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Education

Rose-Hulman Institute of Technology, Terre Haute, IN. B.S. 1980 Mechanical Engineering
Tulane University, New Orleans, LA. M.S. 1982 Biomedical Engineering
Tulane University, New Orleans, LA. Ph.D. 1987 Biomedical Engineering

Research Interests

My research interests are broad, including a number of areas in biomaterials and biomechanics. My doctoral research concerned the histological and mechanical evaluation of bone ingrowth and appositional attachment mechanisms to porous coated Ti-6,4 and LTI carbon femoral endoprostheses using the canine model. I have also directed projects involving bone attachment to ceramic and carbon dental implants, retrieved porous coated implants in the human, metallurgical evaluations of retrieved stainless steel intramedullary rods, qualitative evaluation of articular cartilage wear against Ti-6,4, carbon, silicone, and zirconia hemiarthroplasties, and tissue reaction studies in response to Bion and hydroxylapatite in canine and rat models. Also, I am directing a project involving dynamic finite element analysis of the human head-neck response to indirect impact that is based on depicting the primary interacting motion segment anatomical structures driven by motion segment kinematic data obtained from analysis of cadaveric human head-neck specimens. While my research interests remain broad, I have begun a more focused effort to develop computational models of the soft tissue structures of the eye, including those potentially related to glaucoma. Recent, on-going, and planned investigations include modeling the disinsertion of the optic nerve head, the use of applanation tonometry to measure aqueous outflow, the development of modeling techniques to represent ciliary body – zonule contraction during accommodation, including potential effects on the strain field around the canal of Schlemm, as well as the development of techniques to represent residual strains and their effects in various ocular tissues. I am also a co-investigator on an NSF grant to develop aids for the disabled.

Honors and Awards

John Stibbs Award – Outstanding Undergraduate Professor, Tulane University, 2000-2001
Provost's Award for Teaching Excellence, Tulane University, 1996-1997
Harold A. Levey Outstanding Alumnus Award, Tulane School of Engineering, 1996
Alpha Eta Mu Beta Honor Society Biomedical Engineering Teacher of the Year, 1994-1995
Alpha Eta Mu Beta Honor Society Biomedical Engineering Teacher of the Year, 1993-1994
Alpha Eta Mu Beta Honor Society Biomedical Engineering Teacher of the Year, 1992-1993
Alpha Eta Mu Beta Honor Society Biomedical Engineering Teacher of the Year, 1989-1990
The Society of Tulane Engineers and Lee H. Johnson Award for Teaching Excellence, 1988-1989

Selected Publications

Anderson, R.C., Cook, S.D., Skinner, H.B., Weinstein, A.M., and Haddad, R.J., "An Evaluation of Skeletal Attachment to LTI Pyrolytic Carbon, Porous Titanium and Carbon-Coated Porous Titanium

Implants," Clinical Orthopaedics and Related Research, n182, 298-313, 1984.

Cook, S.D., Brinker, M.R., Anderson, R.C., Tomlinson, R.J., and Butler, J.C., "Performance of Retrieved Kuntscher Intramedullary Rods: Improved Corrosion Resistance with Contemporary Material Design," Clinical Materials, n5, p53, 1990.

Voor, M.J., Anderson, R.C., and Hart, R.T., "Stress Analysis of Halo Pin Insertion by Nonlinear Finite Element Modeling," Journal of Biomechanics, v 30, n9, 1997

Villarraga, M.L., R.C. Anderson, R.T. Hart and D.H.Dinh, Contact Analysis of a Posterior Cervical Spine Plate Using a Three-Dimensional Canine Finite Element Model, Journal of Biomechanical Engineering, v121, n2, 1999.

Anderson, R.C., Burgoyne, C.F., Downs, J.C., and Hart, R.T., "Finite Element Modeling of Anterior Lamellar Disinsertion in Early Experimental Glaucoma," poster presentation, ARVO, Ft. Lauderdale, April, 2004

Anderson, R.C., and Rice, D.A., National Science Foundation 1992: Engineering Senior Design Projects To Aid The Disabled; Chapter 14, ed. J.D. Enderle, North Dakota State University Press, 2006.

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