



CURRICULUM VITAE  
**JEFFREY B. WHEELER**

**EDUCATION**

- 1993 MS UNIVERSITY OF CALIFORNIA, LOS ANGELES  
Department of Physiological Science (Biomechanics)
- 1987 BS THE UNIVERSITY OF CONNECTICUT, STORRS  
School of Education (Sport Biomechanics)

**PROFESSIONAL EXPERIENCE**

- 2001 to Date VECTOR SCIENTIFIC, INC. – LOS ANGELES AND DENVER  
*Founder / President / Director of Biomechanics*
- 2004 to 2007 WAYNE STATE UNIVERSITY – DETROIT  
*Graduate Faculty / Adjunct Professor – Department of Biomedical Engineering*
- 2000 to 2001 KNOTT LABORATORY, INC. – LOS ANGELES AND DENVER  
*Vice President / Director of Biomechanics*
- 1991 - 2000 BIOMECHANICS RESEARCH & CONSULTING, INC. – LOS ANGELES AND DENVER  
*Founder / President / Senior Biomechanist*
- 1993 UCLA MEDICAL CENTER – UNIVERSITY OF CALIFORNIA, LOS ANGELES  
*Staff Research Associate – UCLA Department of Orthopaedic Surgery*  
UCLA Biomechanics Laboratory
- 1991, 1992 UNIVERSITY OF CALIFORNIA, LOS ANGELES  
*Research Assistant – UCLA Department of Kinesiology/Physiological Science*  
UCLA Biomechanics Laboratory  
United States Olympic Committee Sport Science Research Grant
- 1991, 1992 UNIVERSITY OF CALIFORNIA, LOS ANGELES  
*Teaching Assistant – UCLA Department of Kinesiology/Physiological Science*  
Course K122 – Biomechanical Bases of Human Movement  
Course K17A – Human Musculoskeletal Anatomy
- 1988 - 1991 BIOMAC (ACCIDENT RESEARCH & ANALYSIS) – LOS ANGELES  
*Biomechanics Research and Consulting*  
Injury Biomechanics and Accident Reconstruction
- 1987 UNIVERSITY OF CALIFORNIA, LOS ANGELES  
*Research Assistant – UCLA Department of Kinesiology*  
UCLA Biomechanics Laboratory

## **PUBLICATIONS**

Raymond DE, Wheeler JB, Bir CA. Utilizing Physical Evidence to Elucidate Seat Belt Usage in Automotive Collisions Through Biomechanical Simulation, *Proceedings of the 59th Annual Meeting American Academy of Forensic Sciences*, San Antonio, TX, 2007.

Raymond DE, Bir CA, Begeman PC, Chien HC, Wheeler JB. Forensic Determination of Seat Belt Usage in Automotive Collisions: Development of a Diagnostic Tool, *SAE 2006 World Congress*, Detroit, MI, *SAE Technical Paper Series*, 2006-01-1128, Warrendale, PA, 2006.

Raymond DE, Landerville JB, Wheeler JB, Dainty DA. A Parametric MADYMO Analysis for Determining Seat Belt Usage in a Frontal Collision. *Proceedings of the International Society of Biomechanics XX<sup>th</sup> Congress and the American Society of Biomechanics 29<sup>th</sup> Meeting*, Cleveland, Ohio, August, 2005.

Raymond DE, Fatzinger EC, Connors TJ, Wheeler JB. Occupant Kinematic Analysis of an Unbelted Minivan Passenger: A Free Body Approach. *Proceedings of the International Society of Biomechanics XX<sup>th</sup> Congress and the American Society of Biomechanics 29<sup>th</sup> Meeting*, Cleveland, Ohio, August, 2005.

Raymond DE, Kelley CM, Wheeler JB. Forensic Investigation of Lumbar Disc Injury in an Industrial Setting. *Proceedings of the XIX<sup>th</sup> International Congress on Biomechanics*, Dunedin, New Zealand, July 6-12, 2003.

Khurana V, Wheeler JB. Lateral Tibial Plateau Fracture from a Stair Descent Misstep. *Proceedings of the XIX<sup>th</sup> International Congress on Biomechanics*, Dunedin, New Zealand, July 6-12, 2003.

