J. Phys. Anthropol.*, 61: 141-143.
10. Ruff, C.B., Larsen, C.S., and Hayes, W.C. (1984) Structural changes in the femur with the transition to agriculture on the Georgia coast. *Am. J. Phys. Anthropol.*, 64: 125-136.
11. Ruff, C.B., and Hayes, W.C. (1984) Bone mineral content in the lower limb: relationship to cross-sectional geometry. *J. Bone Jt. Surg.*, 66A: 1024-1031.
12. Ruff, C.B. and Hayes, W.C. (1984) Age changes in geometry and mineral content of the lower limb bones. *Ann. Biomed. Eng.*, 12: 573-584.
13. Ruff, C.B. (1984) Allometry between length and cross-sectional dimensions of the femur and tibia in *Homo sapiens sapiens*. *Am. J. Phys. Anthropol.*, 65: 347-358.

14. Schaffler, M.B., Burr, D.B., Jungers, W.L., and Ruff, C.B. (1985) Structural and mechanical indicators of limb specialization in primates. *Folia Primatol.*, 45: 61-75.
15. Ruff, C.B. and Leo, F.P. (1986) Use of computed tomography in skeletal structural research. *Yrbk. Phys. Anthropol.*, 29: 181-196.
16. Hayes, W.C. and Ruff, C.B. (1986) Biomechanical compensatory mechanisms for age-related changes in cortical bone. In: *Current Concepts of Bone Fragility*, Uhtoff, H.K., ed., pp. 371-377. Berlin: Springer-Verlag.
17. Ruff, C.B. (1987) Structural allometry of the femur and tibia in Hominoidea and *Macaca*. *Folia Primatol.*, 48: 9-49.
18. VanValkenburgh, B. and Ruff, C.B. (1987) Canine tooth strength and killing behavior in large carnivores. *J. Zoology (London)*, 212: 379-397.
19. Ruff, C.B. (1987) Sexual dimorphism in human lower limb bone structure: Relationship to subsistence strategy and sexual division of labor. *J. Human Evol.*, 16: 396-416.
20. Brock, S.L. and Ruff, C.B. (1988) Diachronic patterns of change in structural properties of the femur in the prehistoric American Southwest. *Am. J. Phys. Anthropol.*, 75: 113-127.
21. Ruff, C.B. and Hayes, W.C. (1988) Sex differences in age-related remodeling of the femur and tibia. *J. Orthop. Res.*, 6: 886-896.
22. Ruff, C.B. (1988) Hindlimb articular surface allometry in Hominoidea and *Macaca*, with comparisons to diaphyseal scaling. *J. Hum. Evol.*, 17: 687-714.
23. Burr, D.B., Ruff, C.B., and Johnston, C. (1989) Structural adaptations of the femur and humerus to arboreal and terrestrial environments in three species of macaque. *Am. J. Phys. Anthropol.*, 79: 357-368.
24. Ruff, C.B., Walker, A., and Teaford, M.F. (1989) Body mass, sexual dimorphism and femoral proportions of *Proconsul* from Rusinga and Mfangano Islands, Kenya. *J. Human Evol.*, 18: 515-536.
25. Trinkaus, E. and Ruff, C.B. (1989) Diaphyseal cross-sectional morphology and biomechanics of the Fond-de-Forêt 1 femur and the Spy 2 femur and tibia. *Bull. Soc. Roy. Bel. Anthropol. Prehist.*, 100: 30-40.
26. Ruff, C.B. (1989) New approaches to structural evolution of limb bones in primates. *Folia Primatol.*, 53: 142-159.
27. Beck, T.J., Ruff, C.B., Warden, K.E., Scott, W.W. Jr., and Rao, G.U. (1990) Predicting femoral neck strength from bone mineral data: A structural approach. *Invest. Radiol.*, 25: 6-18.

28. Burr, D.B., Ruff, C.B., and Thompson, D.D. (1990) Patterns of skeletal histological change through time: Comparison of an archaic Native American population with modern populations. *Anat. Rec.*, 226: 307-313.
29. Larsen, C.S., Schoeninger, M.J., Hutchinson, D.L., Russell, K.F., and Ruff, C.B. (1990) Beyond demographic collapse: Biological adaptation and change in native populations of La Florida. In: *Columbian Consequences, Vol. II: Archaeological and Historical Perspectives on Spanish Borderlands East*, Thomas, D.H., ed. Washington: Smithsonian Institution Press, pp. 409-428.
30. Ruff, C.B. (1990) Body mass and hindlimb bone cross-sectional and articular dimensions in anthropoid primates. In: *Body Size in Mammalian Paleobiology*, Damuth, J. and McFadden, B.J., eds. Cambridge: Cambridge University Press, pp. 119-149.
31. Torchia, M.E. and Ruff, C.B. (1990) Quantitative geometric remodeling of the femoral diaphysis following hip arthroplasty. *J. Orthop. Res.*, 8: 883-891.
32. Ruff, C.B. and Larsen, C.S. (1990) Postcranial biomechanical adaptations to subsistence changes on the Georgia coast. *Anth. Pap. Am. Mus. Nat. Hist.*, 68: 94-120.
33. Fresia, A.E., Ruff, C.B., and Larsen, C.S. (1990) Temporal decline in bilateral asymmetry of the upper limb on the Georgia coast. *Anth. Pap. Am. Mus. Nat. Hist.*, 68: 121-132.
34. Larsen, C.S. and Ruff, C.B. (1991) Biomechanical adaptation and behavior on the prehistoric Georgia coast. In: *What Mean These Bones? Studies in Southeastern Bioarchaeology*. Powell, M.L., Bridges, P.S., and Mires, A.M., eds. Tuscaloosa: Univ. Alabama Press, pp. 102-113.
35. Ruff, C.B. (1991) *Aging and Osteoporosis in Native Americans from Pecos Pueblo, New Mexico: Behavioral and Biomechanical Effects*. New York: Garland Press.
36. Ruff, C.B. (1991) Climate and body shape in early hominids. *J. Human Evol.*, 20: 81-105.
37. Ruff, C.B., Scott, W.W., and Liu, A. Y-C. (1991) Articular and diaphyseal remodeling of the proximal femur with changes in body mass in adults. *Am. J. Phys. Anthropol.*, 86: 397-413.
38. Chakraborty, P.K., Brown, J.L., Ruff, C.B., Nelson, M.F., and Mitchell, A.S. (1991) Effects of long-term treatment with estradiol or clomiphene citrate on bone maintenance, and pituitary and uterine weights in ovariectomized rats. *J. Steroid Biochem. Molec. Biol.*, 40: 725-729.
39. Trinkaus, E., Churchill, S.E., Villemeur, I., Riley, K.G., Heller, J.A., and Ruff, C.B. (1991) Robusticity *versus* shape: The functional interpretation of Neandertal appendicular morphology. *J. Anthropol. Soc. Nippon*, 99: 257-278.

