

CURRICULUM VITAE  
**JOAN T. RICHTSMEIER**  
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**Education**

1977 B.A. St. Mary's College, Sociology/ Anthropology.  
1980 M.A. University of Nebraska-Lincoln, Anthropology. Thesis: *Precipitation, temperature and maize agriculture: implications for prehistoric populations in the Middle Missouri subarea, A.D. 900-1675.*  
1985 Ph.D. Northwestern University, Anthropology. Thesis: *A study of normal and pathological craniofacial morphology and growth using finite element methods.*

**Professional Appointments**

2000-present **Professor**, Department of Anthropology, The Pennsylvania State University, University Park, PA (appointment in Program in Genetics).  
2000-present **Professor** (Visiting, part-time), Center for Functional Anatomy and Evolution, The Johns Hopkins University School of Medicine, Baltimore.  
1999-2000 **Professor**, Department of Cell Biology and Anatomy, The Johns Hopkins University, School of Medicine, Baltimore, joint appointment with Department of Plastic Surgery.  
1991-1999 **Associate Professor**, Department of Cell Biology and Anatomy, The Johns Hopkins University, School of Medicine, Baltimore; joint appointment Department of Plastic Surgery, The Johns Hopkins University, Baltimore.  
1987-1991 **Assistant Professor**, Department Cell Biology and Anatomy, The Johns Hopkins University School of Medicine.  
1986-1987 **Instructor**, Department of Cell Biology and Anatomy, The Johns Hopkins University, School of Medicine, Baltimore.  
1985-1986 **Lecturer** (post-doctoral appointment), Department of Anthropology, Northwestern University, Evanston.  
1983-1984 **Research Associate**, Center for Craniofacial Anomalies, University of Illinois, Chicago.  
1982-1983 **Technical Research Assistant II**, Cayo Santiago Caribbean Primate Research Center, Bioanthropology Laboratory, Department of Anthropology, Northwestern University.  
1978-1980 **Graduate Research Assistant**, H.P. Thomas Site Project, Division of Archeological Research, Department of Anthropology, University of Nebraska, Lincoln.

**Professional Societies and Activities**

**Member:** American Association of Physical Anthropologists  
American Association of Anatomists  
Society for the Study of Evolution  
Society of Craniofacial Genetics  
Society for Systematic Biology  
American Cleft Palate-Craniofacial Association  
Federation of American Societies for Experimental Biology  
Faculty, Center for Craniofacial Development and Disorders, The Johns Hopkins University

**Associate Editor:** American Journal of Physical Anthropology (January 2009-April 2013)

**Current committees:**

Member, National Academies Committee on assessment of the NIOSH Head-And-Face anthropometric Survey of U.S. Respirator Users  
 Chair, Neuro and Anatomical Imaging Working Group: World Congress on Chromosomal Abnormalities  
 Member at Large, Board of Directors of the Centre County Women's Resource Center, Inc., State College, PA

### Areas of Interest

Biological form and form change, quantitative morphology, craniofacial morphology and dysmorphology, evolutionary developmental biology, craniofacial development in primates, the relationship between ontogenetic mechanisms and phylogenetic change, sexual dimorphism of ontogeny and morphology, molecular basis of craniofacial development, genotype-phenotype correspondence in craniofacial phenotypes.

