

**TIMOTHY M. RYAN**  
**CURRICULUM VITAE**

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**EDUCATION**

**Ph.D.** Department of Anthropology, The University of Texas at Austin, May 2001

**M.A.** Department of Anthropology, The University of Texas at Austin, May 1997

**B.A.** Department of Anthropology (with Honors), University of New Orleans, May 1994

**PROFESSIONAL APPOINTMENTS**

- 2014 – Associate Professor of Anthropology, Department of Anthropology, Pennsylvania State University
- 2009 – Co-Director, Center for Quantitative Imaging, Energy Institute, Pennsylvania State University
- 2009 – 2014 Assistant Professor of Anthropology, Geosciences, and Information Sciences and Technology, Department of Anthropology Pennsylvania State University
- 2003 – 2008 Research Associate, Department of Anthropology and Center for Quantitative Imaging (EMS Energy Institute), Pennsylvania State University
- 2001 – 2003 Research Associate, Division of Fossil Primates, Duke University Primate Center, Department of Biological Anthropology and Anatomy, Duke University
- 1995 – 1998 Teaching Assistant, Department of Anthropology, The University of Texas at Austin
- 1994 – 2000 Graduate Research Assistant, Department of Anthropology, The University of Texas at Austin

**PEER-REVIEWED PUBLICATIONS**

- Frelat, M.A., Shaw, C.N., Sukhdeo, S., Hublin, J.J., Benazzi, S., **Ryan, T. M.** (2017) Evolution of the hominin ankle and knee. *Journal of Human Evolution* 108:147-160.
- Saers, J.P., Cazorla-Bak, Y., Shaw, C.N., Stock, J.T., **Ryan, T.M.** (2016) Trabecular bone structural variation throughout the human lower limb. *Journal of Human Evolution* 97:97-108.
- Haile-Selassie, Y., Melillo, S.M., **Ryan, T.M.**, Levin, N.E., Saylor, B.Z., Deino, A., Mundil, R., Scott, G., Alene, M., Gibert, L. (2016) Dentognathic remains of *Australopithecus afarensis* from Nefuraytu (Woranso-Mille, Ethiopia): Comparative description, geology, and paleoecological context. *Journal of Human Evolution* 100: 35-53.
- Stauffer, J.R., Konings, A.F., **Ryan, T.M.** (2016) Redescription of *Pseudotropheus livingstonii* and *Pseudotropheus elegans* from Lake Malawi, Africa. *Zootaxa* 4154(2):169-178.
- Haile-Selassie, Y., Gibert, L., Melillo, S.M., **Ryan, T.M.**, Alene, M., Deino, A., Levin, N.E., Scott, G., Saylor, B.Z. (2015) New species from Ethiopia further expands Middle Pliocene hominin diversity. *Nature* 521: 483-488.

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- Kistler, L., Newsom, L.A., **Ryan, T.M.**, Clarke, A.C., Smith, B.D., Perry, G.H. (2015) Gourds and squashes (*Cucurbita* spp.) adapted to megafaunal extinction and ecological anachronism through domestication. *Proceedings of the National Academy of Sciences* 112, 15107-15112.
- Raichlen, D., Gordon, A., Foster, A., Webber, J., Sukhdeo, S., Scott, R., Gosman, J., & **Ryan, T. M.** (2015) An ontogenetic framework linking locomotion and trabecular bone architecture with applications for reconstructing hominin life history. *Journal of Human Evolution* 80:1-12.
- Ryan, T. M.**, & Shaw, C. N. (2015) Gracility of the modern *Homo sapiens* skeleton is the result of decreased biomechanical loading. *Proceedings of the National Academy of Sciences of the USA* 112:372-377.
- Hung, N. M., **Ryan, T. M.**, Stauffer, J. R., & Madsen, H. (2015) Does hardness of food affect the development of pharyngeal teeth of the black carp, *Mylopharyngodon piceus* (Pisces: Cyprinidae)? *Biological Control* 80:156-159.
- Ryan, T. M.**, & Shaw, C. N. (2013) Trabecular bone microstructure scales allometrically in the primate humerus and femur. *Proceedings of the Royal Society B: Biological Sciences* 280, 20130172.
- Gosman, J. H., Hubbell, Z. R., Shaw, C. N., & **Ryan, T. M.** (2013) Development of cortical bone geometry in the human femoral and tibial diaphysis. *Anatomical Record* 296, 774-787.
- Macintosh, A. A., Davies, T. G., **Ryan, T. M.**, Shaw, C. N., & Stock, J. T. (2013). Periosteal versus true cross-sectional geometry: A comparison along humeral, femoral, and tibial diaphyses. *American Journal of Physical Anthropology* 150, 442-452.
- Ryan, T. M.**, & Shaw, C. N. (2012). Unique suites of trabecular bone features characterize locomotor behavior in human and non-human anthropoid primates. *PLoS ONE*, 7(7), e41037, 11.
- Ryan, T. M.**, Silcox, M. T., Walker, A., Mao, X., Begun, D. R., Benefit, B. R., Gingerich, P. D., Kohler, M., Kordos, L., McCrossin, M. L., Moya-Sola, S., Sanders, W. J., Seiffert, E. R., Simons, E., Zalmout, I. S., & Spoor, F. (2012). Evolution of locomotion in Anthroipoidea: the semicircular canal evidence. *Proceedings of the Royal Society B: Biological Sciences* 279, 3467-3475.
- Shaw, C. N., & **Ryan, T. M.** (2012). Does skeletal anatomy reflect adaptation to locomotor patterns? Cortical and trabecular architecture in human and non-human anthropoids. *American Journal of Physical Anthropology*. 147, 187-200.
- Dumont, E. R., **Ryan, T. M.**, & Godfrey, L. R. (2011). The *Hadropithecus* conundrum reconsidered, with implications for interpreting diet in fossil hominins. *Proceedings of the Royal Society B*. 278, 3654-3661.
- Vinyard, C. J., Taylor, A. B., Teaford, M. F., Glander, K.E., Ravosa, M. J., Rossie, J. B., **Ryan, T. M.**, & Williams, S. H. (2011). Are we looking for loads in all the right places? New research directions for studying the masticatory apparatus of New World monkeys. *Anatomical Record* 294, 2140-2157.
- Hogg, R., Vinyard, C. J., **Ryan, T. M.**, & Ravosa, M. J. (2011). The functional morphology of the anterior masticatory apparatus in tree-gouging marmosets (Cebidae, Primates). *Journal of Morphology*. 272, 833-849.
- Seiffert, E. R., Simons, E. L., Boyer, D. M., Perry, J. M., **Ryan, T. M.**, & Sallam, H. M. (2010). A peculiar primate of uncertain affinities from the earliest late Eocene of Egypt. *Proceedings of the National Academy of Sciences of the USA*. 107, 9712-9717.

