

# **Jacqueline G. Paver, Ph.D.**

Biomechanical Engineer

**President, Center for Injury Research**

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## ***CURRICULUM VITAE***

# **Jacqueline G. Paver, Ph.D.**

### **Areas of Professional Specialization**

Biomechanics of Human Injury and Protection

Human Tolerance Testing, Injury Mechanism Evaluation, and Injury Criteria Development

Anthropomorphic Dummies Development, Modeling, and Testing

Biomechanical Engineering Analysis of Vehicular, Industrial, and Recreational Accidents,  
including Accident Reconstruction, Occupant Kinematics and Dynamics, Computer  
Simulation, Crash Testing, Product Defect Analysis, and Protective System Effectiveness  
Evaluation

### **Education**

- |             |                                                                                                                                                                           |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1985</b> | <b>Doctor of Philosophy, Biomedical Engineering</b><br>Duke University, Durham, North Carolina<br>Dissertation: "The Biomechanics of Head and Neck Injury and Protection" |
| <b>1980</b> | <b>Master of Science, Biomedical Engineering</b><br>Duke University, Durham, North Carolina                                                                               |
| <b>1977</b> | <b>Bachelor of Science, Engineering</b><br>Harvey Mudd College, Claremont, California                                                                                     |

## Employment Summary

**2022-present** *ATD Consultant, STI-TEC, WPAFB, Dayton, Ohio*

**2017-present** *President, Center for Injury Research, Santa Barbara, California*

**2008-2019** *Biomechanical Engineer, Jacqueline G. Paver, Ph.D., Santa Barbara, California*

Performed biomechanical engineering testing and analyses of vehicular, industrial, and recreational accidents and provided expert testimony in deposition, arbitration, and trial.

**1994-2008** *Senior Biomechanical Engineer, Biodynamics Engineering, Inc., Pacific Palisades, California*

Performed biomechanical engineering analyses of vehicular, industrial, and recreational accidents and provides expert testimony in deposition, arbitration, and trial.

Conducted and participated as a volunteer in full-scale car crash tests that addressed collision severity, vehicle and occupant responses, restraint system effectiveness, and injury potential.

Performed biomechanical engineering analyses of spinal injuries sustained by restrained children in vehicular accidents.

**1989-1993** *Senior Engineer, Failure Analysis Associates, Inc., Menlo Park, California*

Performed injury analyses of vehicular, industrial, and recreational accidents and conducted biomechanical engineering research on all-terrain vehicle safety, anthropomorphic dummy neck design and testing.

**1985-1989** *Research Assistant Professor and Research Associate, Duke University School of Engineering, Durham, North Carolina*

Directed and performed biomechanical engineering research on spinal trauma and head injury and protection and developed a proposed standard for lateral head protection of industrial workers.

Lectured in undergraduate and graduate biomechanics courses and taught undergraduate electronics courses.

## Professional Affiliations and Activities

Member, SAFE Association, 1987-1990, 2021-Present

President, Board of Directors, Center for Injury Research, 2010-Present

Member, American National Standards Institute Z89 Industrial Headgear Committee, 1987-1989

Member, Board of Directors, Head Protection Research Laboratory, 2008-2009

Member, Society of Automotive Engineers, 1983-Present

Nominated Member, Seat Committee, 2019 - Present

Nominated Member, Dummy Testing Equipment Subcommittee, 1988-1998

Nominated Member, Mechanical Human Simulation Subcommittee, 1988-1996

Session Organizer and Chairperson, International Congress and Exposition,

Passenger Protection Committee/Automobile Body Activity, 1997

Session Organizer and Chairperson, International Congress and Exposition, Safety Committee/Passenger Car Activity, 1993

Member, American Society of Mechanical Engineers, 1986-Present

Member, Dynamic Rollover Protection (DROP) ARC Linkage Grant Project, 2012-Present

Member, TRB Committee ANB45 (1) Subcommittee Rollover Crashworthiness, 2010-Present

Member, International Scientific Review & Evaluation Committee (ISREC), 2009

## Honors and Awards

2025 Honored Listee, Marquis Who's Who 2025

1990 Recipient, Arnold W. Siegel Award for best paper presented at the 32<sup>nd</sup> Stapp Car Crash Conference, Society of Automotive Engineers

1987-1990 Special Project Award Co-Investigator, Biomechanical Aspects of Spinal Trauma, Center for Disease Control