### Grants, Fellowships, Awards

1979 Recipient, Happold Fund Grant, University of Nebraska, Lincoln  
 1980 Recipient, University Fellowship, the Graduate School, Northwestern University, Evanston, Illinois  
 1981 Recipient, Departmental Fellowship, Department of Anthropology, Northwestern University, Evanston, Illinois  
 1987-88 The Johns Hopkins University Biomedical Research Support grant, *Three-dimensional analysis of craniofacial dysmorphology by finite-element methods*, \$4,712  
 1987-89 March of Dimes Birth Defects Foundation Basil O'Connor Research grant (#5-638) *Three-dimensional analysis of craniofacial dysmorphology by finite-element scaling methods*, \$40,000.  
 1988-91 The Whitaker Foundation Biomedical engineering research grant, *Finite element scaling analysis of the potential of developmental programs for the production of evolutionary change*, \$159,201.  
 1990 Selected **Maryland's Outstanding Young Scientist** and awarded the Allan C. Davis Medal of the Maryland Academy of Sciences.  
 1990-91 The Johns Hopkins University School of Medicine Biomedical Research Support grant, *Validation of the use of computed tomographic images in the study of craniofacial growth*, \$11,417.  
 1991 National Science Foundation doctoral dissertation improvement grant, *Growth of the human fetal craniofacial complex characterized in three dimensions*, \$9923. Doctoral student: Hannah M. Gausz.  
 1991 Storz Instrument Company research grant, *A study of the effect of plating systems on the growing rabbit craniofacial skeleton*, \$56,000.  
 1992-97 National Science Foundation, *Understanding the evolution of ontogenies through growth trajectory analysis*, SBR-9209083, \$139,000.  
 1993 National Science Foundation Research Experience for Undergraduates (REU) Supplemental Award to "Understanding the evolution of ontogenies through growth trajectory analysis", \$5400.  
 1993 Recipient, the **W. Barry Wood Award** for outstanding preclinical teaching.  
 1993 Ungermann-Bass, Inc., *ATM network for image data base research*, equipment grant, \$150,000.  
 1993 Synexus, Inc. research grant, *ATM network for image data base research*, \$21,830.  
 1994 Department of the Army, Rigid Skeletal Fixation of the immature craniofacial Skeleton in the Non-human primate, contract DADA15-94-P-5444, \$13,200.  
 1994-99 National Institutes of Dental Research, *Heterogeneity in craniosynostosis: subgroup determination by analysis of postnatal craniofacial growth*. Project II of 1 P50 DE11131-01, \$260,000.  
 1995-96 NIH initiative for Underrepresented minorities in Biomedical Research. Supplement to Project II of 1 P50 DE11131-01, \$25,000.  
 1996 National Science Foundation REU Supplemental Award to *Understanding the evolution of ontogenies through growth trajectory analysis*, \$4000.  
 1997-98 The Johns Hopkins University School of Medicine Biomedical Research Support grant, *"Posterior plagiocephaly: morphometric tools for subgroup identification"*, \$13,608.  
 1997 Faculty sponsor for Christopher J. Valeri, recipient of the 1997 Provost's Undergraduate Research Award, The Johns Hopkins University, \$2500.

- 1998-2000 **National Research Service Award: senior fellowship**, *Genetics of skull development in a Down syndrome mouse model*, 1F33DE/HD05706-01, \$79,500.
- 1998 Faculty sponsor for Christopher J. Valeri, recipient of the 1998 Provost's Undergraduate Research Award, The Johns Hopkins University, \$2500.
- 1998 National Science Foundation doctoral dissertation improvement grant, *Three-dimensional comparisons of craniofacial growth patterns in modern humans and Neanderthals*, \$11,994. Doctoral student: Gail E. Krovitz.
- 1999-2004 National Institute of Dental and Craniofacial Research, *Genotypic and phenotypic variability in the craniosynostoses*. Project VI of Center for Craniofacial Development and Disorders, 1 P60 DE13078, \$1,096,621.
- 1999 National Science Foundation SBER Instrumentation Grant, *Acquisition of the Reflex Microscope*, \$45,295.
- 2000 National Science Foundation doctoral dissertation improvement grant, *A three-dimensional analysis of age-related change in the adult craniofacial skeleton*, \$11,991. Doctoral student: Anita M. Lubensky.
- 2001-2004 Faculty sponsor for Cheryl Hill, recipient: National Science Foundation pre-doctoral award.
- 2002 National Science Foundation doctoral dissertation improvement grant, *Craniofacial Asymmetry, Morphological Integration, and Developmental Instability in the Human Skull* (BCS-0234565, \$9,141), Doctoral student: Valerie B. DeLeon.
- 2004 National Science Foundation doctoral dissertation improvement grant: *Quantitative Analysis of Temporal Bone Pneumatization in Homininae* (BCS-0524939, \$9,982), Doctoral student: Cheryl Hill
- 2004 Named Distinguished Graduate of Edgewood Campus School, Madison, WI
- 2005-2008 Faculty sponsor for Brenda Frazier, recipient: National Science Foundation pre-doctoral award.
- 2005-2006 National Science Foundation, *Collaborative Research: Genetics of Craniofacial Variation and Human Origins* co-PIs: Kenneth Weiss, Joan Richtsmeier, Alan Walker (BCS-0523637 \$211,974).
- 2005 Recipient: Edgewood High School Dominican Award for Service to Humanity
- 2007-2010 National Science Foundation, *Developmental Genetic basis of primate craniofacial variation, and human origins* co-PIs: Kenneth Weiss, Joan Richtsmeier, Alan Walker (BCS-0725227)
- 2008-2013 National Institutes of Health, *Phenogenetics of skull and brain integration in craniosynostosis* (5 R01 DE018500-02)
- 2008-2011 Faculty sponsor for John Starbuck, recipient: National Science Foundation pre-doctoral award.
- 2008 National Science Foundation doctoral dissertation improvement grant: *Extant island dwarf mammals as models for insular dwarfing in Pleistocene hominids* (BCS 0824583), Doctoral student: Brenda Frazier