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- Martínez-Abadías, N., Percival, C., Aldridge, K., Hill, C. A., **Ryan, T. M.**, Sirivunnabood, S., Wang, Y., Jabs, E. W., & Richtsmeier, J. T. (2010). Beyond the closed suture in apert syndrome mouse models: Evidence of primary effects of FGFR2 signaling on facial shape at birth. *Developmental Dynamics*. 239, 3058-3071.
- Griffin, N. L., D'Août, K., **Ryan, T. M.**, Richmond, B. G., Ketcham, R. A., & Postnov, A. (2010). Comparative forefoot trabecular bone architecture in extant hominids. *Journal of Human Evolution*. 59, 202-213.
- Ryan, T. M.**, & Walker, A. (2010). Trabecular bone structure in the humeral and femoral heads of anthropoid primates. *Anatomical Record* 293, 719-729.
- Ryan, T. M.**, Colbert, M., Ketcham, R. A., & Vinyard, C. J. (2010). Trabecular bone structure in the mandibular condyle of gouging and non-gouging platyrrhines. *American Journal of Physical Anthropology*. 141, 583-593.
- Welker, K., Orkin, J., & **Ryan, T. M.** (2009). Analysis of intra-individual and inter-sex variation in semi-circular canal dimensions using high-resolution x-ray computed tomography. *Journal of Anatomy*. 215, 444-451.
- Silcox, M. T., Bloch, J. I., Boyer, D. M., Godinot, M., **Ryan, T. M.**, Spoor, F., & Walker, A. (2009). Semicircular canal system in early primates and euprimates. *Journal of Human Evolution*. 56, 315-327.
- Ryan, T. M.**, Jungers, W. L., Burney, D. A., Godfrey, L. R., Golich, U. B., Vasey, N., Ramilisonina, Walker, A., & Weber, G. W. (2008). A reconstruction of the Vienna skull of *Hadropithecus stenognathus*. *Proceedings of the National Academy of Sciences of the USA*. 105, 10699-10702.
- Jeffery, N., Spoor, F., & **Ryan, T. M.** (2008). The primate subarcuate fossa and its relationship to the semicircular canals part II: adult interspecific variation. *Journal of Human Evolution*. 55, 326-339.
- Walker, A., **Ryan, T. M.**, Silcox, M. T., Simons, E., & Spoor, F. (2008). The semicircular canal system and locomotion: the case of extinct lemuroids and lorisooids. *Evolutionary Anthropology*. 17, 135-145.
- Fraser, N. E., Olsen, P. E., Dooley, A. C., & Ryan, T. M. (2007). A new gliding tetrapod (Diapsida:Archosauromorpha) from the Upper Triassic (Carnian) of Virginia. *Journal of Vertebrate Palaeontology*. 27, 261-265.
- Simons, E., Seiffert, E. R., Attia, Y., & Ryan, T. M. (2007). A remarkable female cranium of the early Oligocene anthropoid *Aegyptopithecus zeuxis* (Catarrhini, Propliopithecidae). *Proceedings of the National Academy of Sciences of the USA*. 104, 8731-8736.
- Parsons, T., Reeves, R., Richtsmeier, J. T., & **Ryan, T. M.** (2007). Micro-structure of trabecular bone in a mouse model for Down Syndrome. *The Anatomical Record*. 290, 414-421.
- Seiffert, E. R., Simons, E., Brown, T. M., Attia, Y., & **Ryan, T. M.** (2007). New remains of Eocene and Oligocene Afrosoricida (Afrotheria) from Egypt, with implications for the origin(s) of afrosoricid zambododony. *Journal of Vertebrate Palaeontology*. 27, 963-972.
- Spoor, F., Garland, Jr., T., Krovitz, G., **Ryan, T. M.**, Silcox, M. T., & Walker, A. (2007). The Primate semicircular canal system and locomotion. *Proceedings of the National Academy of Sciences of the USA*. 104, 10808-10812.
- Vinyard, C. J., & **Ryan, T. M.** (2006). Cross-sectional bone distribution in the mandibles of gouging and nongouging platyrrhines. *International Journal of Primatology*. 27, 1461-1490.
- Ryan, T. M.**, & Milner, G. R. (2006). Osteological applications of high-resolution computer tomography: A prehistoric arrow injury. *Journal of Archaeological Science*. 33, 871-879.

