

## **JAMES V. BENEDICT, PHD, MD**

### **CURRICULUM VITAE**

#### **EDUCATION**

MD	University of Texas Health Science Center at San Antonio, San Antonio, Texas	1976
PhD	Mechanical Engineering Tulane University New Orleans, Louisiana	1969
MS	Mechanical Engineering Tulane University New Orleans, Louisiana	1966
BS	Mechanical Engineering with Honors Tulane University New Orleans, Louisiana	1963

#### **POST GRADUATE MEDICAL STUDIES**

Post Graduate Studies	Bexar County Hospital District OB-GYN, San Antonio, Texas	1977-1978
Internship	Bexar County Hospital District OB-GYN, San Antonio, Texas	1976-1977

#### **PROFESSIONAL EXPERIENCE**

Director and Principal Consultant Biodynamic Research Corporation San Antonio, Texas	1986-Present
Physician Highland Medical Center San Antonio, Texas	1979-1998

Physician 1978-1981  
Wilson County Professional Association  
Floresville, Texas

Engineer and Manager 1969-1973  
Technology, Inc.  
San Antonio, Texas

### **PROFESSIONAL REGISTRATIONS**

National Board of Medical Examiners License #175559 1977  
Texas State Board of Medical Examiners License #E6228 1976  
Louisiana State Board of Professional Engineers  
License #12323 1970  
Certificate #T884 1965

### **PROFESSIONAL AFFILIATIONS**

American Academy of Family Physicians  
American Medical Association  
Bexar County Medical Society  
Texas Medical Association  
Texas Academy of Family Physicians  
Society of Automotive Engineers  
Association for the Advancement of Automotive Medicine

### **COMMITTEES AND APPOINTMENTS**

University of Texas at San Antonio (UTSA)  
Advisory Council  
Department of Mechanical Engineering 2008-Present  
Association for the Advancement of Automotive  
Medicine (AAAM), International Injury Scaling Committee 2005-2008  
Association for the Advancement of Automotive  
Medicine (AAAM), Nominations & Awards Committee 2005-2009  
Association for the Advancement of Automotive  
Medicine (AAAM), Endowment Fund 1990-Present  
University of Texas at San Antonio (UTSA)  
Advisory Council

Department of Mechanical Engineering & Biomechanics	2004,2005,2006
Association for the Advancement of Automotive Medicine (AAAM), President	Oct. 2000-Dec. 2001
Association for the Advancement of Automotive Medicine (AAAM), President-Elect	Oct. 1999-Dec. 2000
Association for the Advancement of Automotive Medicine (AAAM), Representative National Conference on Medical Indications for Air Bag Disconnection, The George Washington University Medical Center, Washington, D.C.	July 16-18, 1997
Association for the Advancement of Automotive Medicine (AAAM), Representative The 17 <sup>th</sup> Meeting of the Motor Vehicle Research Safety Advisory Committee, NHTSA, Washington, D.C.	~ May 1995
Association for the Advancement of Automotive Medicine (AAAM), Board of Directors	1991-1993
Technical Resource Committee, National Operating Committee on Standards for Athletic Equipment, Kansas City, Missouri	1986-1990
Immediate Past Chief-of-Staff, Southeast Baptist Hospital	1985
Joint Conference Committee, Baptist Medical Center	1985
Medical Executive Board, Baptist Medical Center	1985
Utilization Review, Southeast Baptist Hospital	1985
Chief-of-Staff, Southeast Baptist Hospital	1984-1985
Internal Medicine Audit Policy Committee, Baptist Medical Center	1984
Joint Conference Committee, Baptist Medical Center	1984
Medical Executive Board, Baptist Medical Center	1984
Nominating Committee, Southeast Baptist Hospital	1984
Special Care Committee System, Southeast Baptist Hospital	1984
OB-GYN Audit Policy Committee, Baptist Medical Center	1983
Pharmacy Committee, Southeast Baptist Hospital	1983
Utilization Review Committee, Southeast Baptist Hospital	1983
Planning and Development Committee, Baptist Memorial Hospital System	1982
Chief of Family Practice, Southeast Baptist Hospital	1981-1982
Special Care Committee, Baptist Medical Center	1980-1982
Internal Medicine Audit Policy Committee, Baptist Medical Center	1979-1982
Acting School Physician, Poth Independent School District	1980-1981
OB-GYN Audit Policy Committee, Baptist Medical Center	1980-1981
Acting Director, Wilson County Health Department	1979-1981