40. Ruff, C.B. (1992) Biomechanical analyses of archaeological human skeletal samples. In: *The Skeletal Biology of Past Peoples*, Saunders, S.R. and Katzenberg, A., eds. New York: Alan R. Liss, pp. 41-62.
41. Beck, T.J., Ruff, C.B., Scott, W.W., Plato, C.C., Tobin, J.D., and Quan, C.A. (1992) Sex differences in geometry of the femoral neck with aging: A structural analysis of bone mineral data. *Calcif. Tiss. Intl.*, 50: 24-29.
42. Biknevičius, A.R. and Ruff, C.B. (1992) Use of biplanar radiographs for estimating cross-sectional geometric properties of the mandible. *Anat. Rec.*, 232: 157-163.
43. Ruff, C.B. and Runestad, J.A. (1992) Primate limb bone structural adaptations. *Ann. Rev. Anthropol.* 1992, 21: 407-433.
44. Larsen, C.S., Ruff, C.B., Schoeninger, M.J., and Hutchinson, D.L. (1992) Population decline and extinction in La Florida. In: *Disease and Demography in the Americas*, Verano, J.W. and Ubelaker, D.H., eds. Washington: Smithsonian Institution Press, pp. 25-39.
45. Wayne, R.K. and Ruff, C.B. (1992) Domestication and bone growth. In: *Bone. Volume 7: Bone Growth - B*, Hall, B.K., ed. Boca Raton: CRC Press, pp. 105-131.
46. Biknevičius, A.R. and Ruff, C.B. (1992) The structure of the mandibular corpus and its relationship to feeding behaviors in extant carnivores. *J. Zoology (London)*, 228: 479-507.
47. Runestad, J.A., Ruff, C.B., Nieh, J.C., Thorington, R.W., and Teaford, M.F. (1993) Radiographic estimation of long bone cross-sectional geometric properties. *Am. J. Phys. Anthropol.*, 90: 207-213.
48. Ruff, C.B. and Walker, A. (1993) Body size and body shape. In: *The Nariokotome *Homo erectus* Skeleton*, Walker, A. and Leakey, R.E., eds., Harvard Univ. Press, pp. 234-265.
49. Walker, A. and Ruff, C.B. (1993) The reconstruction of the pelvis. In: *The Nariokotome *Homo erectus* Skeleton*, Walker, A. and Leakey, R.E., eds., Harvard Univ. Press, pp. 221-233.
50. Ruff, C.B., Trinkaus, E., Walker, A. and Larsen, C.S. (1993) Postcranial robusticity in *Homo*, I: Temporal trends and mechanical interpretation. *Am. J. Phys. Anthropol.* 91: 21-53.
51. Ruff, C.B. (1993) Climatic adaptation and hominid evolution: The thermoregulatory imperative. *Evol. Anthropol.* 2: 53-60.
52. Heinrich, R.E., Ruff, C.B., and Weishampel, D.B. (1993) Femoral ontogeny and locomotor biomechanics of *Dryosaurus lettowvorbecki* (Dinosauria, Iguanodontia). *Zool. J. Linn. Soc. Lond.*, 108: 179-196.

53. Beck, T.G., Ruff, C.B. and Bissessor, K. (1993) Age-related changes in female femoral neck geometry: Implications for bone strength. *Calcif. Tiss. Intl.*, 53, Suppl. 1: 541-546.
54. Trinkaus, E., Churchill, S.E., and Ruff, C.B. (1994) Postcranial robusticity in *Homo*, II: Humeral bilateral asymmetry and bone plasticity. *Am. J. Phys. Anthropol.*, 93: 1-34.
55. Ruff, C.B., Walker, A., and Trinkaus, E. (1994) Postcranial robusticity in *Homo*, III: Ontogeny. *Am. J. Phys. Anthropol.*, 93: 35-54.
56. C.S. Larsen and C.B. Ruff (1994) The stresses of conquest in Spanish Florida: Structural adaptation and change before and after contact. In: *In the Wake of Contact: Biological Responses to Conquest*, Larsen, C.S. and Milner, G.R., eds. New York: Wiley-Liss, pp. 21-34.
57. Ruff, C.B. (1994) Biomechanical analysis of Northern and Southern Plains femora: Behavioral implications. In: *Skeletal Biology in the Great Plains: Migration, Warfare, Health, and Subsistence*, Owsley, D.W. and Jantz, R.L., eds. Washington: Smithsonian Institution Press, pp. 235-245.
58. Roy, T.A., Ruff, C.B., and Plato, C.C. (1994) Hand dominance and bilateral asymmetry in structure of the second metacarpal. *Am. J. Phys. Anthropol.*, 94: 203-211.
59. Rafferty, K.L. and Ruff, C.B. (1994) Articular structure and function in *Hylobates*, *Colobus*, and *Papio*. *Am. J. Phys. Anthropol.*, 94: 395-408.
60. Ruff, C.B. (1994) Morphological adaptation to climate in modern and fossil hominids. *Yrbk. Phys. Anthropol.*, 37: 65-107.
61. Rafferty, K.L., Walker, A., Ruff, C.B., Rose, M.D., Andrews, P.J. (1995) Postcranial estimates of body weight in *Proconsul*, with a note on a distal tibia of *P. major* from Napak, Uganda. *Am. J. Phys. Anthropol.*, 97: 391-402.
62. Ward, C.V., Ruff, C.B., Walker, A., Rose, M.D., Teaford, M.F., and Nengo, I.O. (1995) Functional morphology of *Proconsul* patellas from Rusinga Island, Kenya, with implications for other Miocene-Pliocene catarrhines. *J. Human Evol.* 29: 1-19.
63. Runestad, J.A. and Ruff, C.B. (1995) Structural adaptations for gliding in mammals with implications for locomotor behavior in paromomyids. *Am. J. Phys. Anthropol.* 98: 101-119.
64. Ruff, C.B. (1995) Biomechanics of the hip and birth in early *Homo*. *Am. J. Phys. Anthropol.* 98: 527-574.
65. Larsen, C.S., Ruff, C.B., and Kelly, R.L. (1995) Structural analysis of the Stillwater postcranial human remains: Behavioral implications of articular joint pathology and long bone diaphyseal morphology. In: *Bioarchaeology of the Stillwater marsh: Prehistoric human adaptation in the western Great Basin*, Larsen, C.S. and Kelly, R.L., eds. *Anth. Pap. Am. Mus. Nat. Hist.*, no. 77, pp. 107-133.

66. Beck, T.J., Ruff, C.B., Mourtada, F.A., Shaffer, R.A, Maxwell-Williams, K., Kao, G.L., Sartoris, D., and Brodine, S. (1996) Dual-energy x-ray absorptiometry derived structural geometry for stress fracture prediction in male U.S. Marine Corps recruits. *J. Bone Min. Res.* 11: 645-653.
67. Trinkaus, E. and Ruff, C.B. (1996) Early modern human remains from East Asia: The Yamashita-cho 1 immature postcrania. *J. Hum. Evol.* 30: 299-314.
68. Mourtada, F.A., Beck, T.B., Hauser, D.L., Ruff, C.B., and Bao, G. (1996) Curved beam model of the proximal femur for estimating stress using dual-energy x-ray absorptiometry derived structural geometry. *J. Orthop. Res.* 14: 483-492.
69. Larsen, C.S., R.L. Kelly, C.B. Ruff, M.J. Schoeninger, and D.L. Hutchinson (1996) Biobehavioral adaptations in the Western Great Basin. In: *Case Studies in Environmental Archaeology*, Reitz, E.J., Newsom, E.J., and Scudder, S.J., eds. New York: Plenum Press, pp. 149-174.
70. Larsen, C.S., Ruff, C.B., and Griffin, M.C. (1996) Implications of changing biomechanical and nutritional environments for activity and lifeway in the eastern Spanish borderlands. In: *Bioarchaeology of Native Americans in the Spanish Borderlands*. Baker, B.J. and Kealhofer, L.L., eds. Gainesville: Univ. Press Florida, pp. 95-125.
71. Ruff, C.B., Trinkaus, E., Holliday, T.W. (1997) Body mass and encephalization in Pleistocene *Homo*. *Nature* 387: 173-176.
72. Holliday, T.W. and Ruff, C.B. (1997) Ecogeographic patterning and stature prediction in fossil hominids: Comment on Feldesman and Fountain. *Am. J. Phys. Anthropol.* 103: 137-140.
73. Ruff, C.B. (1998) Are we growing taller or smaller? *Dragonfly* 2 (4):15-16.
74. Trinkaus, E., Ruff, C.B., Churchill, S.E., & Vandermeersch, B. (1998) Locomotion and body proportions of the Saint-Césaire 1 Chatelperronian Neandertal. *Proc. Natl. Acad. Sci.* 95: 5836-5840.
75. Ruff, C.B. (1998) Evolution of the hominid hip. In: *Primate Locomotion: Recent Advances*. Strasser, E., Fleagle, J., McHenry, H., and Rosenberger, A., eds. New York: Plenum Press, pp. 449-469.
76. Beck, T.J., Mourtada, F.A., Ruff, C.B., Scott, W.W., and Kao, G. (1998) Experimental testing of a DEXA-derived curved beam model of the proximal femur. *J. Orthop. Res.* 16: 394-398.
77. Trinkaus, E., Ruff, C.B., and Churchill, S.E. (1998) Upper limb versus lower limb loading patterns among Near Eastern Middle Paleolithic hominids. In: *Neandertals and Modern*