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- Maga, M., Kappelman, J., **Ryan, T. M.**, & Ketcham, R. A. (2006). The calcaneal trabecular microarchitecture of extant large bodied hominoids. *American Journal of Physical Anthropology*. 129, 410-417.
- Ryan, T. M.**, & Krovitz, G. (2006). Trabecular bone ontogeny in the human proximal femur. *Journal of Human Evolution*. 51, 591-602.
- Seiffert, E. R., Simons, E. L., **Ryan, T. M.**, & Attia, Y. (2005). Additional remains of *Wadilemur elegans*, a primitive stem galagid from the late Eocene of Egypt. *Proceedings of the National Academy of Sciences of the USA*. 102, 11396-11401.
- Ryan, T. M.**, & van Rietbergen, B. (2005). Mechanical significance of femoral head trabecular bone structure in *Loris* and *Galago* evaluated using micromechanical finite element models. *American Journal of Physical Anthropology*. 126, 82-96.
- Ryan, T. M.**, & Ketcham, R. A. (2005). The angular orientation of trabecular bone in the femoral head and its relationship to hip joint loads in leaping primates. *Journal of Morphology*. 265, 249-263.
- Ketcham, R. A., & **Ryan, T. M.** (2004). Quantification of anisotropy in trabecular bone. *Journal of Microscopy*. 213, 158-171.
- Kappelman, J., Rasmussen, D. T., Sanders, W. J., Feseha, M., Bown, T., Copeland, P., Crabaugh, J., Fleagle, J., Gordon, A. D., Jacobs, B., Maga, M., Muldoon, K., Pan, A., Pyne, L., Richmond, B., **Ryan, T. M.**, Seiffert, E. R., Sen, s., Todd, L., Wiemann, M. C., & Winkler, A. (2003). Oligocene mammals from Ethiopia and faunal exchange between Afro-Arabia and Eurasia. *Nature*. 426, 549-552.
- Fajardo, R. J., **Ryan, T. M.**, & Kappelman, J. (2002). Assessing the accuracy of high-resolution X-ray computed tomography of primate trabecular bone by comparisons with histological sections. *American Journal of Physical Anthropology*. 118, 1-10.
- Ryan, T. M.**, & Ketcham, R. A. (2002). Femoral head trabecular bone structure in two omomyid primates. *Journal of Human Evolution*. 43, 241-263.
- Ryan, T. M.**, & Ketcham, R. A. (2002). The three-dimensional structure of trabecular bone in the femoral head of strepsirrhine primates. *Journal of Human Evolution*. 43, 1-26.

## BOOK CHAPTERS AND CONFERENCE PROCEEDINGS

- Ryan, T. M.** (in press) Biomechanics/mechanobiology. In *The International Encyclopedia of Biological Anthropology* (Wenda Trevathan, ed.), Wiley & Sons.
- Gosman, J. H., Raichlen, D. A., & **Ryan, T. M.** (in press) Human Transitions: Current Perspectives on Skeletal Development. In *Children and Childhood in the Past* (S.C. Agarwal and P.D. Beauchesne, eds.).
- Ryan, T. M.**, Raichlen, D. A., & Gosman, J. H. (2017) Structural and mechanical changes in trabecular bone during early development in the human femur and humerus. In *Building Bones* (C. Percival and J. Richtsmeier, eds.). Cambridge: Cambridge University Press. Pp. 281-302.
- Ryan, T. M.** & Sukhdeo, S. M. (2015) KSD-VP 1/1 Analysis of the Postcranial Skeleton Using High-Resolution Computed Tomography. In *Geology, Chronology, and Anatomy of KSD-VP-1/1, Woranso-Mille, Ethiopia*. (Y Haileselassie and Denise Su, eds). Springer Publishing .pp. 39-62.
- Shaw, C. N., Stock, J.T., Davies, T. G., & **Ryan, T. M.** (2014) Does the distribution and variation in cortical bone along lower limb diaphyses reflect selection for locomotor economy? In *Mobility: Towards a Definition for*

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*Application in Human Evolution.* (D. Marchi and K. Carlson, eds) Springer Publishing. Pp. 49-66.

Tapia, A. H., Blodgett, B., Rosson, M. B., Ocker, R., & **Ryan, T. M.** (2012) High Resolution Computer Tomography Virtual Organization. In *Leadership in Science and Technology: A Reference Handbook* (W. S. Bainbridge, ed.), Sage, Los Angeles, pp 602-610.

Kappelman, J., Duncan, A., Feseha, M., Lunkka, J. P., Ekart, D., McDowell, F., **Ryan, T. M.**, & Swisher, C. C. (2003). Chronology. In M. Fortelius, J. Kappelman, S. Sen, and R. Bernor (eds) (Eds.), *Geology and Paleontology of the Miocene Sinap Formation Turkey* (pp. 41-66). New York, NY: Columbia University Press.

Kappelman, J., Richmond, B. G., Seiffert, E. R., Maga, M., & **Ryan, T. M.** (2003). Hominoidea (Primates). In M. Fortelius, J. Kappelman, S. Sen, and R. Bernor (eds) (Eds.), *Geology and Paleontology of the Miocene Sinap Formation, Turkey* (pp. 90-124). New York, NY: Columbia University Press.

## GRANTS AND AWARDS

**National Science Foundation.** 2016-2018. Collaborative Research: Long-Term Human-Environmental Interaction in a Lowland Tropic Setting. Role: Co-PI (Doug Kennett, PI). Amount: \$127,188.

**National Science Foundation.** 2010-2015. Grant BCS-1028904. Collaborative Research: Trabecular bone ontogeny and locomotor development in humans and non-human primates. Role: PI. Amount: \$401,181.

**National Science Foundation.** 2012-2013 Grant OISE-1158603. Catalyzing New International Collaborations: 3D Morphometric and Biomechanical Analyses of the Human Lower Limb. Role: PI. Amount: \$64,343.

**National Science Foundation.** 2011-2013. Grant BCS-1124713. Collaborative Research: Collaborative Research: Pliocene Geology, Geochronology, and Paleontology of KSD-VP-1/1, Woranso-Mille, Ethiopia. Role: PI. Amount: \$43,957.

**National Institutes of Health.** 2010-2011. Grant 1 S10 RR027947-01. SkyScan 1076 In Vivo Micro-Computed Tomography System. Role: PI. Amount: \$387,500.