Clinical Supervisor, Clinical Practice Program University of Texas School of Nursing at San Antonio, University of Texas Health Service Center at San Antonio	1979-1981
Primary Care Preceptor, Physician Assistant Program University of Texas Health Service Center at Dallas	1979-1981
Medical Director Family Planning Program, Community Council of South Central Texas	1978-1981

## **INDUSTRIAL MEDICINE EXPERIENCE**

Alamo Clay Products	Green Valley Nursery	Safety-Kleen
Alamo Lumber	Harris Systems Int.	Sandstone Materials
Barber Ford	Highway Department	Seward Construction
Chevron Resources	Holmes Foods	Sheriff Department
City of Floresville	Holt Company	South Texas Construction
Conoco Industries	Liberto's Specialty	Tandy Company
Dairy Rich	Midas Company	Tex-Hens
Decker Meat Packaging	Morris Lumber	Texas Rehabilitation
Dickey Clay	Nelson & Sons	Three T. Company
Dixilyn Field	Penrod Drilling	T Moy & Sons
Floresville Electric	Preston Dairy	Wiatrek Meat
Gann Peanut		Wiatrek Welding

## **HONORS AND AWARDS**

Fellow, American Academy of Family Physicians	2010
A. J. Mirkin Service Award, Association for the Advancement Of Automotive Medicine (AAAM)	2008
American Medical Association Physician Recognition Award	1992,1995,1998,2001,2004,2007
Fellow, Association for the Advancement of Automotive Medicine (AAAM)	1998
Physician of the Year – Four Seasons Nursing Home	1985
Southern Medical Association Grant for Head Injury Research	1975
The Society of the Sigma Xi	1970
Harold A. Levey Alumni Award for Excellence in Engineering	1969
Public Health Service Traineeship	1967-1969
National Science Foundation Fellowship	1966-1967
National Institutes of Health Assistanceship	1964-1965

NASA Fellowship	1963
Hamilton Watch Award for Interest in Humanities and Social Sciences	1963
James M. Robert Leadership Award	1963
Leon H. Scherch Memorial Award for Excellence in Engineering	1963
Louisiana Engineering Society Award for Highest Scholastic Average in Graduating Class	1963
American Society for Testing Materials Excellence Award	1962
Omicron Delta Kappa National Honorary Leadership Society	1962
Tau Beta Pi, National Engineering Honor Society	1961
Tulane University Activity Key Recipient for Outstanding Achievements in Extracurricular Activities	1961
Who's Who Among Students in American Colleges and Universities	1961

## **PUBLICATIONS**

Benedict, J.V. and Raddin, J.H.; "Injury Causation Analysis of 18 Feb 2001 Race Car Accident Involving the No. 3 Car." Official Accident Report, No. 3 Car. Vol 1. August 2001.

Scott, W.R.; Lloyd, W. C., Benedict, J.V., Meredith, R. "Ocular Injuries due to Projectile Impacts"; Presentation to Association for the Advancement of Automotive Medicine Annual Conference, Chicago, Illinois. October 1-4, 2000.

Labra, J.J., Benedict, J.V. "Computers, Mathematical Modeling and Flying Elephants", ABA Tort and Insurance Practice Committee News, Summer 1997.

McConnell, W.E.; Howard, R.P.; Van Poppel, J.; Krause, R.; Guzman, H.M.; Bomar, J.B.; Raddin, J.H.; Benedict, J.V.; and Hatsell, C.P.; "Human Head and Neck Kinematics After Low Velocity Rear-End Impacts –Understanding 'Whiplash'." Presentation by Dr. McConnell to Society of Automotive Engineers, Inc., 39th Annual Stapp Car Crash Conference Proceedings, Coronado, CA, November 1995.