- Humans in Western Asia. Akazawa, T., Aoki, K., and Bar-Yosef. O., eds. Plenum Press, pp. 391-404.
78. Heinrich, R.E., Ruff, C.B., and Adamczewski, J.Z. (1999) Ontogenetic changes in mineralization and bone geometry in the femur of muskoxen (*Ovibos moschatus*). *J. Zoology* (London) 247: 215-223.
 79. Trinkaus, E. and Ruff, C.B. (1999) Diaphyseal cross-sectional geometry of Near Eastern Middle Paleolithic humans: The femur. *J. Arch. Sci.* 26: 409-424.
 80. Trinkaus, E., Stringer, C.B., Ruff, C.B., Hennessy, R.J., Roberts, M.B., and Parfitt, S. (1999) Diaphyseal cross-sectional geometry of the Boxgrove 1 Middle Pleistocene human tibia. *J. Hum. Evol.* 37: 1-25.
 81. Trinkaus, E., Churchill, S.E., Ruff, C.B., Vandermeersch, B. (1999) Long bone shaft robusticity and body proportions of the Saint-Césaire 1 Châtelperronian Neandertal. *J. Arch. Sci.* 26: 753-773.
 82. Ruff, C.B., McHenry, H.M., Thackeray, F. (1999) Cross-sectional morphology of the SK 82 and 97 proximal femora. *Am. J. Phys. Anthropol.* 109: 509-521.
 83. Trinkaus, E. and Ruff, C.B. (1999) Diaphyseal cross-sectional geometry of Near Eastern Middle Paleolithic humans: The tibia. *J. Arch. Sci.* 16: 1289-1300.
 84. Trinkaus, E., Ruff, C.B., and Conroy, G.C. (1999) The anomalous archaic *Homo* femur from Berg Aukas, Namibia: A biomechanical assessment. *Am. J. Phys. Anthropol.* 110: 379-391.
 85. Ruff, C.B. (1999) Skeletal structure and behavioral patterns of prehistoric Great Basin populations. In: *Understanding Prehistoric Lifeways in the Great Basin Wetlands: Bioarchaeological Reconstruction and Interpretation.* Hemphill, B.E. and Larsen, C.S., eds. Salt Lake City: Univ. Utah Press, pp. 290-320.
 86. Ruff, C.B. (2000) Body size, body shape, and long bone strength in modern humans. *J. Hum. Evol.* 38: 269-290.
 87. Ruff, C.B. (2000) News and Views: A view on the science: Physical anthropology at the millenium. *Am. J. Phys. Anthropol.* 111: 1-3.
 88. Ruff, C.B. (2000) Biomechanical analyses of archaeological human skeletons. In: *Biological Anthropology of the Human Skeleton.* Katzenberg, A. and Saunders, S.R., eds. New York: Alan R. Liss, pp. 71-102.
 89. Beck, T., Ruff, C.B., Shaffer, R.A., Betsinger, K., Trone, D.W., Brodine, S.K. (2000) Stress fracture in military recruits: Gender differences in muscle and bone susceptibility factors. *Bone* 27: 437-444.

90. Ruff, C.B. (2000) Prediction of body mass from skeletal frame size in elite athletes. *Am. J. Phys. Anthropol.* 113: 507-517.
91. Beck, T., Looker, A., Ruff, C., Sievanen, H., and Wahner, H. (2000) Structural trends in the aging femoral neck and proximal shaft: Analysis of the Third National Health and Nutrition Examination Survey dual-energy x-ray absorptiometry data. *J. Bone Min. Res.* 15: 2297-2304.
92. Weaver, A., T.W. Holliday, C.B. Ruff, and E. Trinkaus. (2001) The fossil evidence for the evolution of human intelligences in Pleistocene *Homo*. In: *In the Mind's Eye: Multidisciplinary Perspectives on the Evolution of Human Cognition*, Nowell, A., ed. Ann Arbor: International Monographs in Prehistory, pp. 154-171.
93. Ruff, C.B. and Larsen, C.S. (2001) Reconstructing behavior in Spanish Florida: the biomechanical evidence. In: *Bioarchaeology of Spanish Florida: The Impact of Colonialism*. Larsen, C.S., ed., Univ. Press of Florida, Gainesville, pp.113-145.
94. Beck, T.J., Oreskovic, T.L., Stone, K.L., Ruff, C.B., Ensrud, K., Nevitt, M., and Cummings, S.R. (2001) Structural adaptation to changing skeletal load in the progression toward hip fragility: The Study of Osteoporotic Fractures. *J. Bone Min. Res.* 16: 1108-1119.
95. Holliday, T.W. and Ruff, C.B. (2001) Relative variation in human proximal and distal limb segment lengths. *Am. J. Phys. Anthropol.* 116: 26-33.
96. Larsen, C.S., Griffin, M.C., Hutchinson, D.L., Noble, V.E., Norr, L., Pastor, R.F., Ruff, C.B., Russell, K.F., Schoeninger, M.J., Schultz, M.J., Simpson, S.W., and Teaford, M.F. (2001) Frontiers of Contact: Bioarchaeology of Spanish Florida *J. World Prehist.* 15: 69-123.
97. Ruff, C.B. (2001) Body, evolution of. In: *International Encyclopedia of the Social and Behavioral Sciences*, vol. 2. Smelser, N.J. and Baltus, P.B., eds. Elsevier, Oxford, UK, pp. 1274-7.
98. Ruff, C.B. (2002) Variation in human body size and shape. *Ann. Rev. Anthropol.* 31: 211-232.
99. Larsen, C.S., Crosby, A.W., Griffin, M.C., Hutchinson, D.L., Ruff, C.B., Russell, K.F., Schoeninger, M.J., Sering, L.E., Simpson, S.W., Takacs, J.L., and Teaford, M.F. (2002) A biohistory of health and behavior in the Georgia Bight: The agricultural transition and the impact of European contact. In: *The Backbone of History: Health and Nutrition in the Western Hemisphere*. Steckel, R.H. and Rose, J.C., eds. New York: Cambridge Univ. Press., pp. 406-439.
100. Ruff, C.B., Trinkaus, E., and Holliday, T.W. (2002) Body proportions and size. In: *Portrait of the Artist as a Child. The Gravettian Human Skeleton from the Abrigo do Lagar Velho and its Archaeological Context*. Zilhão, J. and Trinkaus, E., eds. *Trabalhos de Arqueologia*, Vol. 22. Lisbon: Instituto Português de Arqueologia, pp. 365-391.