**National Science Foundation.** 2008-2011. Grant OCI-0838400. VOSS: HRCT Scanning as Glue: Sociotechnical Analysis and Support of a Loosely-Coupled Virtual Organization of Emergent Distributed Projects. Role: Co-PI with Andrea Tapia [PI], Rosalie Ocker, Mary Beth Rosson, and Joan Richtsmeier. Amount: \$400,000.

**National Science Foundation.** 2006-2009. Grant BCS- 0617097. Comparative Analysis of 3-D Trabecular Bone Architecture: Applications to Locomotor Reconstruction in Fossil Primates. Role: Co-PI with Alan Walker. Amount: \$165,091.

**The Leakey Foundation.** 2005-06. Ontogeny of trabecular bone in the human proximal femur. Role: PI. Amount: \$6,000.

**North Carolina Supercomputing Center.** 2002-03. Three-dimensional finite element modeling of trabecular bone structures. Role: PI. Amount: supercomputer allocation.

**Texas Advanced Computing Center.** 2000-01. Finite element modeling of the structure of trabecular bone in strepsirhine primates. Role: PI. Amount: supercomputer allocation.

**National Science Foundation.** 1999-2001. Grant BCS-9908847 - Dissertation Research: The Structure and Function of Trabecular Bone in the Proximal Femur of Strepsirhine Primates. Role: PI. Amount: \$11,000.

**The Leakey Foundation.** 1999-2001. Quantitative Analysis of Three-Dimensional Trabecular Bone Structure in Strepsirhines. Role: PI. Amount: \$6,450.

## INVITED PRESENTATIONS

## **TIMOTHY M. RYAN**

- Applications of nano/microCT in the Earth, Engineering, and Life Sciences. Department of Energy and Mineral Engineering, Pennsylvania State University, October 2016.
- Center for Quantitative Imaging, Penn State Research Days, Pennsylvania State University, October 2016.
- Center for Quantitative Imaging, Life Science Symposium, Pennsylvania State University, May 2016.
- An Evolutionary Anthropological Perspective on Human Skeletal Variation and Bone Health. Noll Seminar Series, Department of Kinesiology, Pennsylvania State University, February 2016.
- Applications of nano/microCT in Biological and Anthropological Sciences. Department of Anthropology Colloquium Series, Pennsylvania State University. September 2015.
- Human and Primate Evolutionary Morphology and Biomechanics. Penn State Biomechanics Symposium, Biomechanics Laboratory, Department of Kinesiology, University Park, PA. April, 2015.
- 3D Visualization and Segmentation Using Avizo, Università di Bologna, Sede di Ravenna, September 2012.
- High-Resolution Computed Tomography in Biological Anthropology: 3D Analyses of Cortical and Trabecular Bone Biomechanics. Department of Anthropology, University of Vienna, October, 2011.
- The Functional Morphology of Trabecular Bone in the Locomotor Skeleton of Primates. Department of Anatomy, Northeast Ohio Universities College of Medicine, May 2011.
- Comparative Analyses of 3D Trabecular Bone Structure in Primates. Department of Biomedical Engineering, Eindhoven University of Technology, July 2009.
- High-Resolution Computed Tomography in Anatomical Research. Neural Imaging Reading Group, Center for Neural Engineering, Penn State University, October 2007.
- New Insights into Old Bones: 3D Imaging and Visualization in Anthropology. Department of Anthropology, Washington University, St. Louis, October 2007.
- Trabecular bone structure: Insights from ontogeny. Department of Anthropology, George Washington University, October 2006.
- How Bones Learn to Walk. Department of Anthropology, The Pennsylvania State University, February 2005.
- High-Resolution CT Studies of Primate Bone Structure. Department of Anthropology, The Pennsylvania State University, June 2003.
- Trabecular Bone Structure and Locomotion in Living and Extinct Primates. Department of Anthropology, University of Illinois at Urbana-Champaign, February 2003.
- A Paleoprimatological Digital Teaching Library. Instructional Technology Showcase 2003, Duke University, April 2003.
- Visualization and Quantification of 3D Trabecular Bone Structure. Visualization Forum, Department of Computer Science, Duke University, September 2002.
- The Functional Significance of Femoral Head Trabecular Bone Architecture. Department of Biological Anthropology and Anatomy Spring Seminar Series, Duke University, March 2002.

## **CONFERENCE PRESENTATIONS**

- Goliath, J. R., Gosman, J. H., Hubbell, Z. R., **Ryan, T. M.**, 85th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Atlanta, GA, "Patterns in ontogeny of epiphyseal and metaphyseal trabecular bone microstructure in the human proximal tibia." (2016).
- Ryan, T. M.**, Doershuk, L. J., Sukhdeo, S. M., 85th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Atlanta, GA, "Radial Maximum Intensity Projection (rMIP): A new method for mapping 3D subchondral bone apparent density on curved joint surfaces," Invited. (April 2016). International.