### Invited Lectures and Presentations

- 1986 A finite element scaling analysis of morphological differences between normal individuals and those affected with Apert and Crouzon syndromes. Symposium: "Quantitative methods in the diagnosis and treatment of craniofacial anomalies", J. Kolar, organizer. Presented at the 55th Annual Meeting of the Amer. Assoc. of Physical Anthropologists, Albuquerque, NM.
- 1986 The study of biological form change. Presented to the Department of Cell Biology and Anatomy, The Johns Hopkins University School of Medicine, Baltimore, MD.
- 1989 The assessment of growth using finite element methods: a review. Presented at the National Computer Graphics Association conference, Philadelphia, April.
- 1989 Three-dimensional analysis of the cranial base in craniosynostosis using computed tomographic images. Symposium organized by Richard Ward. Presented at the annual meeting of the American Association of Physical Anthropologists, San Diego, April.
- 1989 The application of finite-element scaling analysis to the study of size and shape in biological objects. Presented to the symposium, 'Multi-dimensional methods in morphological analysis', organized by the Anatomical Society of Great Britain and Ireland in conjunction with the annual meeting of the Anatomical Society, Liverpool, July, 1989.
- 1989 Applications of finite element scaling analysis in primatology. Presented at the *first Kartause Ittingen Symposium*, 'New quantitative developments in primatology and anthropology', organized by the