101. Trinkaus, E., Ruff, C.B., Esteves, F., Coelho, J.M.S., Silva, M., and Mendonça, M. (2002) The lower limb remains. In: Portrait of the Artist as a Child. The Gravettian Human Skeleton from the Abrigo do Lagar Velho and its Archaeological Context. Zilhão, J. and Trinkaus, E., eds. *Trabalhos de Arqueologia*, Vol. 22. Lisbon: Instituto Português de Arqueologia, pp. 435-465.
102. Trinkaus, E., Ruff, C.B., Esteves, F., Coelho, J.M.S., Silva, M., and Mendonça, M. (2002) The upper limb remains. In: Portrait of the Artist as a Child. The Gravettian Human Skeleton from the Abrigo do Lagar Velho and its Archaeological Context. Zilhão, J. and Trinkaus, E., eds. *Trabalhos de Arqueologia*, Vol. 22. Lisbon: Instituto Português de Arqueologia, pp. 466-488.
103. Ruff, C.B. (2002) Long bone articular and diaphyseal structure in Old World monkeys and apes, I: Locomotor effects. *Am. J. Phys. Anthropol.* 119:305-342.
104. Ruff, C.B. (2003) Long bone articular and diaphyseal structure in Old World monkeys and apes, II: Estimation of body mass. *Am. J. Phys. Anthropol.* 120: 16-37.
105. Trinkaus, E., Churchill, S.E. Holt, B. and Ruff, C.B. (2003) Patterns of diaphyseal cross-sectional geometry between central and western European Early / Middle Upper Palaeolithic humans. In: *Changements Biologiques et Culturels en Europe de la Fin du Paléolithique Moyen au Néolithique*. Bruzek, J., Vandermeersch, B., and Garralda, M.D. eds. Talence: Laboratoire d'Anthropologie des Populations du Passé, Université de Bordeaux, pp.75-86.
106. Ruff, C.B. (2003) Growth in bone strength, body size, and muscle size in a juvenile longitudinal sample. *Bone* 33: 317-329.
107. Ruff, C.B. (2003) Ontogenetic adaptation to bipedalism: Age changes in femoral to humeral length and strength proportions in humans, with a comparison to baboons. *J. Hum. Evol.* 45: 317-349.
108. O'Neill, M.C. and Ruff, C.B. (2004) Estimating human long bone cross-sectional geometric properties: a comparison of noninvasive methods. *J. Hum. Evol.* 47: 221-235.
109. Auerbach, B.M. and Ruff, C.B. (2004) Human body mass estimation: a comparison of "morphometric" and "mechanical" methods. *Am. J. Phys. Anthropol.* 125: 331-342.
110. Ruff, C.B., Niskanen, M., Junno, J.-A., and Jamison, P. J. (2005) Body mass prediction from stature and bi-iliac breadth in two high latitude populations, with application to earlier higher latitude humans. *J. Human Evol.* 48: 381-392.
111. Ruff, C.B. (2005) Growth tracking of femoral and humeral strength from infancy through late adolescence. *Acta Paediatrica* 94: 1030-1037.

112. Therrien, F., Henderson, D.M., and Ruff, C.B. (2005) Bite me: biomechanical models of theropod mandibles and implications for feeding behavior In: *Carnivorous Dinosaurs*. Carpenter, K., ed. Bloomington, IN: Indiana University Press, pp. 179-237.
113. Ruff, C.B. (2005) Mechanical determinants of bone form: Insights from skeletal remains. *J. Musculoskel. Neuron. Inter.* 5: 202-212.
114. Young, J.H., Chang, Y.-P. C., Kim, J. D.-O., Chretien, J.-P., Klag, M.J., Levin, M.A., Ruff, C.B., Wang, N.-Y., Chakravarti, A. (2005) Differential susceptibility to hypertension is due to selection during the out-of-Africa expansion. *PLoS Genetics* 1(6): e82.
115. Auerbach, B.M. and Ruff, C.B. (2006) Limb bone bilateral asymmetry: Commonality and variability among modern humans. *J. Human Evol.* 50: 203-218.
116. Rosenberg K.R., Lü Z, and Ruff C.B. (2006) Body size, body proportions and encephalization in a Middle Pleistocene archaic human from northern China. *Proc. Natl. Acad. Sci.* 103: 3552-3556.
117. Ruff, C.B., Holt, B., Trinkaus, E. (2006) Who's afraid of the big bad Wolff? "Wolff's Law" and bone functional adaptation. *Am. J. Phys. Anthropol.* 129: 484-498.
118. Raxter, M.H., Auerbach, B.M, and Ruff, C.B. (2006) A revision of the Fully technique for estimating statures. *Am. J. Phys. Anthropol.* 130: 374-384.
119. Ruff, C.B., Holt, B.M., Sládek, V., Berner, M., Murphy, W.A., Nedden, D. zur, Seidler, H., and Reicheis, W. (2006) Body size, body shape, and long bone strength of the Tyrolean "Iceman". *J. Human Evol.* 51: 91-101.
120. Organ, J.M., Ruff, C.B., Teaford, M.F., and Nisbett, R.A. (2006) Do mandibular cross-sectional properties and dental microwear give similar dietary signals? *Am. J. Phys. Anthropol.* 130: 501-507.
122. Beck, T., Looker, A., Mourtada, F., Dapthary, M., and Ruff, C. (2006) Age trends in femur stresses from a simulated fall on the hip among men and women: Evidence of homeostatic adaptation underlying the decline in hip BMD. *J Bone Miner Res.* 21:1425-1432.
121. Ruff, C.B. (2006) Gracilization of the modern human skeleton - the latent strength in our slender bones teaches lessons about human lives, current and past. *Am. Scientist.* 94: 508-514.
122. Ruff, C.B. (2006) Environmental influences on skeletal structure. In: *Handbook of American Indians*, Vol. 3. Ubelaker, D., ed. Washington: Smithsonian Institution Press, pp. 685-693.
123. Ruff, C.B. (2007) Body size prediction from juvenile skeletal remains. *Am. J. Phys. Anthropol.* 133: 698-716.

124. Larsen, C.S., Hutchinson, D.L., Stojanowski, C.M., Williamson, M.A., Griffin, M.C., Simpson, S.W., Ruff, C.B., Schoeninger, M.J., Norr, L., Teaford, M.F., Driscoll, E.M., Schmidt, C.W., and Tung, T.A. (2007) Health and lifestyle in Georgia and Florida: agricultural origins and intensification in regional perspective. In: *Ancient Health: Skeletal Indicators of Agricultural and Economic Intensification*, Cohen, M.N. and Crane-Kramer, G., eds. Gainesville: Univ. Florida Press, pp. 20-34.
125. Ruff, C.B. (2008) Biomechanical analyses of archaeological human skeletons. In: *Biological Anthropology of the Human Skeleton* (2nd ed.). Katzenberg, M.A. and Saunders, S.R., eds. New York: Alan R. Liss, pp. 183-206.
126. Ruff, C.B. (2008) Femoral/humeral strength in early African *Homo erectus*. *J. Hum. Evol.* 54: 383-390.
127. Plavcan, J.M. and Ruff, C.B. (2008) Canine size, shape and bending strength in primates and carnivores. *Am. J. Phys. Anthropol.* 136: 65-84.
128. Raxter, M.H., Ruff, C.B., Azab, A., Erfan, M., Soliman, M., El-Sawaf, A. (2008) Stature estimation in ancient Egyptians: A new technique based on anatomical reconstruction of stature. *Am. J. Phys. Anthropol.* 136: 147-155.
129. Habib, M. and Ruff, C.B. (2008) The effects of locomotion on the structural characteristics of avian limb bones. *Zool. J. Linnean Soc.* 153: 601-624.
130. Ruff, C.B. (2009) Relative limb strength and locomotion in *Homo habilis*. *Am. J. Phys. Anthropol.* 138: 90-100.
131. Auerbach, B.M. and Ruff, C.B. (2010) Stature estimation formulae for indigenous North American populations. *Am. J. Phys. Anthropol.* 141: 190-207.
132. Raxter, M.H. and Ruff, C.B. (2010) The effect of vertebral numerical variation on anatomical stature estimates. *J. For. Sci.* 55:464-466.
133. Ruff, C.B. (2010) Body size and body shape in early hominins: Implications of the Gona pelvis. *J. Hum. Evol.* 58: 166-178.
134. Ruff C.B. (2010) Structural analyses of postcranial remains. In: *Pecos Pueblo Revisited: The Biological and Social Context. Papers of the Peabody Museum of Archaeology and Ethnology*, No. 85, Morgan ME, ed. Cambridge, MA: Harvard University, pp. 93-108.
135. Bondioli, L., Bayle, P., Dean, C., Mazurier, A., Puymeraill, L., Ruff, C., Stock, J.T., Volpato, V., Zanolli, C., and Macchiarelli, R. (2010) Morphometric maps of long bone shafts and dental roots for imaging topographic thickness variation. *Am. J. Phys. Anthropol.* 142:328-334.
136. Sylvester, A.D., Garofalo, E. and Ruff, C.B. (2010) Technical Note: An R program for automating bone cross section reconstruction. *Am. J. Phys. Anthropol.* 142:665-669.