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- Fox, M. C., Carlson, K. J., **Ryan, T. M.**, Kersch, M., Polk, J. D., 85th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Atlanta, GA, "Reconstructing knee posture in humans, chimpanzees and gorillas: subchondral and trabecular signals," Invited. (April 2016). International.
- Sukhdeo, S. M., **Ryan, T.M.**, 85th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Atlanta, GA, "The relationship between patterns of subchondral bone apparent density and trabecular bone structure in the hominoid knee," Invited. (April 2016). International.
- Saers, J. P., Bak, Y. C., Shaw, C. N., **Ryan, T. M.**, Stock, J. T., 85th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Atlanta, GA, "Trabecular bone structural variation throughout the lower limb in three human populations." (April 2016). International.
- Sears, J. P., Stock, J. T., Shaw, C. N., **Ryan, T. M.**, Annual Meeting of the European Society for Human Evolution, European Society for Human Evolution, London, UK, "Trabecular bone ontogeny in the human calcaneus," peer-reviewed/refereed. (September 2015).
- Minghetti, C., Parr, W., **Ryan, T. M.**, Carlson, K., Turley, K., Wroe, S., Gruppioni, G., Shaw, C., Saers, J., Su, A., Fiorenza, L., Frost, S., Benazzi, S., 21st Italian Anthropological Association Congress, Associazione Antropologica Italiana, "Exploring morphology difference in hominoid talus based on geometric Morphometric methods." (September 2015).
- Ryan, T. M.**, Sukhdeo, S. M., Perchalski, B., Hubbell, Z. R., Raichlen, D. A., Gosman, J. H., 84th Annual Meeting of the American Association of Physical Anthropologists, St. Louis, MO, "Ontogenetic development of trabecular bone in the human postcranial skeleton," (2015).
- Hubbell, Z. R., Gosman, J. H., **Ryan, T. M.**, 84th Annual Meeting of the American Association of Physical Anthropologists, St. Louis, MO, "Age-Related Trends in Human Trabecular Bone Connectivity at the Cortical-Trabecular Interface in the Proximal Tibia Metaphysis," (2015).
- Sukhdeo, S. M., **Ryan, T. M.**, 84th Annual Meeting of the American Association of Physical Anthropologists, St. Louis, MO, "Cortical and Trabecular Bone Structural Variation in the Human Knee Joint," (2015).
- Conner, B., Sukhdeo, S. M., Perchalski, B., Raichlen, D. A., Gosman, J. H., **Ryan, T. M.**, 84th Annual Meeting of the American Association of Physical Anthropologists, St. Louis, MO, "Trabecular bone at the knee reflects changes in load orientation during ontogeny," (2015).
- Perchalski, B., Placke, A., Sukhdeo, S. M., Shaw, C. N., Gosman, J. H., Raichlen, D. A., **Ryan, T. M.**, 84th Annual Meeting of the American Association of Physical Anthropologists, St. Louis, MO, "Asymmetry in the cortical and trabecular bone of the human humerus during development." (2015).
- Strait, D.S., Parisi, D., Sohnen, S., Gundel, A., Smith, A.L., Tamvada, K.H., Ledogar, J.A., Ross, C.F., **Ryan, T.M.**, 83rd Annual Meeting of the American Association of Physical Anthropologists, Calgary, Canada, "Biomechanics of the postorbital bar of *Eulemur fulvus* examined using finite element analysis." (2014)
- Sukhdeo, S., **Ryan, T. M.**, 83rd Annual Meeting of the American Association of Physical Anthropologists, Calgary, Canada, "Trabecular orientation of the proximal tibia covaries with orientation of the tibial condyles." (2014)
- Raichlen, D., Gordon, A., Scott, R., Webber, J., Foster, A., Sukhdeo, S., Gosman, J., & **Ryan, T. M.**, 83rd Annual Meeting of the American Association of Physical Anthropologists, Calgary, Canada, "An ontogenetic framework linking locomotion and trabecular bone architecture with applications for reconstructing hominin life history." (2014)
- Hubbell, Z. R., Gosman, J. H., **Ryan, T. M.**, 83rd Annual Meeting of the American Association of Physical Anthropologists, Calgary, Canada, "Age-dependent multiple regression analysis of trabecular bone morphology in the subadult human proximal tibia." (2014)

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- Berthaume, M.A., Shaw, C.N., Jewell, C., Hamill, J., **Ryan, T.M.**, Holt, B.M., 83rd Annual Meeting of the American Association of Physical Anthropologists, Calgary, Canada, "Were Neandertal humeri adapted for spear thrusting or throwing? A finite element analysis study." (2014)
- Ryan, T. M.**, Raichlen, D. A., Hubbell, Z. R., Sukhdeo, S. M., Gosman, J. H., 82nd Annual Meeting of the American Association of Physical Anthropologists, Knoxville, TN, "Human walking and developmental bone morphology: An integrated functional perspective," (2013).
- Perchalski, B. A., Seiffert, E. R., **Ryan, T. M.** 82nd Annual Meeting of the American Association of Physical Anthropologists, Knoxville, TN, "Multivariate analyses of trabecular bone structure in the proximal femur of living and extinct strepsirrhine primates," (2013).
- Hubbell, Z. R., Gosman, J. H., Shaw, C. N., **Ryan, T. M.** 82nd Annual Meeting of the American Association of Physical Anthropologists, Knoxville, TN, "Ontogenetic changes in the human tibial and femoral diaphyses: Mechanobiological analysis of cortical shape from a whole-bone perspective," (2013).
- Ryan, T. M.** Raichlen, D. A., Gosman, J. H., American Association of Anatomists Annual Meeting at Experimental Biology, American Association of Anatomists, Boston, "Structural analyses of the developing human postcranial skeleton using high-resolution CT," (2013).
- Peacock, E., **Ryan, T. M.**, 78th Annual Meeting of the Society for American Archaeology, Honolulu Hawaii, "High Resolution Computerized Tomography as a New Method for Microartifact Analysis," Invited. (April 2013).
- Gosman, J., Raichlen, D., **Ryan, T. M.**, 78th Annual Meeting of the Society for American Archaeology, Honolulu Hawaii, "Human Transitions: Current Perspectives on Structural Change in Bone during Development," Invited. (April 2013).
- Neuberger, T., Richter, J. P., Rumble, C. R., Quigley, A. P., Ranslow, A. N., **Ryan, T. M.**, Stecko, T. D., Pang, B., Van Valkenburgh, B., Craven, B. A., 21st Annual Meeting of the International Society for Magnetic Resonance in Medicine, ISMR, Society for Magnetic Resonance in Medicine, Salt Lake City, "Three-Dimensional Anatomy and Morphometry of the Nasal Airway of the Eastern Gray Squirrel (*Sciurus carolinensis*) from Multi-Modal Imaging," (2013).
- Richter, J. P., Rumble, C. R., Neuberger, T., Pang, B., Van Valkenburgh, B., **Ryan, T. M.**, Stecko, T. D., Yee, K. K., Wysocki, C. J., Krane, M. H., Craven, B. A., ICVM 2013, International Congress of Vertebrate Morphologists, Barcelona, Spain, "Reconstruction and Morphometric Analysis of the Nasal Airway of the Eastern Gray Squirrel (*Sciurus carolinensis*) and Implications Regarding Respiratory and Olfactory Airflow," (2013).
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- Gosman, J. H., Raichlen, D. A., Hubbell, Z. R., Sukhdeo, S. M., Souza, L., **Ryan, T. M.** ASBMR Annual Meeting, American Society of Bone and Mineral Research, Minneapolis, MN, "Stepping Out: Developmental Changes in Tibial Trabecular Bone Microarchitecture and Kinematics of Early Human Walking," (2012).
- Ryan, T. M.**, Shaw, C. N., Hubbell, Z. R., Sukhdeo, S. M., Gosman, J. H., 81st Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Portland, OR, "Ontogenetic changes in cortical and trabecular bone in the human femur and tibia," (2012).