- Anthropologisches Institut, Universität Zurich-Irchel in conjunction with Karger Verlag, Zurich, September.
- 1989 The study of growth from data obtained from computed tomographic (CT) images. Presented as part of the Medical Image Processing Group seminar series, University of Pennsylvania, Philadelphia, December.
- 1990 The biological implications of varying element design in finite-element scaling analyses of growth. Presented in a session on "Segmentation and Quantitation", in the Tomographic Radiology tract of the 12th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Philadelphia, PA, November.
- 1990 Quantitative analysis of three-dimensional data. Presented at SPIE's Symposium on "Biostereometrics Technology and Applications". Boston, MA, November.
- 1991 Three-dimensional analysis of *Adapis* muzzle (with L. Lanèque). Presented in Montpellier, France, September.
- 1992 Precision and morphometric analysis of biological landmark data. Presented at the "Whole body 3D electronic imaging of the Human body" workshop, Wright-Patterson Air Force Base, Ohio, March.
- 1992 Analysis of growth in craniofacial anomalies. Presented at the Johns Hopkins Craniofacial Conference, The Johns Hopkins Cleft and Craniofacial Center, July.
- 1993 Three-dimensional facial morphology in a strain of dogs exhibiting cleft palate. Symposium organized by R. Ward and K. Kelly. Presented at the annual meeting of the American Association of Physical Anthropologists, Toronto, April.
- 1996 Facial growth patterns and phylogenetic affinities in anthropoids. Anthropologisches Kolloquium presented at the Anthropologisches Institut, Universität Zurich-Irchel, Switzerland, June.
- 1996 Morphometrics: its use in the study of biological patterns. Carnegie Institution of Washington, Department of Embryology seminar series, September.
- 1998 Correspondence of craniofacial dysmorphology and development in Down Syndrome and Ts65Dn mice. "Toward a molecular understanding of craniofacial morphogenesis-An International Symposium", Bethesda.
- 1999 Phenotypes in craniostenosis: how we measure, why we measure, what we learn. Presented at the Post Conference symposium, "Craniostenosis: genome, treatment, outcome", of the American Cleft Palate-Craniofacial 56<sup>th</sup> annual meeting.
- 1999 Measuring phenotypes to study genotypes. Departmental of Anthropology seminar, The Pennsylvania State University.
- 1999 A bootstrap approach to detecting phylogenetic signals in morphometric data. The Systematics Association Biennial Conference, University of Glasgow, August (with TM Cole, III (presenter) and SR Lele).
- 1999 Phenotypic variability of craniofacial dysmorphology. Pediatric Grand Rounds. The Johns Hopkins University, Baltimore, October.
- 2000 The face of Down syndrome in man and mouse (Roger H. Reeves presenter), AAAS meeting, February, Washington, D.C.
- 2000 Normal human anatomy of the pelvis and perineum. A web-lecture given to first year medical students, The Johns Hopkins University Medical School, November, Baltimore, MD.
- 2001 The quantitative study of dysmorphology using clinically acquired images. A lecture given at the "State of the Science" workshop on disorders associated with Chromosome 18, the National Institutes of Child Health and Human Development, NIH, July, Bethesda, MD.
- 2001 The role of *Gscl* in the development of the craniofacial skeleton. Seminar presented at the Children's Hospital of Philadelphia, Department of Genetics, November.
- 2001 Gross anatomy of the pelvis and perineum. Lecture presented at the Johns Hopkins University School of Medicine, December, Baltimore, MD.
- 2002 Dysmorphology, asymmetry, growth: what we've learned from craniostenosis. Presented to the faculty of the Center for Craniofacial Development and Disorders, the Johns Hopkins Hospital, Baltimore, March (with Valerie DeLeon and Kristina Aldridge).
- 2002 Studying asymmetry with Euclidean Distance Matrix Analysis (EDMA). Presented at a symposium entitled "Modern morphometrics in Physical Anthropology", Annual meeting of the American

- Association of Physical Anthropologists, Buffalo, NY, April. (with Theodore M. Cole, III, Erin Lindsay, Christopher D. Kreger, Valerie DeLeon, Kristina Aldridge, Subhash Lele).