1987-1989 Recipient, Biomedical Engineering Award, Biomechanical Models of Spinal Trauma, Whitaker Foundation

1986-1988 Project Award Co-Investigator, Research on Head Protection in the Industrial Environment, Industrial Safety Equipment Association

1987 Project Award Co-Investigator, University Design Competition on Passive Restraints in Automobiles, General Motors and American Society of Engineering Education

1987 Recipient, Research Initiation Program Award, The Kinematics and Dynamics of Manikin Head-Neck Systems, U.S. Air Force Office of Scientific Research

1986 Summer Faculty Research Fellow, U.S. Air Force Office of Scientific Research

1983 Graduate School Fellow, Duke University

1978 Recipient, Research Award, The Biomechanics of Head Protection, Duke University Graduate School

1977 Who's Who in American Universities and Colleges

## Publications and Technical Documents

Friedman K, Mattos G, Paver J, "*Potential Effects of Automatic Braking on Accident Fatalities and Serious Injuries*," Paper #17-0152, 25th International Technical Conference on the Enhanced Safety of Vehicles, June 2017.

Friedman K, Mattos G, Bui K, Hutchinson J, Jafri A, Paver J, "*Potential Effects of Deceleration Pulse Variations on Injury Measures Computed in Aircraft Seat HIC Analysis Testing*," SAE Paper #2017-01-2052, April 2017.

Friedman K, Mattos G, Bui K, Hutchinson, Jafri A, Paver J, "*Potential Effects of Friction on Injury Measures Computed in Aircraft Seat HIC Analysis Testing*," SAE Paper #2017-01-2054, April 2017.

Paver J, Friedman D, Friedman K, "*Methodology Developed for Dynamic Rollover Regulation and Ratings*," International Crashworthiness Conference, August 2014.

Paver J, Friedman D, "*Electronic Crash and Injury Causation Analyses*," American Association of Forensic Scientists, 66th Annual Scientific Meeting, February 2014.

Paver J, Friedman D, Jimenez J, "*Correlating Human and Flexible Dummy Head-Neck Injury Performance*," Paper #13-0282, 23rd International Technical Conference on the Enhanced Safety of Vehicles, May 2013.

Friedman D, Paver J, Jimenez J, "*Electronic Crash, Defect and Causation Analyses*," Paper #13-0106, 23rd International Technical Conference on the Enhanced Safety of Vehicles, May 2013.

Friedman D, Jimenez J, Paver J, "*Predicting a Vehicle's Dynamic Rollover Injury Potential from Static Measurements*," Paper #13-0107, 23rd International Technical Conference on the Enhanced Safety of Vehicles, May 2013.

Paver J, Friedman D, "*Is BFD a Hyperflexion Injury or Compression with Localized Bending Injury or Both?*" Paper #2012-111, International Crashworthiness Conference, July 2012.

Friedman D, Paver J, "*Design, Development and Validation of a Rollover Dummy and Injury Measures*," Paper #2012-110, International Crashworthiness Conference, July 2012.

Friedman D, Paver J, Shipp C, "*Jordan Rollover System Test Results*," Paper #2012-112, International Crashworthiness Conference, July 2012.

Friedman D, Rico D, Mattos G, Paver J, "*Predicting and Verifying Dynamic Occupant Protection*," Paper #11-0090, 22nd International Technical Conference on the Enhanced Safety of Vehicles, June 2011.

Friedman D, Mattos G, Paver J, “*The Development of a Dynamic Rollover Rating Test*,” Paper #11-0405, 22nd International Technical Conference on the Enhanced Safety of Vehicles, June 2011.

Bozzini S, Jimenez J, Mattos G, Grzebieta R, Paver J, “*Commercial, Police, and Military Vehicle Rollover Protection and Evaluating the Effectiveness of Geometry and Retrofit Rollover Testing*,” International Crashworthiness Conference, Washington D.C., 2010.

Paver JG, Friedman D, Caplinger J, “*Rollover Roof Crush and Speed as Measures of Injury Potential vs. the Hybrid III Dummy*,” International Crashworthiness Conference, 2010.

Friedman D, Bozzini S, Paver J, “*Status of Comparative Dynamic Rollover Compliance Research and Testing*,” Paper #2010-059, International Crashworthiness Conference, 2010.

Friedman D, Mattos G, Paver J, “*Characterizing the Injury Potential of a Real World Rollover*,” Paper #2010-058, International Crashworthiness Conference, 2010.