## TIMOTHY M. RYAN

- Sukhdeo, S. M., **Ryan, T. M.** 81st Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Portland, OR, "Trabecular bone structure in the forelimb and hindlimb of quadrupedal primates and carnivores," (2012).
- Richtsmeier, J. T., Martinez-Abadias, N., Hueze, Y., Percival, C. J., Motch, S. M., Wang, Y., Jabs, E. W., Aldridge, K., **Ryan, T. M.** 81st Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Portland, OR, "Why the long face? Disease phenotypes as a window on evolutionary change," (2012).
- Hubbell, Z. R., Gosman, J. H., Shaw, C. N., **Ryan, T. M.** American Society of Bone and Mineral Research Annual Meeting, American Society of Bone and Mineral Research, San Diego, CA, "Age-Related Changes in Cortical Bone Geometry in the Human Tibial Diaphysis: A Whole-Bone Perspective," (2011).
- Hubbell, Z. R., Gosman, J. H., **Ryan, T. M.**, Shaw, C. N., Ketcham, R. A., 80th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Minneapolis, MN, "Characteristics of bone structure during growth: a comparison of the age-associated patterns of change in cortical bone geometry and trabecular bone microarchitecture in the human tibia," (2011).
- Ryan, T. M.**, Swiatonowski, A. K., Shaw, C. N., 80th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Minneapolis, MN, "The relationship between the mechanical and microstructural properties of trabecular bone in the anthropoid femur and humerus," (2011).
- Shaw, C. N., **Ryan, T. M.**, 80th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Minneapolis, MN, "'More than the midshaft?': mapping cross-sectional properties along the entire femoral and tibial diaphysis," (2011).
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- Ryan, T. M.**, Walker, A., Swiatonowski, A., van Rietbergen, B., 79th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Albuquerque, NM, "Interlimb variation in trabecular bone architecture in primates," (2010).
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- Hubbell, Z. R., Gosman, J. H., **Ryan, T. M.**, Shaw, C. N., Ketcham, R. A., ASBMR Forum on Aging and Skeletal Health, American Society for Bone and Mineral Research, Bethesda, MD, "Characteristics of Bone Structure during Growth: Differential Patterns of Change in Cortical Bone Geometry and Trabecular Bone Microarchitecture in the Human Tibia," (2010).

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- Richtsmeier, J. T., Lambert, B., Martinez Abadias, N., Wang, Y., Jabs, E. W., Percival, C., Kawasaki, K., **Ryan, T. M.**, Buchanan, A., Weiss, K. M., 33rd Meeting of the Society of Craniofacial Genetics, Society of Craniofacial Genetics, Bethesda, MD, "An integrated systems approach to craniofacial development (and craniosynostosis)," (2010).
- Martinez Abadias, N., Wang, Y., Jabs, E. W., **Ryan, T. M.**, Richtsmeier, J. T., 33rd Meeting of the Society of Craniofacial Genetics, Society of Craniofacial Genetics, Bethesda, MD, "Effect of FGFR2 mutations on patterns of morphological integration in the skulls of Apert syndrome mouse models," (2010).
- Tapia, A. H., Ocker, R., Rosson, M. B., Blodgett, B., **Ryan, T. M.** Annual meeting of the American Society for Information Science and Technology: ASIS&T 2010, American Society for Information Science and Technology (ASIS&T), Pittsburgh, PA, "Information Science Approaches to Studying Virtual Organizations: A Panel," (2010).
- Richtsmeier, J. T., Martinez Abadias, N., Aldridge, K., Hil, C. A., Buchanan, A., Weiss, K., Percival, C., **Ryan, T. M.**, Neuberger, T., Wang, Y., Jabs, E. W., 3rd Meeting of the European Society for Evolutionary Developmental Biology., European Society for Evolutionary Developmental Biology, Paris, France, "Morphological variance, invariance and integration in the heads of Fgfr2+/S252W and Fgfr2+/P253R Apert syndrome mice," (2010).
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- Ryan, T. M.**, Walker, A., Test, M., Carlson, I., 78th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Chicago, "Locomotor effects on trabecular bone structure in the proximal femur and humerus of primates," (2009).
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- Ryan, T. M.**, Test, M., 8th International Congress of Vertebrate Morphology, International Society of Vertebrate Morphologists, Paris, France, "Methodological issues in comparative analyses of trabecular bone morphology," (2007).

