Robert Piziali

PIZIALI & ASSOCIATES
BIOENGINEERING AND ACCIDENT ANALYSIS

Robert Piziali, Ph.D., P.E.

Dr. Piziali is an expert in the areas of biomechanics, injury analysis, occupant kinematics, accident reconstruction, and mechanical design.

Background and Selected Professional Affiliations and Activities

B.S. (Mechanical Engineering), University of California at Berkeley

M.E. (Mechanical Engineering), University of California at Berkeley

Ph.D. (Mechanical Engineering), University of California at Berkeley

President, Piziali & Associates, Inc.

Vice-President, Failure Analysis Associates, Inc. (currently known as Exponent)

Vice-President, Engineering, Phase 2 Automation

Associate Director for Orthopaedic Biomechanics, Rehabilitation Engineering Research and Development Center, Veterans Administration Medical Center

Professor, Stanford University

Registered Professional Mechanical Engineer, California MO26849

Member, American Society of Mechanical Engineers (ASME)

Member, Society of Automotive Engineers (SAE)

Chairman, School of Engineering Advisory Committee on Engineering in Medicine and Biology

Chairman, Solid Mechanics Subcommittee, Division of Bioengineering, American Society of Mechanical Engineers

Co-Chairman, National Science Foundation Workshop on "The Mechanics of Human Injury," Stanford, CA

Reviewer, *Journal of Biomechanics* and *Journal of Biomechanical Engineering*

Associate Director, Orthopaedic Biomechanics, Palo Alto Veterans Administration Rehabilitative Engineering Research and Development Center

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Selected Patents

Medical Ventilator Device Parametrically Controlled for Patient Ventilation, U.S. Patent No. 4,448,192, filed May 15, 1984 with Frederick A. Stawitcke (Sunnyvale, CA), William J. Mordan (Sunnyvale, CA), Holly B. Jimison (Palo Alto, CA), and Allen K. Ream (Woodside, CA).

Articulated Prosthetic Knee and Method for Implanting Same, U.S. Patent No. 4,358,859, filed November 16, 1982 with David J. Schurman (Stanford, CA).

Selected Funded Research Projects

"External and Internal Stabilization of the Disrupted Lumbo-Dorsal Spine," $171,500, 4 years, Veterans Administration Hospital Grant, 7/78–6/82.

"Structural Characteristics of the Human Lumbar Spine," $197,291 plus overhead, 3 years, National Institute of Health, Grant No. AM019737, 1/77–12/79.

"Structural Characteristics of the Human Knee," $111,430 plus overhead, 3 years, National Institute of Health, Grant No. R01-18181, 6/76–5/79.

"Experimental and Analytical Mechanics of Human Injury," $111,865, 2 years, National Science Foundation, Grant No. NSF-3567, 4/76–7/78.

"Collaborative Research in the Mechanics and Biomechanics of Skiing Injuries," $50,000, 2 years, National Science Foundation, Grant No. NSF0-GK-40182, 10/73–6/75.

Selected Articles in Refereed Journals, Proceedings and Abstracts

C.B. Hovey, M.L. Kaplan, and R.L. Piziali, "Model for Occupants Ejected from Vehicles with Roll and Yaw," American Society of Biomechanics, Stanford, CA, 2007.

R.L. Piziali, J.C. Fox, D.S. Girvan, E.H. Raphael, and J. Ridenour, "A Review and Analysis of the Performance of Laminated Side Glazing in Rollover Accidents," Society of Automotive Engineers International Congress and Exposition, 2007-01-1166, Detroit, MI, 2007.

E. Raphael, R. Piziali, H. Le, J. Hinger, E. Cooper, and J. Croteau, "Physical Evidence Associated with Seatbelt Entanglement During a Collision," Society of Automotive Engineers International Congress and Exposition, 2007-01-1501, Detroit, MI, 2007.

R.L. Piziali, "Occupant Motion in Rollover Crashes," Passenger Car Rollover TOPTEC: Cause and Prevention, San Diego, CA, 1999.

R.L. Piziali, R.H. Hopper, D. Girvan, and R. Merala, "Injury Causation in Rollover Accidents and the Biofidelity of Hybrid III Data in Rollover Tests," Society of Automotive Engineers International Congress and Exposition, 980362, Detroit, MI, 1998.

R.L. Piziali, R. Merala, and R.H. Hopper, "The Biomechanics of Head and Neck Injuries in Skiing," 12th Symposium on Ski Trauma and Safety, Whistler, British Columbia, CAN, 1997.

R. Merala and R.L. Piziali, "Water Ski Binding Release Loads: Test Method and Results," *Skiing Trauma and Safety: Tenth Volume,* ASTM STP 1266, C.D. Mote, Jr., R.L. Johnson, W. Hauser, and P.S. Schaff, Editors, American Society for Testing and Materials, 361-379, Philadelphia, PA, 1996.

R.L. Piziali, T.P. Khatua, L.Y. Cheng, D.S. Girvan, and R.S. Fijan, "Use of Computer Simulations in Support of Litigation," 5th International MADYMO Users' Meeting, Fort Lauderdale, FL, 1994.

R.L. Piziali, J.G. Paver, T.P. Khatua, J. Whitestone, I. Kaleps, and C. Taylor, "The Prediction of Hybrid III Manikin Head-Neck Kinematics and Dynamics," *SAE 1990 Transactions, Journal of Passenger Cars,* Section 6, 99:669-676, 1990.

F.A. Stawitcke, A.K. Ream, and R.L. Piziali, "Pressure Control To Accommodate Patient Breathing Efforts During Volume Ventilation," *Journal of Clinical Monitoring,* 3(2), 1987.

D.A. Nagel, T.A. Koogle, R.L. Piziali, and I. Perkash, "Stability of the Upper Lumbar Spine Following Progressive Disruptions and the Application of Individual Internal and External Fixation Devices," *Journal of Bone and Joint Surgery,* 62-70, 1981.

R.L. Piziali, W. Seering, D.A. Nagel, and D.J. Schurman, "The Function of the Primary Ligaments of the Knee in Varus-Valgus and Axial Rotations," *Journal of Biomechanics,* 13(9):785-794, 1980.

T.K. Hight, R.L. Piziali, and D.A. Nagel, "A Dynamic Non-Linear Large Displacement Model of a Human Leg," *Journal of Biomechanical Engineering,* 101:176-184, 1979.

R.L. Piziali, J.C. Rastegar, and D.A. Nagel, "Measurement of the Non-Linear Coupled Stiffness Characteristics of the Human Knee," *Journal of Biomechanics,* 10:45-51, 1977.