- 2002 3D anatomy of the pelvis and perineum. Lecture presented at the Johns Hopkins University School of Medicine, December, Baltimore, MD.
- 2003 Genotypes and phenotypes in craniofacial anomalies: closing the gap. Lecture presented to the Department of Molecular Genetics, Indiana University-Purdue University at Indianapolis, February, Indianapolis.
- 2003 Developmental instability of the skull in aneuploidy. Presented in *Symposium 23: Morphological model systems in evolution and development* at the 9<sup>th</sup> Congress of the European Society for Evolutionary Biology, Leeds, UK, August (with TM Cole, JM Leszl, CA Hill, JL Budd, RH Reeves).
- 2003 Morphological integration of the neural component in craniosynostosis. Presented at *Advances in the modeling of form: clinical and computational interfaces: A Symposium in honor of the work of Professor Melvin L. Moss*, Columbia University, New York, NY, October (with Kristina Aldridge).
- 2003 Grant writing in anthropology. Presented at the Graduate Student/Post Doc Workshop as part of the Professional Development Series. The Pennsylvania State University, October.
- 2003 Morphological integration of central nervous system and cranium in craniosynostosis. Presented at the Society of Craniofacial genetics 26<sup>th</sup> annual meeting and scientific symposium, Los Angeles, CA.
- 2003 Probing the development of complex craniofacial traits using 3D imaging and quantitative models. Presented in the symposium, *Frontiers of dysmorphology: craniofacial development and disorders*, American Society of Human Genetics Annual meeting, November, Los Angeles, CA.
- 2004 Using imaging to describe, quantify and understand chromosomal abnormality phenotypes. Presented at the Inaugural World Congress on Chromosomal Abnormalities, June, San Antonio.
- 2004 Inferring developmental contributions to craniofacial variation from quantitative analysis of images. Presented in the symposium, *3D imaging in anthropological research*, Annual meetings of the Canadian Association for Physical Anthropology, October, London, Ontario.
- 2006 L'intégration morphologique de le crâne et le cerveau. Département de Paléontologie et Anatomie Comparée, Museum National d'Histoire Naturelle, January, Paris.
- 2007 Quantitative study of form and change in form: mandibular growth. Presented in the workshop entitled, *Techniques for quantification of growth and evolution of form*, Université Paul Sabatier. EVAN Consortium Intensive Training Course, April, Toulouse, France.
- 2007 Developmental basis of morphological integration of brain and skull in craniosynostosis. Presented in the symposium "Morphological models systems in evolution and development", International Congress of Vertebrate Morphology 8, July, Paris.
- 2007 Skull shape in Down syndrome mouse models. Presented at the Expert Workshop on the Biology of Chromosome 21 Genes: Towards Gene-phenotype Correlations in Down Syndrome, Sept 28, Tysons Corner, VA.
- 2007 Primate models for understanding the contribution of genes, development and growth pattern to morphology. American Society for Craniofacial Genetics annual meeting, Oct 23, San Diego.
- 2007 Brain-skull relationships in the development of craniosynostosis. Neural imaging reading group, PSU.
- 2008 Interaction of brain and skull. Gordon Research Conference on Craniofacial morphogenesis and tissue regeneration. Feb 10-15, Lucca, Italy.
- 2008 Brain-skull relationships in craniofacial development, evolution and disease. Department of Genetics and Genomic Sciences, Mt. Sinai Medical Center, NY.
- 2008 Getting a head: lessons from development, disease and phenogenetics. Presented at a symposium on *Developmental Biology and Tissue Regeneration* at University of Southern California, May.
- 2008 Morphological integration of the cranial base after surgical intervention in the face and vault. Presented at the *Conference on Biomedicine in Orthodontics: from tooth movement to facial Growth*, Asilomar Conference Center, Monterey, CA.
- 2008 Morphological integration of the craniofacial complex in unilateral cleft lip and palate. American Society for Craniofacial Genetics annual meeting, Nov 11, Philadelphia.