## TIMOTHY M. RYAN

- Seiffert, E. R., Simons, E. L., **Ryan, T. M.**, Bown, T. M., Society of Vertebrate Paleontology Annual Meeting, Society of Vertebrate Paleontology, Austin, TX, "New records of Eocene and Oligocene Afrosoricida from the Fayum Depression, Egypt," (2007).
- Ryan, T. M.**, Walker, A., Spoor, F., Garland, T., Krovitz, G., Silcox, M., Canadian Association for Physical Anthropology Annual Meeting, Canadian Association for Physical Anthropologists, Guelph, Canada, "Three-dimensional imaging and quantification of the semi-circular canal system in primates," (2006).
- Milner, G. R., **Ryan, T. M.** Canadian Association for Physical Anthropology Annual Meeting, Canadian Association for Physical Anthropologists, Guelph, Canada, "Three-dimensional visualization and analysis of a prehistoric arrow injury using high-resolution computed tomography." (2006).
- Ryan, T. M.** van Rietbergen, B., 12th Benelux Congress of Zoology, Wageningen, The Netherlands, "Functional analysis of trabecular bone in leaping and quadrupedal primates using a micro-FEA approach," (2005).
- Ryan, T. M.** Krovitz, G., 74th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Milwaukee, "Ontogeny of three-dimensional trabecular bone architecture in the human proximal femur," (2005).
- Ryan, T. M.** Krovitz, G., 3D Imaging in Anthropological Research: Acquisition, Analysis, and Dissemination, University of Western Ontario, London, Ontario, "Three-dimensional analysis of trabecular bone growth patterns in the human proximal femur,"(2004).
- Ryan, T. M.** van Rietbergen, B., 72nd Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Tampa, FL, "Evaluation of functional adaptation of femoral trabecular bone in the *Galago* and *Loris* using micromechanical finite element models," (2004).
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- Ryan, T. M.**, Ketcham, R. A., 73rd Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Tampa, FL, "The relationship between locomotor behavior and the fabric principal direction of trabecular bone," (2004).
- Kappelman, J., Maga, M., **Ryan, T. M.** Society of Vertebrate Paleontology Annual Meetings, Society of Vertebrate Paleontology, Denver, CO, "Bipedalism and the structure of the hindlimb in birds," (2004).
- Kappelman, J., Maga, M., Pyne, L., **Ryan, T. M.** 72nd Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Tempe, AZ, "The structure of the tibia in bipeds," (2003).
- Ryan, T. M.**, van Rietbergen, B., Acta of Bioengineering and Biomechanics, 13th European Society of Biomechanics Conference, Wroclaw, Poland, "Functional analysis of trabecular bone in leaping and quadrupedal primates using a micro-FEA approach," (2003).
- Ryan, T. M.**, Ketcham, R., 71st Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Buffalo, NY, "Analysis of the trabecular bone structure in the femoral head of two omomyid primates," (2002).
- Ketcham, R. A., **Ryan, T. M.**, Maga, M., Gordon, A., 71st Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Buffalo, NY, "Quantification of anisotropy in trabecular bone fabrics," (2002).
- Kappelman, J., Maga, M., **Ryan, T. M.**, Zylstra, M., Alport, L., Feseha, M., 70th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Kansas City, MO, "www.eSkeletons.org: A web site for the study of human and primate comparative anatomy," (2001).
- Kappelman, J., Maga, M., **Ryan, T. M.**, Ketcham, R. A., Society of Vertebrate Paleontology Annual Meeting, Society of Vertebrate Paleontology, Bozeman, Montana, "Nondestructive investigations of the functional aspects of trabecular bone architecture using high-resolution x-ray CT," (2001).

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- Kappelman, J., **Ryan, T. M.**, Zylstra, M., Alport, I., DeOliveira, M., Gordon, A., Maga, M., Scott, R., 69th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, San Antonio, TX, "eSkeletons: a web-based platform for learning anatomical form and function," (2000).
- Feseha, M., Kappelman, J., Rasmussen, D. T., Fleagle, J., Copeland, P., **Ryan, T. M.**, Sanders, W., 69th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, San Antonio, TX, "New sub-saharan Oligocene fossil localities from northwestern Ethiopia," (2000).
- Ryan, T. M.** 69th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, San Antonio, TX, "Quantitative analysis of trabecular bone structure in the femur of lorisoid primates using high resolution x-ray computed tomography," (2000).
- Kappelman, J., Gordon, A., Johnson, D., **Ryan, T. M.**, Scott, R., Seiffert, E., 68th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Columbus, OH, "A computer program for delivering virtual multimedia examinations across secure networks and the web," (1999).
- Fajardo, R., **Ryan, T. M.**, Kappelman, J., 68th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Columbus, OH, "A quantitative analysis of primate trabecular bone architecture: Comparison of high resolution X-ray computed tomography and histologic sections," (1999).
- Seiffert, E., Kappelman, J., **Ryan, T. M.** 68th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Columbus, OH, "The nasal fossa of *Rooneyia viejaensis* as revealed by high-resolution X-ray computed tomography," (1999).
- Kappelman, J., Bramblett, C., Gordon, A., McCardel, K., **Ryan, T. M.**, Scott, R., Seiffert, E., Weiner, G., 67th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Salt Lake City, UT, "Virtual multimedia examinations: Integrating images, video, and animations into an interactive testing program," (1998).
- Kappelman, J., Bramblett, C., Feseha, M., Gordon, A., McCardel, K., Pearlstein, J., **Ryan, T. M.**, Scott, R., Seiffert, E., Tecot, S., Weiner, G., American Society of Primatologists Annual Meeting, American Society of Primatologists, Georgetown, TX, "Using the computer for interactive testing: a multimedia application in primatology," (1998).
- Ryan, T. M.** Kappelman, J., 66th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, St. Louis, MO, "Structural analysis of tibial shape using the finite element method," (1997).
- Morf, L., **Ryan, T. M.**, Scott, R., Kappelman, J., 65th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Durham, NC, "Defining long bone curvature with a 3-D laser scanner," (1996).
- Ryan, T. M.**, Scott, R., Duncan, A., Kappelman, J., Shapiro, L., Grant, S., Lewis, K., Stearman, R., 65th Annual Meeting of the American Association of Physical Anthropologists, American Association of Physical Anthropologists, Durham, NC, "Finite element analysis using a 3-D laser scanner," (1996).