Scott, M.W.; Labra, J.J.; Guzman, H.; Benedict, J.V.; Smith, H; Ziegler, J.; "Injury Analysis of Impacts Between a Cage-type Propeller Guard and a Submerged Head". J. SAFE, 24:12-28; 1994.

McConnell, W.E.; Benedict, J.V.; "Automobile Rollover Injury". Proceedings of the 26th International Symposium on Automotive Technology and Automation (ISATA), Dedicated Conference on Road and Vehicle Safety, Aachen, Germany; September 1993. Croydon, England, Automotive Automation Limited, 165-170, 1993.

Scott, M.W.; McConnell, W.E.; Guzman, H.M.; Howard, R.P.; Bomar, J.B.; Smith, H.L.; Benedict, J.V.; Raddin, J.H., Jr.; Hatsell, C.P.; "Comparison of Human and ATD Head Kinematics During Low-speed Rear-end Impacts"; Presentation to Society of Automotive Engineers, Inc., 1993 SAE International Congress & Exposition, Detroit, MI, SAE Paper #930094, March 1993.

McConnell, Whitman E.; Howard, Richard P.; Guzman, Herbert M.; Bomar, John B.; Raddin, James H., Jr.; Benedict, James V.; Smith, Harry L.; Hatsell, Charles P.; "Analysis of Human Test Subject Kinematic Responses to Low Velocity Rear End Impacts"; SAE Technical Paper #930889, March 1993.

Raddin, James H. Jr., M.D.; Scott, William R., Ph.D.; Bomar, John B. Jr., Ph.D.; Smith, Harry, Ph.D., M.D.; Benedict, James V., Ph.D., M.D.; McConnell, Whitman E., M.D.; Perret, Patricia K.; Guzman, Herbert M.; Adapting the ADAM Manikin Technology for Injury Probability Assessment, Final Report for Period July 1991 to February 1992, prepared for Armstrong Laboratory, Human Systems Division, Crew Systems Directorate, United States Air Force, Brooks AFB, Texas.

Howard, Richard P., M.D., M.S.; Benedict, James V., Ph.D., M.D.; Raddin, James H., Jr., M.D. S.M.; Smith, Harry L., Ph.D., M.D.; "Assessing Neck Extension-Flexion as a Basis for Temporomandibular Joint Dysfunction," Journal of Oral and Maxillofacial Surgery, 49:1210-1213, 1991.

Raddin, James H. Jr., M.D.; Ziegler, James, M.S.E.; Benedict, James V., Ph.D., M.D.; Smith, Harry, Ph.D., M.D.; Concept Feasibility Analysis for a Large Radius Track-Centrifuge, Final Report for Research Conducted under U.S.A.F. Small Business Innovation Research Contract #F1622-89-C-1025. Submitted for Publication as U.S.A.F. School of Aerospace Medicine Technical Report, February 1990, publication June 1990.

Raddin, James H. Jr., M.D.; Ziegler, James, M.S.E.; Benedict, James V., Ph.D., M.D.; Smith, Harry, Ph.D., M.D.; An Active Neck Protection System for Crewmembers of High Performance Aircraft, Final Report for Research Conducted under U.S.A.F. Small Business Innovation Research Contract #F41622-89-C-1024. Submitted for Publication as U.S.A.F. School of Aerospace Medicine Technical Report, February 1990; publication June 1990.

Benedict, J.V.; "Use of a Mathematical Model for the Evaluation of Head Injury Criteria". Symposium on Biodynamic Models and Their Application. AMRL-TR071-29 pp 123-139, 1974.

Miller, D.M.; Ward, B.; Benedict, J.V.; Nickel, J.A.; "Study of Physiological Tolerance to Centrifugation"; Final Report. Contract NAS 9-11314, 1971.

Benedict, J.V.; "Mathematical Model for Predicting Human Vertebral Fracture"; NASA Tech. Brief ARC-0691, 1970.

Benedict, J.V.; Lin, C.J.; "Analytical Investigation of the General Motors Severity Index"; ASME Paper No. 71-WA/BHF-6, 1970.

Miller, D.M.; Ward, B.; Benedict, J.V.; Nickel, J.A.; "Bedrest and Its Effects Upon Human Tolerance to Specific Accelerative Force"; Contract NAS 9-11314, 1970.