### Symposia/workshops/study sessions organized

- 1987 The use of morphometric techniques in the study of biological form change (symposium organized with JM Cheverud). 56th Annual Meeting of the Amer. Assoc. of Phys. Anthropol., New York
- 1992 Anthropological perspectives on craniosynostosis (symposium organized with JC Kolar). 61st Annual meeting of the American Association of Physical Anthropologists, Las Vegas.
- 1994 Three-dimensional morphometrics. Workshop given at the Fourth International Congress of Vertebrate Morphology, Chicago.
- 1998 Analysis of morphology and morphological change using two or three-dimensional data. Study session given at the annual meetings of the American Cleft Palate-Craniofacial Association, Baltimore.
- 2007 The genotype-phenotype map. Symposium organized with Benedikt Hallgrímsson. ICVM 8, Paris.

### Papers presented at professional meetings (including published abstracts)

- Richtsmeier, JT, JM Cheverud, and JE Buikstra 1983 Etiology of cranial nonmetric traits in the rhesus macaques of Cayo Santiago. *Amer. J. of Phys. Anthropol.* 60(2).
- Richtsmeier, JT, JW McGrath, and JM Cheverud 1984 Heritability and etiology of cranial nonmetric traits in random bred mice. *Amer. J. of Phys. Anthropol.* 63(2).
- Richtsmeier, JT 1985 A two-dimensional application of the finite element scaling method to growth of human crania. *Amer. J. of Phys. Anthropol.* 66(2).
- Richtsmeier, JT 1985 A study of growth in normal individuals and Apert and Crouzon syndromes using the finite element scaling method. *Annals of Human Biology*, Montreal.
- Cheverud, JM and JT Richtsmeier 1985 A finite element scaling analysis of growth in rhesus monkeys. *Annals of Human Biology*, Montreal.
- McGrath, JW and JT Richtsmeier 1985 Heritability of nonmetric traits in randombred mice. Presented at the meeting of Society for the Study of Evolution and the American Society of Naturalists, Chicago.
- Richtsmeier, JT and JM Cheverud 1986 Sexual dimorphism of facial growth in *Macaca mulatta* and *M. fascicularis*. Presented at the International symposium on vertebrate morphology, Vienna.
- Richtsmeier, JT 1987 Ontogenetic scaling and sexual dimorphism in *Macaca* crania. *Amer. J. of Phys. Anthropol.* 72(2) 247.
- Richtsmeier, JT 1988 Morphological similarities in *Aegyptopithecus* and *Afropithecus*. *Amer. J. of Phys. Anthropol.* 75(2) 260-261.
- Richtsmeier, JT, JL Marsh, and ML Vannier 1988 Three-dimensional analysis of craniofacial morphology and growth in craniosynostosis. Program, Cleft Palate Association Meeting, Williamsburg, VA.
- Hallman, LA and JT Richtsmeier 1988 Craniofacial morphology of the trisomy 16 mouse. Program, International Association for Dental Research, April, Montreal, Quebec.
- Richtsmeier, JT, HM Grausz, JL Marsh, and MW Vannier 1989 Three dimensional analysis of the cranial base in craniosynostosis. *Amer. J. of Phys. Anthropol.* 78(2) 290.
- Grausz, HM, JT Richtsmeier, and SJ Danahey 1989 Growth in *Macaca fascicularis* and *Cebus apella* compared using finite-element scaling. *Amer. J. of Phys. Anthropol.* 78(2) 231.
- Wong, L, CR Dufresne, PM Manson, and JT Richtsmeier 1989 The effect of rigid fixation on the growing craniofacial skeleton. Presented at the 34<sup>th</sup> Annual Meeting of the Plastic Surgery Research Council, April, Atlanta.
- Wong, L, CR Dufresne, JT Richtsmeier, and PM Manson 1989 The effect of rigid fixation on the growing craniofacial skeleton: periosteal elevation, coronal suture plating, and frontal bone plating. Presented at the Northeastern Plastic Surgery Society Conference, October.
- Wong, L, CR Dufresne, JT Richtsmeier, and PM Manson 1989 The effect of rigid fixation on the growing craniofacial skeleton: periosteal elevation, coronal suture plating, and frontal bone plating. *Proceedings of the American Society of Plastic and Reconstructive Surgery*. Presented at the annual meeting of the American Society for Plastic and Reconstructive Surgery, San Francisco, October.