137. Larsen, C.S. and Ruff, C.B. (2011) "An external agency of considerable importance": The stresses of agriculture in the foraging-to-farming transition in Eastern North America. In: Human Bioarchaeology of the Transition to Agriculture. Pinhasi, R. and Stock, J.T., eds. Chichester, UK: Wiley-Blackwell, pp. 293-315.
138. Stock, J.T., O'Neill, M.C., Ruff, C.B., Zabecki, M., Shackelford, L., Rose, J. (2011) Body size, skeletal biomechanics, mobility and habitual activity from the Late Palaeolithic to the Mid-Dynastic Nile Valley. In: Human Bioarchaeology of the Transition to Agriculture. Pinhasi, R. and Stock, J.T., eds. Chichester, UK: Wiley-Blackwell, pp. 347-367.
139. Holmes, M.A. and Ruff, C.B. (2011) Dietary effects on development of the human mandibular corpus. *Am. J. Phys. Anthropol.* 145: 615-628.
140. Higgins, R. and Ruff, C.B. (2011) The effects of distal limb segment shortening on locomotor efficiency in sloped terrain: implications for Neandertal locomotor behavior. *Am. J. Phys. Anthropol.* 146: 336-345.

ABSTRACTS

1. Ruff, C.B. (1978) Age differences in craniofacial dimensions among adults from Indian Knoll, Kentucky. Am. Assn. Phys. Anthrop., Toronto.
2. Ruff, C.B. (1979) Right-left asymmetry in long bones of California Indians. Am. Assn. Phys. Anthrop., San Francisco.
3. Ruff, C.B. (1980) Structural remodeling of the femur and tibia with aging - an automated digital analysis of the Pecos skeletal sample. Am. Assn. Phys. Anthrop., Niagara Falls.
4. Ruff, C.B. (1980) Age and sex differences in geometrical properties of the human femur and tibia. Am. Assn. Biomech., Burlington, Vermont.
5. Ruff, C.B. and Hayes, W.C. (1981) Sexual dimorphism in structure of the lower limb bones. Am. Assn. Phys. Anthrop., Detroit.
6. Ruff, C.B. and Hayes, W.C. (1982) Right-left asymmetry in structure of Pecos Pueblo lower limb bones. Am. Assn. Phys. Anthrop., Eugene, Oregon.
7. Ruff, C.B. and Hayes, W.C. (1982) Changes with age in cortical bone geometry and mineral mass in the human lower limb. Trans. Orthop. Res. Soc., 7: 320.
8. Ruff, C.B., Larsen, C.S. and Hayes, W.C. (1983) Changes in femoral structure with the transition to agriculture on the Georgia Coast. Am. Assn. Phys. Anthrop., Indianapolis.
9. Ruff, C.B. (1984) Allometric relationships between bone length and cross-sectional geometry in the human lower limb. Am. Assn. Phys. Anthrop., Philadelphia.
10. Schaffler, M.B., Burr, D.B., Jungers, W.L., and Ruff, C.B. (1984) Primate limb differentiation and mechanical specialization. Am. Assn. Phys. Anthrop., Philadelphia.
11. Ruff, C.B. and Leo, F.P. (1985) Use of CT scanning in skeletal structural analysis. Am. Assn. Phys. Anthrop., Knoxville.
12. Ruff, C.B., Hayes, W.C., and Lotz, J.C. (1986) Sex differences in age related remodeling of the femur and tibia. Orthop. Res. Soc., New Orleans.
13. Larsen, C.S. and Ruff, C.B. (1986) Behavioral approaches to the study of human remains from the Georgia Coast: Biomechanical adaptation. Southeastern Archaeological Conference, Birmingham, Alabama.
14. Ruff, C.B. (1986) Prediction of body weight from lower limb bone lengths and cross-sectional dimensions in primates. Am. Assn. Phys. Anthrop., Albuquerque.

15. Ruff, C.B. and Torchia, M.E. (1987) Diaphyseal involution in femora with prosthetic hip implants. Orthop. Res. Soc., San Francisco.
16. Ruff, C.B. (1987) Postcranial adaptation to subsistence changes on the Georgia Coast. Am. Assn. Phys. Anthrop., New York.
17. Fresia, A.E. and Ruff, C.B. (1987) Temporal decline in bilateral asymmetry of the upper limb on the Georgia Coast. Am. Assn. Phys. Anthrop., New York.
18. Burr, D.B. and Ruff, C.B. (1987) Structural adaptations of femur and humerus to locomotion in congeneric species of *Macaca*. Am. Assn. Phys. Anthrop., New York.
19. Ruff, C.B. (1987) Structural allometry of the lower limb bones in the Anthrozoidea. "Body Size in Mammalian Paleobiology: A Conceptual and Empirical Tool" Workshop, Florida State Museum, Gainesville.
20. Ruff, C.B. (1987) Biomechanics as a method of structural analysis in physical anthropology. Am. Anth. Assn., Chicago.
21. Beck, T.J., Ruff, C.B., and Scott, W.W. (1988) Determination of geometric properties of the proximal femur from dual photon absorptiometric data. Orthop. Res. Soc., Atlanta.
22. Ruff, C.B. (1988) Skeletal response of aged beagles to increased physical exercise. Am. Assn. Phys. Anthrop., Kansas City.
23. Biknevicius, A.R. and Ruff, C.B. (1988) Structure of the carnivoran mandible and its relationship to killing and feeding behaviors. Am. Soc. Zool., San Francisco.
24. Ruff, C.B., Spurgeon, H., Lauderbaugh, C.S., and Tobin, J. (1989) Effects of physical exercise on bone mineral content and cortical geometry in senescent beagles. Orthop. Res. Soc., Las Vegas.
25. Ruff, C.B., Spurgeon, H., Lauderbaugh, C.S., and Smith, G.R. (1989) Age changes in bone mineral content and cortical area of the adult female beagle skeleton. Orthop. Res. Soc., Las Vegas.
26. Chakraborty, P.K., Ruff, C.B., and Brown, J.L. (1989) Clomiphene citrate: An alternative to estrogen therapy to prevent bone loss without uterine hyperstimulation. Orthop. Res. Soc., Las Vegas.
27. Ruff, C.B., Walker, A., and Teaford, M.F. (1989) Femoral scaling and body mass estimates of *Proconsul* from Rusinga and Mfangano Islands, Kenya. Am. Assn. Phys. Anthrop., San Diego.
28. Trinkaus, E. and Ruff, C.B. (1989) Cross-sectional geometry of Neandertal femoral and tibial diaphysis: implications for locomotion. Am. Assn. Phys. Anthrop., San Diego.