Paver J, Caplinger J, Mattos G, Friedman D, “*The Development of IARV's for the Hybrid III Neck Modified for Dynamic Rollover Crash Testing*,” International Crashworthiness Conference, 2010.

Paver JG, Caplinger J, Mattos G, Friedman D, “*Testing of the Prototype Low-Durometer Hybrid III Neck for Improved Biofidelity*,” SBC Paper #2010-19688, ASME Summer Bioengineering Conference, June 2010.

Paver J, Caplinger J, Friedman D, Mattos G, “*An Improved Dummy Neck Assembly for Dynamic Rollover Testing*,” SBC Paper #2010-19656, ASME Summer Bioengineering Conference, June 2010.

Paver J, Caplinger J, Friedman D, Mattos G, “*Testing of the Prototype Low-Durometer Hybrid III Neck for Improved Biofidelity*,” SBC Paper #2010-19688, ASME Summer Bioengineering Conference, June 2010.

Weiss K, Paver J, “*Forensic Examination of an Unwanted Seat Belt Release in a Rollover Collision with Occupant Ejection*,” American Association of Forensic Scientists, 2010.

International Scientific Review & Evaluation Committee (ISREC) Committee, “*Scientific Review & Evaluation of Jordan Rollover System (JRS) Impact Crash Test Device*,” 14 August 2009.

Friedman D, Paver J, Carlin F, “*Hybrid III Correlation with Human Injury Potential in Rollovers*,” ASME Summer Bioengineering Conference, June 2009.

Paver JG, Carlin F, Bish J, Caplinger J, “*Development of Rollover Injury Assessment Instrumentation and Criteria*,” 36th International Workshop on Human Subjects for Biomechanical Research, NHTSA, November 2008.

Friedman D, Paver JG, Caplinger J, Carlin F, Rohde D, *"Prediction of Human Neck Injury in Rollovers from Dynamic Tests using the Hybrid III Dummy,"* IMECE Paper #2008-68386, Proceedings of the 2008 International Mechanical Engineering Congress and Exposition, November 2008.

Paver JG, Friedman D, Carlin F, Bish J, Caplinger J, Rohde D, *"Rollover Crash Neck Injury Replication and Injury Potential Assessment,"* IRCOBI Conference Proceedings, September 2008.

Paver JG, Friedman D, Caplinger J, *"Rollover Roof Crush and Speed as Measures of Injury Potential vs. the Hybrid III Dummy,"* International Crashworthiness Conference, July 2008.

Paver JG, *"Identification of Airbag Design Features that Adversely Affect Injury Potential,"* AAAS, 2008.

Khadilkar AV, Der Avanessian H, Ward P, Laviano CW, Paver JG, Ward CC, *"Safety Performance Evaluation of Selected Child Safety Seats Under Angled Impacts in Car-To-Car Crash Tests,"* BED-Volume 50, Bioengineering Conference of the American Society of Mechanical Engineers, 2001.

Ward CC, Der Avanessian H, Ward P, Paver JG, *"Investigation of Restraint Function on Male and Female Occupants in Rollover Events,"* SAE Paper #01B-109, International Congress and Exposition, March 2001.

Paver JG, Khadilkar AV, and Ward CC, *"Use of Daily Activity Data to Assess Injury Potential in Low-Speed Motor Vehicle Crashes,"* Advances in Bioengineering, ASME International Mechanical Engineering Congress and Exposition, November 1998.

SAE Hybrid III Dummy Neck Round-Robin Task Group, *"Hybrid III Dummy Neck Round-Robin Testing,"* SAE Paper #971043, International Congress and Exposition, February 1997.

Grewal DS, Paver JG, Khatua TP, *"Simulation of BioSID Head-Neck Motions,"* SAE Paper #940909, Occupant Containment and Methods of Assessing Occupant Protection in the Crash Environment, SP-1041, March 1994.

Kliwer MA, Gray L, Paver JG, Richardson WD, Vogler JB, McElhaney JH, Myers, BS, *"Acute Spinal Ligament Disruption: MR Imaging with Anatomic Correlation,"* Journal of Magnetic Resonance Imaging 3(6):855-861, 1993.

Piziali RL, Ayres TJ, Paver JG, Fowler G, McCarthy RL, *"Investigation of the Net Safety Impact of an Occupant Protection System from All-Terrain Vehicles,"* SAE Paper #930208, International Congress and Exposition, March 1993.