- Corner, BD, JT Richtsmeier, and S Danahey 1990 Morphometric analysis of skull growth in *Cebus apella*. *Amer. J. of Phys. Anthropol.* 81(2) 208.
- Richtsmeier, JT and SR Lele 1990 Analysis of morphological variation within neontological and paleontological species. *Amer. J. of Phys. Anthropol.* 81(2) 286.
- Grausz, HM, JT Richtsmeier, and ML Oster-Granite 1991 Morphogenesis of the brain and craniofacial complex in trisomy 16 mice. Presented at the meeting of the National Down Syndrome Society, New York City, January.
- Richtsmeier, JT 1991 Implications of the use of varying element types in finite-element analysis of craniofacial growth. *Amer. J. of Phys. Anthropol.*, Supplement 12:151.
- Dufresne, CR, BD Corner, and JT Richtsmeier 1991 Categorization of craniofacial dysmorphology for purposes of predicting surgical outcome. Presented at the IV Biannual meeting of the International Society of Craniomaxillofacial Surgery, Santiago de Compostela, Spain, June.
- Richtsmeier, JT, CR Dufresne 1992 The interaction of growth pattern and surgical outcome in craniosynostosis. *Amer. J. of Phys. Anthropol.*, Supplement 14:138.
- Grausz, HM, JL Marsh, MW Vannier, JT Richtsmeier 1992 A three-dimensional study of basicranial growth in craniosynostosis as compared to normal growth patterns. *Amer. J. of Phys. Anthropol.*, Supplement 14:83-84.
- Corner, BD, JT Richtsmeier 1992 Craniosynostosis in a collection of wild shot mantled howler monkeys (*Alouatta palliata*). *Amer. J. of Phys. Anthropol.*, Supplement 14:63.
- Lele, S, JT Richtsmeier 1992 A statistical method for the comparison of growth patterns applied to sexual dimorphism of ontogeny in macaques. *Amer. J. of Phys. Anthropol.*, Supplement 14:108.
- Dufresne, CR, H Grausz, JT Richtsmeier 1993 The effects of rigid fixation on the growing craniofacial skeleton. Presented at a symposium entitled, "Rigid fixation of the craniofacial skeleton" sponsored by the Tampa Bay Craniofacial Center, the University of Florida, and Howmedica.
- Lele, S, JT Richtsmeier 1993 Confidence intervals for growth and form difference based on Euclidean distance matrix analysis. *Amer. J. of Phys. Anthropol.*, Supplement 16:133.
- Corner, BD, DJ Meldrum, JT Richtsmeier 1993 The relationship of *Cebus* and *Saimiri*: Synapomorphis and cranial form. *Amer. J. Phys. Anthropol.*, Supplement 16:74.
- Richtsmeier, JT, TM Cole, III, S Lele 1994 Euclidean distance matrix analysis: models for growth. Presented at the fourth International Congress of Vertebrate Morphology, Chicago, IL, July-August.
- Mayer, MH, R Ellenbogen, JO Hollinger, L Wong, JT Richtsmeier, JA Bley, D Yules, PN Manson 1994 Rigid skeletal fixation of the immature craniofacial skeleton in non-human primates. Presented at a symposium, "Resolving controversies in craniomaxillofacial surgery: the role of plate and screw fixation for craniofacial reconstruction in infants, children and young adults", Amer.Soc. of Maxillofacial Surgeons, Sept, San Diego.
- Cole, TM III, JT Richtsmeier, S Lele 1995 Problems in the character analysis of morphometric data, with examples from the Atelinae. *Amer. J. of Phys. Anthropol.*, Supplement 17.
- Kontis, TC, and JT Richtsmeier 1995 A longitudinal study of rabbit skull base growth using 3-dimensional CT analysis. Presented at the American Academy of Facial Plastic and Reconstructive Surgery, September, New Orleans.
- Dufresne, CR, R Ragavan, S Fang, P Pang, JT Richtsmeier 1995 Craniofacial surgical planning and dynamic skeletal modeling: new tools to predict growth following surgery. Presented at the VIth International Congress of Craniofacial Surgery, October, Saint Tropez.
- Mayer, MH, RG Ellenbogen, JO Hollinger, L Wong, TM Cole, JT Richtsmeier, J Manson, JA Bley, D. Yules, PN Manson 1995 Rigid skeletal fixation of the immature craniofacial skeleton in the non-human primate. Presented at the VIth International Congress of Craniofacial Surgery, October, Saint Tropez.
- Fang, S, R Raghavan, JT Richtsmeier 1996 Volume morphing methods for landmark based 3D image deformation. Presented at the *Society of Photo-Optical Instrumentation Engineers Conference (SPIE)*.
- Burrows, AM, MP Mooney, TD Smith, HW Loskin, MI Siegel, JT Richtsmeier 1996 Three-dimensional analysis of craniofacial growth in congenital coronal suture synostosed rabbits using Euclidean Distance Matrix Analysis. *Amer. J. of Phys. Anthropol.*, Supplement 22: 77.
- Richtsmeier, JT, S Lele, TM Cole III 1996 Growth patterns and phylogenetic relationships among the anthropoids. *Amer. J. of Phys. Anthropol.*, Supplement 22: 197-198.
- Raghavan, R, P Pang, S Fang, JT Richtsmeier 1996 Three dimensional morphing of anthropoid craniofacial morphology for the study of growth and evolution. *Amer. J. of Phys. Anthropol.*, Supplement 22: 193.