29. Robbins, D.R., Rosenberg, K.R., and Ruff, C.B. (1989) Activity patterns in late middle Woodland, Delaware. Am. Assn. Phys. Anthrop., San Diego.
30. Yahiro, J.Y., Michael, R., Ruff, C., and Chakraborty, P.K. (1989) The combined effects of anabolic steroids and exercise on bone density in the rat model. Steenbock Symposium on Osteoporosis, Madison.
31. Heinrich, R.E., Weishampel, D.B., and Ruff, C.B. (1989) *Dryosaurus lettowvorbecki*: A biomechanical analysis of the ontogeny of locomotion. Soc. Vert. Paleont., Austin.
32. Yahiro, J.Y., Michael R., Ruff, C., and Chakraborty, P.K. (1990) The synergistic effect of anabolic steroids and exercise on bone density in the rat model. Orthop. Res. Soc., New Orleans.
33. Ruff, C.B. (1990) Climate, body size and body shape in early hominids. Am. Assn. Phys. Anthrop., Miami
34. Trinkaus, E., Churchill, S.E., and Ruff, C.B. (1990) Neandertal post-traumatic humeral asymmetry and the interpretation of fossil diaphyseal morphology. Am. Assn. Phys. Anthrop., Miami.
35. Larsen, C.S., Ruff, C.B., and Griffin, M.C. (1990) Behavioral adaptations at contact: biomechanical and pathological evidence from the Southeastern Borderlands. Am. Assn. Phys. Anthrop., Miami.
36. Kiratli, B.J., Beck, T.J., Ruff, C.B., and Agre, J.C. (1990) Reduction in femoral neck strength with disuse. Am. Assn. Phys. Anthrop., Miami.
37. Scott, W.S., Beck, T.J., Ruff, C.B., Plato, C.C., and Tobin, J.D. (1990) Age and sex differences in the geometry of the femoral neck: Going beyond bone mineral analysis. Am. Roentgen Ray Soc., Washington, D.C.
38. Beck, T.J., Scott, W.W. Jr., Ruff, C.B., Plato, C.C., Tobin, J.D., and Quan, C.A. (1990) Sex differences in the structural remodeling of the femoral neck with age. Third Intl. Symp. on Osteoporosis and Concensus Development Conference, Copenhagen.
39. Beck, T.J., Ruff, C.B., and Scott, W.W. Jr. (1990) Studies in the structural analysis of hip bone mineral data. Third Intl. Symp. on Osteoporosis and Concensus Development Conference, Copenhagen.
40. Ruff, C.B. and Walker, A. (1991) Body size of KNM-WT 15000. Am. Assn. Phys. Anthrop., Milwaukee.
41. Larsen, C.S., Ruff, C.B., and Kelly, R.L. (1991) Skeletal structural adaptations in prehistoric Great Basin hunter-gatherers. Am. Assn. Phys. Anthrop., Milwaukee.

42. Roy, T.A., Ruff, C.B., and Plato, C.C. (1991) Handedness and bilateral asymmetry in the geometry of the second metacarpal. Am. Assn. Phys. Anthrop., Milwaukee.
43. Ruff, C.B. (1992) Age changes in endosteal and periosteal sensitivity to increased mechanical loading. Orthop. Res. Soc., Washington, D.C..
44. Ruff, C.B., Trinkaus, E., Walker, A., and Larsen, C.S. (1992) Postcranial robusticity in *Homo*. Am. Assn. Phys. Anthrop., Las Vegas.
45. Runestad, J.A., Ruff, C.B., and Teaford, M.F. (1992) Reconstruction of body mass and locomotor mode in primates from structural properties of limb bones. Am. Assn. Phys. Anthrop., Las Vegas.
46. Larsen, C.S., Schoeninger, M.S., Ruff, C.B., Russell, K.F., Hutchinson, D.L., and Harn, D.E. (1992) The stresses of conquest in Spanish Florida. Am. Assn. Phys. Anthrop., Las Vegas.
47. Beck, T.B., Ruff, C.B. and Bisesur, K. (1992) Age and sex-related changes in bone geometry: Implications for bone strength. Workshop on Aging and Bone Quality, NIA/NIH, Bethesda.
48. Ruff, C.B. and Beck, T.B. (1993) Analyzing biomechanical problems with digital image data. Am. Assn. Phys. Anthrop., Toronto.
49. Rafferty, K.L and Ruff, C.B. (1993) Articular size, density, and mechanical loading in *Colobus guereza* and *Hylobates syndactylus*. Am. Assn. Phys. Anthrop., Toronto.
50. Runestad, J.A., Ruff, C.B., and Thorington, R.W. (1993) Biomechanical gliding adaptations in arboreal mammals. Am. Assn. Phys. Anthrop., Toronto.
51. Runestad, J.A., Ruff, C.B., and Thorington, R.W. (1993) Gliding biomechanics and primate origins. "Creatures of the Dark: The Nocturnal Prosimians" Conference, Duke University, Durham.
52. Ruff, C.B. (1994) Evolution of the pelvis in *Homo*. Am. Assn. Phys. Anthrop., Denver, April.
53. Ruff, C.B. (1994) Skeletal structure and behavioral patterns of prehistoric Great Basin populations. Soc. Am. Archaeol., Anaheim, April.
54. Burr, D.B., Yoshikawa, T., and Ruff, C.B. (1995) Moderate exercise increases activation frequency in old dogs. Orthop. Res. Soc., Orlando, February.
55. Beck, T.J., Ruff, C.B., Shaffer, R.A, Maxwell-Williams, K., Kao, G.L., and Brodine, S. (1995) Prediction of stress fractures in military recruits with DXA derived structural geometry. Orthop. Res. Soc., Orlando, February.

56. Ruff, C.B. (1995) Limb bone structure: influence of sex, subsistence, and terrain. Am. Assn. Phys. Anthrop., Oakland, April.
57. Egi, N., Ruff, C.B., and Runestad, J.A. (1995) Structural adaptations for leaping in the proximal femur of VCL prosimians. Am. Assn. Phys. Anthrop., Oakland, April.
58. Trinkaus, E. and Ruff, C.B. (1995) Yamashita-cho 1 and early modern human lower limb ontogeny. Am. Assn. Phys. Anthrop., Oakland, April.
59. Rafferty, K.L., Walker, A., and Ruff, C.B. (1995) Bones versus teeth: the estimation of body mass in *Proconsul*. Am. Assn. Phys. Anthrop., Oakland, April.
60. Egi, N., Ruff, C.B., and Rose, K.D. (1995) Differences in hindlimb cross-sectional properties between bipedal and quadrupedal leapers. Soc. Vert. Paleont., Pittsburgh, November.
61. Meers, M.B. and Ruff, C.B. (1995) Biomechanical analysis of caudal vertebrae from prehensile and non-prehensile tailed tetrapods. Soc. Vert. Paleont., Pittsburgh, November.
62. Trinkaus, E., Ruff, C.B., and Churchill, S.E. (1996) Upper limb versus lower limb robusticity in Near Eastern Middle Paleolithic Hominids. Paleoanth. Soc., New Orleans, March.
63. Ruff, C.B. and Trinkaus, E. (1996) Body mass in Pleistocene *Homo*. Am. Assn. Phys. Anthrop., Raleigh-Durham, March.
64. Trinkaus, E., Stringer, C.B., Ruff, C.B., Hennessy, R.J., Roberts, M.B., Parfitt, S.A. (1996) The Boxgrove tibia. Am. Assn. Phys. Anthrop., Raleigh-Durham, March.
65. Beck, T.J., Ruff, C.B., Looker, A.C., Mourtada, F.A., Wahner, H.W., Steiger, P. (1996) Ethnic and sex differences in age trends of proximal femur geometry from NHANES II hip DXA data. Am. Soc. Bone Min. Res., Seattle, September.
66. Beck, T.J., Mourtada, F.A., Ruff, C.B., Looker, A.C., Wahner, H.W., Walters, L. (1996) Methods for deriving geometric properties and stresses from DXA hip scan data. Am. Soc. Bone Min. Res., Seattle, September.
67. Ruff, C.B. (1997) Structural analysis of long bones from La Florida: Interpreting behavior. Am. Assn. Phys. Anthrop., St. Louis, April.
68. Trinkaus, E., Churchill, S.E., Ruff, C.B., Vandermeersch, B. (1997) Robusticity and body proportions of the Saint-Césaire 1 Neandertal. Am. Assn. Phys. Anthrop., St. Louis, April.
69. Ruff, C.B., Trinkaus, E., and Holliday, T.W. (1998) Body mass estimation in Olympic athletes and Pleistocene *Homo*. Am. Assn. Phys. Anthrop., Salt Lake City, April.