Piziali RL, Paver JG, Merala R, Fries R, Ayers TJ, Fowler G, McCarthy RL, *"Evaluation of an Occupant Protection System for All-Terrain Vehicles,"* ASME #92-WA/SAF-9, Winter Annual Meeting of the American Society of Mechanical Engineers, November 1992.

Myers BS, McElhaney JH, Doherty BJ, Paver JG, Gray L, "*The Role of Torsion in Cervical Spine Trauma*," Spine 16(8):870-874, August 1991.

Paver JG, Khatua TP, Piziali RL, Whitestone J, Kaleps I, Taylor C, "*The Prediction of Hybrid III Manikin Head-Neck Kinematics and Dynamics*," SAE Paper #900540, SAE Transactions 99; Vehicle Crashworthiness and Occupant Protection in Frontal Collisions, SP-807, February 1990.

Myers BS, McElhaney JH, Doherty BJ, Paver JG, Nightingale RW, Ladd TP, Gray L, "*Responses of the Human Cervical Spine to Torsion*," SAE Paper #892437, SAE Transactions 98; Proceedings of the 33<sup>rd</sup> Stapp Car Crash Conference, October 1989.

McElhaney JH, Doherty BJ, Paver JG, Myers BS, Gray L, "*Flexion, Extension, and Lateral Bending Responses of the Cervical Spine*," Proceedings of the Conference on Neck injury in Advanced Military Aircraft Environments, AGARD, April 1989.

Gray L, Kliwer MA, Paver JG, McElhaney JH, "*MRI of Experimentally Induced Spinal Injury*," 74<sup>th</sup> Scientific Assembly and Annual Meeting of the Radiology Society of North America, 1988.

McElhaney JH, Paver JG, "*Industrial Helmet Design and Testing in the United States*," Proceedings of the Conference on Protective Equipment, Construction Safety Association of Ontario, Canada, October-November 1988.

McElhaney JH, Doherty BJ, Paver JG, Myers BS, "*Combined Bending and Axial Loading Responses of the Cervical Spine*," SAE Paper #881709, SAE Transactions 97; Proceedings of the 32nd Stapp Car Crash Conference, October 1988.

Paver JG, Fishburne B, "*The Prediction of Hybrid II Manikin Head-Neck Kinematics and Dynamics*," Proceedings of the 25th Annual SAFE Symposium, November 1987.

Paver JG, McElhaney JH, "*Research in Head Protection in the Industrial Environment*," Final Report, Industrial Safety Equipment Association, October 1987.

Paver JG, Doherty BJ, "*A Computer Simulation of the Hybrid II Manikin Head-Neck System*," SAFE Journal 17(4), Winter 1987; Proceedings of the 24th Annual SAFE Symposium, December 1986.

Paver JG, Doherty BJ, "*Mathematical Modeling of the Hybrid III Manikin Head-Neck Structure*," Proceedings of the 6th International Conference on Mathematical Modeling, August 1987.

Paver JG, McElhaney JH, "*The Deployable Crash Pad*," Final Report, General Motors/American Society of Engineering Education University Design Competition on Passive Restraints in Automobiles, April 1987.

Paver JG, McElhaney JH, "*Research in Head Protection*," Final Report, Industrial Safety Equipment Association, 1986.

Duclos T, Paver JG, McElhaney JH, Clippinger FW, “*Open and Closed Loop Models of a Prosthetic Sensory Feedback System*,” Proceedings of the International Conference on Systems, Man, and Cybernetics, IEEE, October 1986.

McElhaney JH, Roberts VL, Paver JG, Maxwell GM, “*Chapter 2: Impact Injury of the Head and Spine*,” Etiology of Trauma to the Cervical Spine, Ewing CL, Thomas DJ, Sances A, Larson SJ, editors, Charles C Thomas Publishers, Springfield, Illinois, 1983.

McElhaney JH, Paver JG, McCrackin HJ, Maxwell GM, “*Cervical Spine Compression Responses*,” SAE Paper #831615, SAE Transactions 92; Proceedings of the 27th Stapp Car Crash Conference, October 1983.

Paver JG, McElhaney JH, “*Selected Bibliography on Head and Neck Injury and Protection*,” Neuroelectric News 10(4)-11(1-3), July 1982-July 1983.