



Richard T. Hart, Ph.D.
Edgar C. Hendrickson Chair
Biomedical Engineering
Department

270 Bevis Hall 1080 Carmack Road Columbus, OH 43210

Phone: (614) 292-1285 Fax: (614) 2927301

Email: hart.322@osu.edu

Education

B.E.S. (Engineering Science): Georgia Institute of
Technology, Atlanta, GA, 1975

M.S. (Engineering Mechanics): Georgia Institute of
Technology, Atlanta, GA, 1977

(Biomechanics): Technische Universität, Berlin (West)
Germany, 1977-78

Ph.D. (Mechanical & Aerospace Engineering): Case
Western Reserve University, Cleveland, OH, 1983

Professional Experience

Department of Biomedical Engineering, Tulane University,
New Orleans, LA:

Assistant Professor 1982-87

Associate Professor, 1987-1995

Professor, 1995-2006

Department Chair, 1997-2006

Alden J. "Doc" Laborde Professor of Engineering, 2001-
2006

Biomedical Engineering Department, The Ohio State
University, Columbus, OH:

Edgar C. Hendrickson Professor and Department Chair,
2006 - present



Research Interest

Dr. Hart's research interests are in finite element analysis
of biological tissues and structures. He has focused upon
methods that seek to describe, simulate, and predict the
response of bone tissue to mechanical stimuli.

In addition, he has collaborated on research projects in

brain physics, spine mechanics, and most recently in ophthalmology, concentrating on the biomechanics of the optic nerve head and its role in glaucoma.

Honors and Awards

- Fellow of the Institute for Medical & Biological Engineering, 1999
- American Society for Engineering Education's Theo C. Pilkington Outstanding Educator Award, 2001
- Tulane Department of Biomedical Engineering Outstanding Teacher of the Year award
- Society of Tulane Engineer's Lee H. Johnson award for teaching excellence
- Association of International Glaucoma Societies award, 2004

Selected Publications

Roberts, M.D., and Hart, R.T., "Shape Adaptation of Long Bone Structures Using a Contour Based Approach," *Computer Methods in Biomechanics and Biomedical Engineering*, **8**:145-156, 2005.

Downs, J.C., J-K Francis Suh, Thomas, K.A., Bellezza, A.J., Hart, R.T., and Burgoyne, C.F., "Viscoelastic Material Properties of the Peripapillary Sclera in Normal and Early Glaucomatous Monkey Eyes," *Investigative Ophthalmology and Visual Science*, **46**:540-564, 2005.

Burgoyne, C.F., Downs, J.C., Bellezza, A.J., Suh, J-K.F., and Hart, R.T., "The Optic Nerve Head as a Biomechanical Structure: A New Paradigm for Understanding the Role of IOP-related Stress and Strain in the Physiology of Optic Nerve Head Aging and the Pathophysiology of Glaucomatous Damage," *Progress in Retinal and Eye Research*, **24**:39-73, 2005.

Burgoyne, C.F., Downs, J.C., Bellezza, A.J., and Hart, R.T., "Digital Three-Dimensional Reconstruction of the Normal and Early Glaucomatous Monkey Optic Nerve Head Connective Tissues," *Investigative Ophthalmology and Visual Science*, **45**:4388-4399, 2004.

Coleman, J.C., Hart, R.T., and Burr, D.B., "Reconstructed Bone End Loads on the Canine Forelimb During Gait," *Journal of Biomechanics*, **36**:1837-1844, 2003.

Bellezza, A.J., Rintalan, C.J., Downs, J.C., Hart, R.T., and Burgoyne, C.F., "Anterior Scleral Canal Geometry in Pressurized (IOP 10) and Non-Pressurized (IOP 0) Normal Monkey Eyes," *British Journal of Ophthalmology*, **87**:1284-1290, 2003.

Downs, J.C., Suh, J-K.F., Thomas, K.A., Bellezza, A.J., Burgoyne, C.F., and Hart, R.T., "Viscoelastic Characterization of Peripapillary Sclera: Material Properties by Quadrant in Rabbits and Monkeys," *Journal of Biomechanical Engineering*, **125**:124-131, 2003.

Bellezza AJ, Rintalan CJ, Thompson HW, Downs JC, Hart RT,

Burgoyne CF, "Deformation Of The Lamina Cribrosa And Anterior Scleral Canal Wall In Early Experimental Glaucoma," *Investigative Ophthalmology and Visual Science*, **44**:623-637, 2003.

Coleman, J.C., Hart, R.T., Owan, I., Tankano, Y., and Burr, D.B., "Characterization of Dynamic Three-dimensional Strain Fields in the Canine Radius," *Journal of Biomechanics*, **35**:1677-1683, 2002.

Downs, J.C., Blidner, R.A., Bellezza, A.J., Thompson, H.W., Hart, R.T., and Burgoyne, C.F., "Peripapillary Scleral Thickness in Perfusion-Fixed Normal Monkey Eyes," *Investigative Ophthalmology and Visual Science*, **43**:2229-2235, 2002.

Downs, J.C., Ensor, M.E., Bellezza, A.J., Thompson, H.W., Hart, R.T., and Burgoyne, C.F., "Posterior Scleral Thickness in Perfusion-Fixed Normal and Early Glaucomatous Monkey Eyes," *Investigative Ophthalmology and Visual Science*, **42**:3202-3208, 2001.

Villarraga, M.L., Anderson, R.C., Hart, R.T., Bundy, K.J., and Dinh, D.H., "Mechanisms of Titanium Release from Posterior Cervical Spine Plates in a Canine Model Based on Computational and Biocompatibility Studies," *Key Engineering Materials*, **198-199**:69-100, 2001.

[back to top](#)

[Back to BME Home](#)