70. Aldridge, K., Ruff, C.B., and Beck, T.J. (1998) The effects of physical fitness on the structure of long bone diaphyses: A study of U.S. female Marine recruits. *Am. Assn. Phys. Anthrop.*, Salt Lake City, April.
71. Lubensky, A. M., Ruff, C.B., and Teaford, M.F. (1998) Pathology and the Hampstead Hill site: Health in an early 19th century U.S. population. *Am. Assn. Phys. Anthrop.*, Salt Lake City, April.
72. Larsen, C.S., Crosby, A.W., Griffin, M.C., Hutchinson, D.L., Ruff, C.B., Teaford, M.F., Russell, K.F., Schoeninger, M. J., Sering, L.E., and Simpson, S.W. (1998) Biohistory of health and behavior in the Georgia Bight. *Am. Assn. Phys. Anthrop.*, Salt Lake City, April.
73. Mussel, J.C., Ruff, C.B., and Rose, K.R. (1998) The use of computed tomography in understanding the biomechanics of fossil mammals. *Soc. Vert. Paleont.*, Denver, November.
74. Ruff, C.B. (1999) Change in human postcranial robustness during the Pleistocene. In symposium: "The Emergence of Modern Human Form: Archaeological, Molecular and Morphological Perspectives", *Am. Assoc. Adv. Science*, Anaheim, January.
75. Ruff, C.B., McHenry, H.M, Thackeray, F. , and Berger, L.R. (1999) Femoral neck cross-sectional morphology in South African early hominids. *Am. Assn. Phys. Anthrop.*, Columbus, April.
76. Rosenberg, K.R., Lu, Z., and Ruff, C.B. (1999) Body size, body proportions and encephalization in the Jinniushan specimen. *Am. Assn. Phys. Anthrop.*, Columbus, April.
77. Valerie, C.J., Reeves, R.H., Ruff, C.B., and Richtsmeier, J.T. (1999) The limits and possibilities of micro CT scanning. *Am. Assn. Phys. Anthrop.*, Columbus, April.
78. Ruff, C.B., Beck, T.J., LeBlanc, A.D., Evans, H.J., Schackelford, L., Oganov, V. and Schneider, V.S. (1999) Effects of prolonged weightlessness on hip structural geometry in Russian cosmonauts. *Am. Soc. Bone Min. Res.*, St. Louis, September.
79. Beck, T.J., Stone, K.L., Ruff, C.B. and Cummings, S.R. (1999) Effects of weight change on hip structure and bone mass in post-menopausal women. *Am. Soc. Bone Min. Res.*, St. Louis, September.
80. Schultheis, L., Ruff, C.B., Bloomfield, S.A., Hogan, H.A., Fedarko, N., Thierry-Palmer, M., Ruiz, J., Shapiro, J.R. (1999) Disuse bone loss in hindquarter suspended rats: Partial weightbearing, exercise and ibandronate treatment as countermeasures. *Am. Soc. Bone Min. Res.*, St. Louis, September.
81. Schultheis, L., Rastogi, S., Ruff, C., Bloomfield, S., Shapiro, J. (2000) Partial weightbearing with a force spectrum typical of normal ambulation improves bone strength in hindquarter suspended rats. *Orthop. Res. Soc.*, Orlando, February.

82. Ruff, C.B., Trinkaus, E., Holt, B. (2000) Lifeway changes as shown by postcranial skeletal robustness. Am. Assn. Phys. Anthrop., San Antonio, April.
83. Zumwalt, A.C., Ruff, C.B., Wilczak, C.A. (2000) Primate muscle insertions: What does size tell you? Am. Assn. Phys. Anthrop., San Antonio, April.
84. Larsen, C.S., Ruff, C.B., Hutchinson, D.L., Schoeninger, M.J. (2000) Relationship of diet and activity in Spanish Florida: Isotopic and structural concordance. Am. Assn. Phys. Anthrop., San Antonio, April.
85. Ruff, C.B. (2000) Climate, physiology, and the evolution of the human body. 12th Congress of the European Anthropological Association, Cambridge, UK, September.
86. Oden, Z., Schaffner, G., Beck, T., Ruff, C., Biegler, F., Wang, W., and Newman, D. (2000) Strength reductions in the femur following long-term space flight: A finite element simulation. Am. Soc. Bone Min. Res., Toronto, September.
87. Ruff, C.B. (2000) Evolution of the hominin pelvis. 4th Congress of the Gesellschaft für Anthropology, Potsdam, Germany, September, 2000.
88. Ruff, C.B. (2001) Locomotion, long bone structure and body mass estimation in Old World anthropoids. Am. Assn. Phys. Anthrop, Kansas City, March.
89. DeLeon, V.B., Frohlich, B., Garofalo, E., and Ruff, C.B. (2001) Crushing seeds and gouging tress: the impact on mandibular and zygomatic arch strengths. Am. Assn. Phys. Anthrop, Kansas City, March.
90. Zumwalt, A.C., Ruff, C.B., Lieberman, D.E. (2001) The influence of exercise on muscle insertion scars in sheep. Am. Assn. Phys. Anthrop, Kansas City, March.
91. Larsen, C.S., Schoeninger, M.J., Ruff, C.B., Teaford, M.F., and Hutchinson, D.L. (2001) Going coastal in the American southeast: the case of the Georgia bight. Soc. Am. Archaeol., New Orleans, March.
92. Daphtary, M.M., Ruff, C.B., Shapiro, J.R., Bauss, F., Lee, J.J., and Schultheis, L.W. (2001) Effect of ibandronate on bone quality under 50% and 100% weightbearing conditions. Am. Soc. Bone Min. Res., Phoenix, October.
93. Daphtary, M.M., Schultheis, L., Lee, J.J., Rastogi, S., Ruff, C.B. (2001) Effects of dynamic loading on bone structural properties under conditions of 50% weightbearing. Biomed. Eng. Soc., Durham, October.
94. Shapiro, J.R., Mustapha, B., Ballard, P., Baldwin, K., Beck, T., Ruff, C.B., Oreskovic, T., Potember, R., Boyle, M. Defining and preventing bone loss: A model for microgravity. (2002) NASA NSBRI Annual Workshop, Del Lago, Texas, January.

95. Ruff, C.B. and Jamison, P.L. (2002) Weight for trunk frame size: an alternative index of fatness in populations of varying body proportions. Am. Assn. Phys. Anthrop, Buffalo, April.
96. Ruff, C.B. (2003) Ontogenetic changes in limb bone structure: a longitudinal analysis of the Denver Growth Study sample. Am. Assn. Phys. Anthrop, Tempe, April.
97. Auerbach, B.M. and Ruff, C.B. (2003) Mass matters: an evaluation of two body mass estimation techniques in modern human populations. Am. Assn. Phys. Anthrop, Tempe, April.
98. O'Neill, M.C. and Ruff, C.B. (2003) Radiographic reconstruction of human long bone cross-sectional geometric properties: a test of two noninvasive techniques. Am. Assn. Phys. Anthrop, Tempe, April.
99. Ward, C.V., Drapeau, M.S., and Ruff, C.B. (2003) Diaphyseal and articular proportions in the limbs of *Australopithecus afarensis*. Paleoanth. Soc., Tempe, April.
100. Shapiro, J.R., Mustapha, B., Beck, T.J., Ruff, C.B., LeBlanc, A., Shakelford, L., Ballard, P., and Caminis, J. (2003) Space flight and spinal cord injury: Lessons to be learned! Endocrine Society, Philadelphia, June.
101. Ruff, C.B. (2003) Growth "tracking" of femoral and humeral strength from childhood to late adolescence. Am. Soc. Bone Min. Res., Minneapolis, September.
102. Ruff, C.B. and McHenry, H.M. (2004) Can sexual dimorphism in skeletal size be used to assess sexual dimorphism in body size? Am. Assn. Phys. Anthrop, Tampa, April.
103. Holt, B.M., Ruff, C.B., Trinkaus, E. (2004) The Wolff's law debate: Throwing out the water, but keeping the baby. Am. Assn. Phys. Anthrop, Tampa, April.
104. Auerbach, B.M. and Ruff, C.B. (2004) The right preferences? Bilateral asymmetry in the upper and lower limbs of modern humans. Am. Assn. Phys. Anthrop, Tampa, April.
105. Zabecki, M., O'Neill, M., and Ruff, C.B. (2004) Relative bone strength in the upper and lower limbs of a Predynastic Egyptian population. Am. Assn. Phys. Anthrop, Tampa, April.
106. Daphtary, M.M., Ruff, C.B., Stone, K.L., Cummings, S.R., and Beck, T.J. (2004) Is mechanical homeostasis faulty in elderly women who suffer osteoporotic fractures? Am. Soc. Bone Min. Res., Seattle, October.
107. Weishampel, D.B., Therrien, F., Henderson, D.M., and Ruff, C.B. (2004) Bite force estimates for non-avian theropods. Soc. Vert. Paleont. Denver, Nov.
108. Larsen, C.S. and Ruff, C.B. (2004) Working women: Reconstructing activity from skeletal morphology in the archaeological past. Am. Anth. Assn, San Francisco, Nov.