## **OTHER PUBLICATIONS**

- Kappelman, J., **T. Ryan**, and M. Zylstra. (1999) e-Skeletons: The Digital Library as a Platform for Studying Anatomical Form and Function. *D-Lib Magazine* 5(9): [www.dlib.org/dlib/september99/09contents.html](http://www.dlib.org/dlib/september99/09contents.html).
- In *Virtual Laboratories for Physical Anthropology on CD ROM, Second Edition*. J. Kappelman (ed.). Wadsworth Publishing Co.:**

## **TIMOTHY M. RYAN**

Kappelman, J., R.S. Scott, C. Bramblett, A.D. Gordon, and **T.M. Ryan**. (1999) Genetics and Evolution of Human Populations.

Kappelman, J., R.S. Scott, C. Bramblett, **T.M. Ryan**, and A.D. Gordon. (1999) The Archaeological Record.

**In *Virtual Laboratories for Physical Anthropology on CD ROM*. J. Kappelman (ed.). Wadsworth Publishing Co.:**

Kappelman, J., C. Bramblett, **T.M. Ryan**, R. Scott, E. Seiffert, and G. Weiner. (1998) Lab 1: Introduction to the Primates.

Kappelman, J., A. Duncan, R. Scott, L. Shapiro, C. Bramblett, **T.M. Ryan**, E. Seiffert, and G. Weiner. (1998) Lab 2: Levers and Limbs: Introduction to Primate Functional Morphology.

Kappelman, J., A. Duncan, R. Scott, L. Shapiro, C. Bramblett, **T.M. Ryan**, E. Seiffert, and G. Weiner. (1998) Lab 3: Primates in Motion.

Kappelman, J., C. Kirk, E. Seiffert, L. Shapiro, C. Bramblett, **T.M. Ryan**, R. Scott, and G. Weiner. (1998) Lab 4: Primate Diets and Feeding Behaviors.

Bramblett, C., R. Scott, G. Weiner, **T.M. Ryan**, E. Seiffert, and J. Kappelman. (1998) Lab 5: Primate Behavior.

Kappelman, J., E. Seiffert, **T.M. Ryan**, C. Bramblett, R. Scott, and G. Weiner. (1998) Lab 6: Primate Evolution.

Kappelman, J., C. Kirk, E. Seiffert, C. Bramblett, **T.M. Ryan**, R. Scott, and G. Weiner. (1998) Lab 7: The Australopithecines.

Kappelman, J., C. Kirk, E. Seiffert, C. Bramblett, **T.M. Ryan**, R. Scott, and G. Weiner. (1998) Lab 8: The Evolution of Bipedalism.

Kappelman, J., **T.M. Ryan**, C. Bramblett, R. Scott, E. Seiffert, and G. Weiner. (1998) Lab 9: Fossil Hominids of the Genus *Homo*.

Kappelman, J., R. Scott, C. Bramblett, **T.M. Ryan**, E. Seiffert, and G. Weiner. (1998) Lab 10: The Origin and Evolution of Modern Humans.

## **COMMITTEE MEMBER**

Simone Sukhdeo, Doctoral (Chair), Department of Anthropology, Pennsylvania State University, 2014-

Jennifer Yang, Doctoral, Plant Biology, Pennsylvania State University, 2015-

Allison Machnicki, Doctoral, Department of Anthropology, Pennsylvania State University, 2015-

Kevin Flaherty, Doctoral, Department of Anthropology, Pennsylvania State University, 2014-

Kelsey Kjosness, Doctoral, Department of Anthropology, Pennsylvania State University, 2014-

Susan Coiner-Collier, Doctoral, Department of Anthropology, Rutgers University, December 2012-

Shan Li, Doctoral, Department of Ecosystem Science and Management, Pennsylvania State University, 2013-2014

Adam Foster, Doctoral, School of Anthropology, University of Arizona, March 2011-2014

Christopher Percival, Doctoral, Department of Anthropology, Pennsylvania State University, 2013.

John Starbuck, Doctoral, Department of Anthropology, Pennsylvania State University, 2012.

Brenda Frasier, Doctoral, Department of Anthropology, Pennsylvania State University, 2011.

Nicole Griffin, Doctoral, Department of Anthropology, George Washington University, 2009.

Cheryl Hill, Doctoral, Department of Anthropology, Pennsylvania State University, 2008.

## **COURSES**

ANTH 22, Humans as Primates

ANTH 401, Human Origins: The Material Evidence

ANTH 497, Primate Functional Morphology & Locomotion

## **TIMOTHY M. RYAN**

ANTH 571, Human Evolutionary Biology  
IST 402, 3D Imaging and Visualization

## **PROFESSIONAL ORGANIZATIONS**

American Association of Physical Anthropologists  
Paleoanthropology Society

## **PROFESSIONAL SERVICE**

- Reviewer:

National Science Foundation

Leakey Foundation

Canada Foundation for Innovation

Canada Research Chairs

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Nature

Proceedings of the Royal Society, Series B

Journal of Human Evolution

American Journal of Physical Anthropology

Journal of Anatomy

Journal of Biomechanics

Journal of Morphology

International Journal of Osteoarchaeology

The Anatomical Record

Integrative and Comparative Biology

BioMedical Engineering OnLine

Comptes rendus Palevol

Biomechanics and Modeling in Mechanobiology

PLoS ONE

Palaeobiodiversity and Palaeoenvironments

## **FIELD EXPERIENCE**

Ethiopia - Geology and Paleontology of the Oligocene Chilga Formation, May 1999

Montana - Magnetostratigraphy of the Eocene Kishenehn Formation, August, 1998

China - Magnetostratigraphy of the Eocene Yuanqu Basin, May, 1995; May, 1996

Wyoming - Paleontology of the Paleocene Washakie Basin, June, 1995