Lin, C.J.; Benedict, J.V.; Moffatt, C.A.; "Smoothing and Baseline Straightening of Exercise Electrocardiograms of Digital Filtering"; Proceedings of the Annual Conference on Engineering in Medicine and Biology, Vol. 12, p 47, 1970.

Benedict, J.V.; Harris, E.H.; Von Rosenbert, D.U.; "An Analytical Investigation of the Cavitation Hypothesis of Brain Damage". J. Basic Engineering-Transactions of the ASME, Vol. 92, Series D, No. 3, September 1970, PP. 597-603, 1970.

Moffatt, C.A.; Benedict, J.V.; "The Investigation of Vertebral Injury Sustained During Aircrew Ejection". Annual Report, Contract NAS 2-5062. Ames Research Center, 1970.

Moffatt, C.A.; Benedict, J.V.; "The Investigation of Vertebral Injury Sustained During Aircrew Ejection". Annual Report, Contract NAS 2-5062. Ames Research Center, 1970.

Benedict, J.V.; Lin, C.L.; Stevens, C.C.; "Study to Design a Univac Programming System for the Automated Analysis of Exercise Wectrocardiograms". Final Report, Contract N00600-69-C-1006. Naval Aerospace Medical Institute, 1970.

Benedict, J.V.; An Analysis of an Impact Loaded, Fluid Filled Thin Spherical Shell as a Mathematical Model for an Investigation of the Cavitation Theory of Brain Damage. Ph.D. Dissertation, Tulane University, 1969.

Benedict, J.V.; Walker, L.B. Jr.; Harris, E.H.; "Stress-Strain Characteristics and Tensile Strength of Unembalmed Human Tendon". J. Biomechanic, 1:53-63, 1968.

Benedict, J.V.; Harris, E.H.; Walker, L.B. Jr.; "Stress-Strain Relationship of Unembalmed Human Tendon". Proc. of the Annual Conference of Eng. in Med. and Biol., Vol. VIII, 1966.

Benedict, J.V.; Stress-Strain Relationship of Embalmed Human Tendon. Masters Thesis, Tulane University, 1966.

Walker, L.B. Jr.; Harris, E.H.; Bass, B.R.; Benedict, J.V.; "Tensile Strength and Stress-Strain Studies of Cadaveric Human Tendons". Eighth International Congress of Anatomists. Weisbaden, August 8-13, 1965.

Walker, L.B. Jr.; Harris, E.H.; Benedict, J.V.; "Stress-Strain Relationship in Human Cadaveric Plantaris Tendon; A Preliminary Study", Med. Electro, Bio. Engineer., 2:31-38, 1963.

Walker, L.B., Jr.; Harris, E.H.; Benedict, J.V.; "Stress-Strain Relationship in Human Cadaveric Tendon". Proc. 16th Annual Conference Engineer, Medical and Biological Vol. VI, 1963.

Benedict, J.V.; The Stress-Strain Relationship of Human Cadaveric Plantaris Tendon. Honors Thesis, Tulane University, 1963.

## **PRESENTATIONS AND INVITED LECTURES**

Forensic Biomechanics and Injury Causation Analysis, Michigan State University College of Law, October 26, 2011.

Automotive Safety – A History of Adaptation, Innovation and Invention, Injury Sciences Annual Conference, Austin, Texas, April 19, 2011.

Forensic Biomechanics – Principals and Applications, Michigan State University College of Law, October 11, 2010.

“Impact Biomechanics and Injury Causation Analysis”, Nissan USA, January 12, 2010.

“Biomechanics of Impact Trauma”, Michigan State University College of Law, September 30, 2009.

“Supplemental Restraints”, St. Luke’s Episcopal School, presentation conducted at the Research Test Center of Biodynamic Research Corporation, San Antonio, TX. December 4, 2008.

“Physics and Vehicle Safety”; St. Luke’s Episcopal School; May 15, 2008.

“Advanced Occupant Protection Systems – Generation X”; DRI Product Liability Conference, New Orleans, Louisiana; February 7-9, 2007.