109. Young, J.H., Popel, A., Astor, B.C., Yeh, H.C., Pankow, J.S., Duncan, B.B., Ruff, C.B., and Brancati, F.L. (2004) Allometric relationships of cardiovascular and metabolic factors to height and adiposity: The atherosclerosis risk in communities (ARIC) study. Am. Heart Assoc. New Orleans, Nov.
110. Daphtary, M.M.; Ruff, C.B.; Snyder, R.; Stone, K.L.; Cummings, S.R.; Beck, T.J. (2005) Structural differences in the proximal femur between women with cervical and intertrochanteric fractures. Orthop. Res. Soc., Washington, DC, February.
111. Ruff, C.B. (2005) Reconstructing the human past: Integration of experimental, comparative, and paleontological evidence. Am. Assoc. Adv. Science, Washington, DC, February. (Co-chair of session: "New Ideas about Old Bones: Bone Biomechanics and Human Evolution")
112. Ruff, C.B., Holt, B.M., Sládek, V., Berner, M., Murphy, W.A., Nedden, D. zur, Seidler, H., and Reicheis, W. (2005) Body size, body shape, and long bone strength of the Tyrolean ice man. Am. Assn. Phys. Anthrop., Milwaukee, April.
113. Sládek, V., Holt, B.M., Berner, M., and Ruff, C.B. (2005) Changes in mobility patterns from the European Upper Paleolithic through Bronze Age as reflected in femoral and tibial cross-sectional geometry. Am. Assn. Phys. Anthrop., Milwaukee, April.
114. Raxter, M., Auerbach, B., and Ruff, C. (2005) A test of Fully's stature reconstruction technique in Terry Collection whites and blacks. Am. Assn. Phys. Anthrop., Milwaukee, April.
115. Auerbach, B.M., Raxter, M.H., and Ruff, C.B. (2005) If I only had a ...: Missing element estimation accuracy using the Fully technique for estimating statures. Am. Assn. Phys. Anthrop., Milwaukee, April.
116. Organ, J.M., Ruff, C.B., Teaford, M.F., and Nisbett, R.A. (2005) Chewing biomechanics in *Sus scrofa*: How do mandibular cross-sectional properties and dental microwear compare along the tooth row? Am. Assn. Phys. Anthrop., Milwaukee, April.
117. Habib, H.H. and Ruff, C.B. (2005) Forelimb to hindlimb structural proportions predict locomotor behavior in birds.. Soc. Vert. Paleontol., Mesa, AZ, October.
118. Ruff, C.B., Larsen, C.S., Cowgill, L.W., Hager, L.D. (2006) Life in a Neolithic community: body size and activity levels at Çatalhöyük, Turkey. Am. Assn. Phys. Anthrop., Anchorage, March.
119. Plavcan, J.M. and Ruff, C.B. (2006) Canine size and bending strength in primates and carnivores. Am. Assn. Phys. Anthrop., Anchorage, March.
120. Ruff, C.B. (2007) Prediction of body size from juvenile skeletal remains, with application to KNM-WT 15000. Am. Assn. Phys. Anthrop., Philadelphia, March.

121. Wright K.A., Ruff C.B., Stevens N.J., Covert H.H. , Nadler T. (2007) Long bone articular and diaphyseal structure in doucs (*Pygathrix*): evidence of suspensory adaptations. Am. Assn. Phys. Anthrop., Philadelphia, March.
122. Raxter M.H., Ruff, C.B., Azab, A., Erfan, M., Soliman, M., El-Sawaf, A., Auerbach, B.M. (2007) New long bone stature estimation equations for ancient Egyptians. Am. Assn. Phys. Anthrop., Philadelphia, March.
123. Volpato, V., Ruff, C., Macchiarelli, R, Cowgill, L. (2007) Cross-sectional geometry of the Roc de Marsal juvenile Neandertal femur, determined using high-resolution microtomography. Am. Assn. Phys. Anthrop., Philadelphia, March.
124. Brown, K.M., Ruff, C.B., Killoran, P.E., Pollack, D., and DeLeon, V.B. (2007) A mechanical analysis of the bioarchaeological remains from Frankfort cemetery (15Fr154). Am. Assn. Phys. Anthrop., Philadelphia, March.
125. Ruff, C.B. (2008) Limb strength proportions of OH 62 and locomotion among early African *Homo*. Am. Assn. Phys. Anthrop., Columbus, April.
126. Raxter, M.H. and Ruff, C.B. (2008) The effect of vertebral numerical variation on anatomical stature estimates. Am. Assn. Phys. Anthrop., Columbus, April.
127. Garofalo, E.M., Sylvester, A.D., and Ruff, C.B. (2009) An R program for automating bone cross-section reconstruction. Am. Assn. Phys. Anthrop., Chicago, April.
128. Simons, E.L.R., Patel, B.A., and Ruff, C.B. Humeral and femoral cross-sectional shape of suspensory sloths and primates. Am. Assn. Phys. Anthrop., Chicago, April.
129. Yu-Yahiro, J., Ruff, C., Parks, B., Sinkow, V., Merchanthaler, I., Jackson, R., and Schwen, R. (2009) S-equol prevents loss of bone strength in rat osteoporosis model. Am. Soc. Bone Min. Res., Denver, September.
130. Holmes, M.A., Ruff, C.B., DeLeon, V., Brown, K., and Frohlich, B. (2010) Scaling in the primate masticatory system. Am. Assoc. Anat., San Diego, April.
131. Ruff, C.B. (2010) Body size and body shape in early *Homo* – Implications of the Gona pelvis. Am. Assn. Phys. Anthrop., Albuquerque, April.
132. Holmes, M.A., Garofalo, E., and Ruff, C.B. (2010) Contrasting growth patterns in strength of the human mandible and long bones. Am. Assn. Phys. Anthrop., Albuquerque, April.
133. Garvin, H.M., Rainwater, C.W., and Ruff, C.B. (2010) The effects of health stressors on postcranial sexual dimorphism: A comparison of recent American populations. Am. Assn. Phys. Anthrop., Albuquerque, April.

134. Jungers, W., Farke, A., Sutikna, T., Ruff, C., Schakelford, L., Stock, J., Carlson, K., Pearson, O., and Grine, F. (2010) Long-bone geometry and skeletal biomechanics in *Homo floresiensis*. Am. Assn. Phys. Anthrop., Albuquerque, April.
135. Jones, K.E., Ruff, C., and Goswami, A. (2011) Male-male combat drives bite force evolution in the absence of mastication. Am. Assoc. Anat., Washington, DC, April.
136. Ruff, C.B. Interpreting skeletal growth in the past within a functional and physiological perspective. Am. Assn. Phys. Anthrop., Minneapolis, April.
137. Brown, K., DeLeon, V.B., and Ruff, C.B. (2011) Going to extremes: Body size and obstetrical adaptation. Am. Assn. Phys. Anthrop., Minneapolis, April.
138. Antón, S.C. and Ruff, C.B. (2011) Data archiving as a prerequisite for publication. Am. Assn. Phys. Anthrop., Minneapolis, April.