- Kelly, D, D Hauser, T Kontis, J Richtsmeier 1996 Registration points for 3-D visualization of normal growth are found in the cranial base of the New Zealand White Rabbit. Presented at the Experimental Biology '96 Conference.
- Kelly, DK, T Kontis, D Hauser, JT Richtsmeier 1996 Registration points for 3-D visualization of normal growth in the cranial base of the New Zealand White Rabbit. Presented at the American Cleft Palate-Craniofacial Annual Meeting, April, San Diego.
- Richtsmeier, JT, J Ohman, C VanderKolk, B Carson, S Fang, R Raghavan, D Hauser 1996 3D Analysis and visualization of growth in craniosynostosis. Presented at the American Cleft Palate-Craniofacial Annual Meeting, April, San Diego.
- Richtsmeier, JT, J Ohman, C VanderKolk, B Carson, E Waks, H Said, P Elfert, T Cole, S Lele 1996 Heterogeneity in sagittal synostosis: morphology and etiology. Presented at the American Cleft Palate-Craniofacial Annual Meeting, April, San Diego.
- Ohman, JC, H Tan, C VanderKolk, JT Richtsmeier 1996 Craniosynostosis in mantled howler monkeys (*Alouatta palliata*) a new look with computed tomography. Presented at the American Cleft Palate-Craniofacial Annual Meeting, April, San Diego.
- Ardayfio, P. and JT Richtsmeier 1996 Morphology and growth in sagittal synostosis. Presented at the Argonne Symposium for Undergraduates in Science, Engineering and Mathematics, Argonne National Laboratory, November.
- Cole, TM III, JT Richtsmeier, I Horovitz, RDE MacPhee 1997 Morphometric affinities of *Paralouatta varonai*. *Amer. J. of Phys. Anthropol.*, Supplement 24: 93-94.
- Krovitz, G, TM Cole, III, JT Richtsmeier 1997 Three-dimensional comparisons of craniofacial growth patterns in Neanderthals and modern humans. *Amer. J. of Phys. Anthropol.*, Supplement 24: 147.
- Li, Y and JT Richtsmeier 1997 Morphometric analysis of the ontogeny of sexual dimorphism of the bony pelvis in the squirrel monkey (*Saimiri sciureus*, Cebidae). *Amer. J. of Phys. Anthropol.*, Supplement 24: 155.
- Richtsmeier, JT, TM Cole III, C Valeri, GE Krovitz, S Lele 1997 Growth and morphology in sagittal synostosis. Presented at the American Cleft Palate-Craniofacial Annual Meeting, April, New Orleans.
- Cole, TM III, GE Krovitz, JT Richtsmeier 1997 Patterns of calvarial growth in unilateral lambdoid synostosis and posterior plagiocephaly without synostosis. Presented at the American Cleft Palate-Craniofacial Annual Meeting, April, New Orleans.
- Gersony, R and JT Richtsmeier 1997 Web-Lecture prototype, "Basics of the Pelvis and Perineum", using an anatomical digital art data base. Presented at a University-wide symposium, "From Vision to Reality: integrating learning technologies into Hopkins Education", The Johns Hopkins University, October.
- Long, L, JT Richtsmeier, A Lubensky, M Yo, M Abrams, A Patwardhan, A Reiss, RH Reeves 1997 Segmentally trisomic Ts65Dn mice show several morphological phenotypes of Down Syndrome. 7<sup>th</sup> International Workshop on Human Chromosome 21, Berlin, Germany.
- Valeri, CJ, TM Cole, S Lele, JT Richtsmeier 1998 Capturing data from three dimensional surfaces using fuzzy landmarks. *Amer. J. of Phys. Anthropol.*, Supplement 26: 222.
- Cole, TM,III, MA O'Leary, JT Richtsmeier 1998 Morphometric modeling of evolutionary form change. *Amer. J. of Phys. Anthropol.*, Supplement 26: 121-122.
- Zumpano, M and JT Richtsmeier 1998 A three dimensional morphological analysis of Trigonocephaly. American Cleft Palate-Craniofacial Association Program: page 70.
- Richtsmeier, JT, LL Baxter, RH Reeves 1998 Postcranial and cranial phenotypes of segmentally trisomic Ts65Dn mice are similar to those of Down Syndrome. Presented at a Conference celebrating the life and work of D'Arcy Wentworth Thompson, "On growth and Form: spatio-temporal patterning in biology", Dundee, Scotland.
- Cole, TM III, VB DeLeon, S Lele, JT Richtsmeier 1998 Recognition of shape-conservative landmark cliques in the morphometric study of form. Presented at a Conference celebrating the life and work of D'Arcy Wentworth Thompson, "On growth and Form: spatio-temporal patterning in biology", Dundee, Scotland.
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### **Manuscripts submitted for publication and in preparation**

- Willmore, KE, CC Roseman, J Rogers, JM Cheverud, JT Richtsmeier 2009 Comparison of mandibular phenotypic and genetic integration between baboon and mouse. *Evolutionary Biology*, submitted.