Child Dummies and Injury Criteria, Where are We?, “Booster Seats for Children”; Conference Sponsored by Association for the Advancement of Automotive Medicine, Washington, D.C.; April 23-24, 2001.

"Frontal Air Bag Deployment and the Out of Position Child"; Association for the Advancement of Automotive Medicine Advanced Air Bag Technology in Frontal and Side Impacts, Southfield, Michigan; July 27-28, 2000.

"Pediatric Biomechanics"; Invited Rapporteur, Association for the Advancement of Automotive Medicine 42nd Annual Conference, Charlottesville, Virginia; October 4-7, 1998.

"The Effect of Air Bag Deployments on Restrained Occupant Belt Loads and Biomechanical Forces"; Invited Lecturer, American Bar Association Emerging Issues in Motor Vehicle Product Liability Litigation; Phoenix, Arizona; April 2-3, 1998.

"Mechanism of Low Back Injury and Reconstruction"; Invited Lecturer, 8<sup>th</sup> International Conference on Lumbar Fusion and Stabilization, Sponsored by The University of Texas Medical Branch at Galveston, San Antonio, Texas; September 30-October 4, 1997.

"Auditory and Visual System Injury Potential with Airbag Deployment"; Presentation to Society of Automotive Engineers Airbag Design and Performance TOPTEC, Costa Mesa, California; August 14-15, 1997.

"Low Impact/Soft Tissue Claims - Biomechanical Investigation"; Invited Lecturer, The 1997 Claims Conference Property Loss Research Bureau & Liability Insurance Research Bureau, Atlanta, Georgia; April 6-9, 1997.

"Injuries Associated with Airbag Deployment"; Invited Lecturer, American Bar Association Emerging Issues in Motor Vehicle Product Liability Litigation, Phoenix, Arizona; March 20-21, 1997.

"Low Velocity Impact Investigation"; Invited Lecturer, National Insurance Crime Bureau Advanced Special Investigations Academy, Tempe, Arizona; December 4-5, 1996.

"Early Assessment of Injury Potential from Low Velocity Impacts/Collisions"; Invited Lecturer, International Association of Special Investigation Units 1996 Annual Seminar, Tucson, Arizona; September 8-12, 1996.

"Low Velocity Impact Investigation"; Invited Lecturer, National Insurance Crime Bureau Western Regional Office, Glendora, California; August 8-9, 1996.

"Biomechanics and Occupant Kinematics in the Trucking and Motor Carrier Environment"; American Bar Association National Institute on Tort and Insurance Practice, Transportation Megaconference II, New Orleans, Louisiana; March 1994.

"Rollover Research on Injury Mechanisms"; Invited Lecturer, Vehicle Rollovers TOPTEC: An Update of the Current Issues; Society of Automotive Engineers, Dearborn, Michigan; August 1993.

"Traffic Injury: Are we Prepared for the Next Millennium?" Invited Lecturer, Association for the Advancement of Automotive Medicine, New Mexico State Highway and Transportation Department, Santa Fe, New Mexico; December 2-4, 1992.

"Injury Research"; Invited Lecturer, Vehicle Rollovers TOPTEC; Society of Automotive Engineers, Scottsdale, Arizona; September 20-23, 1992.

"An Introduction to Biomechanics, Occupant Kinematics and Crash Severity Assessment"; Invited Lecturer, Association for the Advancement of Automotive Medicine, TSA, McLean, Virginia; May 10, 1992.

"Biomechanics and Injury Causation in the Truck Environment"; Invited Lecturer, American Law Firm Association, Atlanta, Georgia; January 28-30, 1992.

"Biomechanics of Head and Spinal Trauma"; Faculty Member, 5th Annual Trauma Conference, Las Cruces, New Mexico; June 7-9, 1991.

"Principles of Biomechanics and Injury Causation"; Invited Lecturer, Nissan Motor Co./Tokyo Fire and Marine, Torrance, California.; April 1991.

"Biomechanics and Injury Causation"; Invited Lecturer, Royal Insurance Group, Charlotte, North Carolina; October 1990.

"Analysis of Soft Tissue Injuries of the Cervical Spine; Challenge of the Cervical Spine"; San Antonio, Texas; April 25-29, 1990.

"Cervical Spine in the Rollover Environment"; Invited Lecturer, Snell & Wilmer, Phoenix, Arizona; January 1990.

"The Biomechanics and Injury Causation in the Underwater Environment"; Boat Safety Advisory Council, Coer d'Alene, Idaho; 1989.

"Injury Causation Analysis"; State Farm Insurance, Seattle, Washington, and Bloomington, Illinois; 1989.

"Crash Performance Standards and the Biomechanics of Impact: What are the Relationships?", "Brain, Skull and Face", and "Pelvis and Extremities"; Invited Faculty. Association for the Advancement of Automotive Medicine, San Antonio, Texas; 1989.

"Rear Restraint Seat Belts"; General Motors Corporation, San Antonio, Texas; 1989.

"Injury Causation in the Automotive Environment"; Honda Motor Co., Ft. Lauderdale, Florida; 1989.

"Reducing Injuries Sustained in Automobile Crashes"; United Services Automobile Association, San Antonio, Texas; 1988.

"Biomechanics of Injury Causation"; United Services Automobile Association, San Antonio, Texas; 1988.

"Principles and Concepts of Restraint System Biomechanics"; Invited Lecturer, United Services Automobile Association, San Antonio, Texas; June, 1988.

"Biomechanics and Injury Evaluation of Restraint System Effectiveness"; Invited Lecturer, General Motors, Detroit, Michigan; December 1987.

"The Role of Biomechanics in the Determination of Injury Causation"; Invited Lecturer, American Bar Association, Annual Torts Seminar, San Antonio, Texas; February, 1987.

"Biomechanics of Impact Trauma"; Invited Lecturer, New Seabury Seminar Program, New Seabury on Cape Cod, Massachusetts; 1985.

"Biomechanics of Head and Spine Trauma — Part II"; Invited Lecturer, International Harvester Corporation, Chicago, Illinois; 1985.

"Biomechanics of Head and Spine Trauma — Part I"; Invited Lecturer, International Harvester Corporation, Chicago, Illinois; 1983.

"An Analytical Approach to the Problem of Contre Coup Head Injury"; Twenty-Seventh Annual Meeting, Southern Neurosurgical Society, Inc., San Antonio, Texas; 1975.

"The Physical Basis of Contre Coup and Investigative Study"; Tenth Annual Meeting, Society of University Neurosurgeons, San Antonio, Texas; 1974.

"The Biomechanics of Impact Trauma"; Bioengineering Seminar, University of Texas Medical School at San Antonio, Texas; 1972.

"An Analytical Investigation of the General Motors Severity Index"; American Society of Mechanical Engineers, Washington, D.C.; 1971.

"Engineering Approach to Injuries to the Spine"; Engineering Seminar, Trinity University, San Antonio, Texas; 1971.

"Mathematical Modeling Applied to Impact Trauma"; Bioengineering Seminar, Tulane University, New Orleans, Louisiana; 1970.

"Mathematical Models for the Evaluation of Head Injury Criteria"; Tulane University, New Orleans, Louisiana; 1970.

"Use of Mathematical Model for the Evaluation of Head Injury Criteria";  
Biodynamics Symposium, National Research Council National Science  
Foundation, Dayton, Ohio; 1970.

"Mathematical Modeling for Studying Head Injury"; Institute of Electrical  
and Electronic Engineers, Group on Engineering in Medicine and Biology,  
San Antonio, Texas; 1969.

"A Theoretical Investigation of the Cavitation Hypothesis of Closed Head  
Injury"; National Institute of Neurological Diseases and Strokes, National  
Institutes of Health, Bethesda, Maryland; 1969.

## **ACADEMIC DUTIES**

### **Adjunct Professor**

Department of Mechanical Engineering & Biomechanics  
University of Texas at San Antonio 2005 - 2006

### **Instructor, "Impact Dynamics of the Cervical Spine"**

Department of Mechanical Engineering & Biomechanics  
University of Texas at San Antonio Spring 2005

### **Adjunct Faculty Appointment, Department of Health Care Administration, Trinity University, San Antonio**

1978

### **Adjunct Associate Professor of Bioengineering, University of Texas Medical School at San Antonio**

1972