Khurana V, Wheeler JB. Unique Pedestrian Impact Dynamics and Trajectory. *Proceedings of the XIX<sup>th</sup> International Congress on Biomechanics*, Dunedin, New Zealand, July 6-12, 2003.

Brown DG, Kelley PB, Kluge WJ, Wheeler JB. Injury Mitigation Produced by Protective Padding on Ski Terrain. *Proceedings of the XIX<sup>th</sup> International Congress on Biomechanics*, Dunedin, New Zealand, July 6-12, 2003.

Brown DG, Wheeler JB. Determination of Snowboarder Versus Snowboarder Impact Configuration Using Injury Biomechanics. *Proceedings of the XIX<sup>th</sup> International Congress on Biomechanics*, Dunedin, New Zealand, July 6-12, 2003.

Wheeler JB, Dainty DA, Brown DG. Cervical Disc Prolapse in Rear-End Automobile Collisions: Injury Mechanism Unique to Occupant and Head Restraint Geometry. *Proceedings of the XVIII<sup>th</sup> International Congress on Biomechanics*, Zürich, Switzerland, July 8-13, 2001.

Wheeler JB, Brown DG. First Rib Fracture due to Cervical Hyperextension: A Clue to Solving a Colorado Ski Fatality. *Proceedings of the XVIII<sup>th</sup> International Congress on Biomechanics*, Zürich, Switzerland, July 8-13, 2001.

Wheeler JB. An Investigation of Bicycle Seat Pressure and Pudendal Nerve Entrapment Mechanism During Recumbant Stationary Cycling. *Proceedings of the XVIII<sup>th</sup> International Congress on Biomechanics*, Zürich, Switzerland, July 8-13, 2001.

Wheeler JB, Salem GJ. Nail-gun Discharge Distance, Nail Penetration, and Patella Fracture Severity. *Proceedings of the XVIII<sup>th</sup> International Congress on Biomechanics*, Zürich, Switzerland, July 8-13, 2001.

Wheeler JB. Research and Applied Science in Forensic Biomechanics. *Proceedings of the XVIII<sup>th</sup> International Congress on Biomechanics*, Zürich, Switzerland, July 8-13, 2001.

Brown DG, Landerville JB, Wheeler JB. PCL, ACL, and MCL Rupture in Rear-seat Occupants in Offset/Frontal Automobile Collisions. *Proceedings of the XVIIIth International Congress on Biomechanics*, Zürich, Switzerland, July 8-13, 2001.

Siegmund GP, Wheeler JB, Catania JJ, Brault JR. A Linked Data Set of Clinical and Kinematic Responses to Whiplash. In: Frontiers in Whiplash Trauma: Clinical and Biomechanical, Eds: Yoganandan N, Pintar FA. IOS Press, Amsterdam, 321-347, 2000.

Brault JR, Siegmund GP, Wheeler JB. Cervical Muscle Response During Whiplash: Evidence of a Lengthening Muscle Contraction. *Clinical Biomechanics*, 15(6):426-435, 2000.

Siegmund GP, Brault JR, Wheeler JB. The Relationship Between Clinical and Kinematic Responses from Human Subject Testing in Rear-End Automobile Collisions. *Accident Analysis and Prevention*, 32(2):207-217, 2000.

Brault JR, Siegmund GP, Wheeler JB. Muscle Response and Whiplash Injury Biomechanics. *Proceedings of the XVIIth International Congress on Biomechanics*, Finalist for the International Society of Biomechanics Clinical Biomechanics Award, Calgary, Alberta, Canada, August 8-13, 1999.

Siegmund GP, Heinrichs BE, Wheeler JB. The Influence of Head Restraint and Occupant Factors on Peak Head/Neck Kinematics in Low-speed Rear-end Collisions. *Accident Analysis and Prevention*, 31(4):393-407, 1999.

Siegmund GP, Brault JR, Wheeler JB. The Relationship Between Clinical and Kinematic Responses from Human Subject Testing in Rear-End Automobile Collisions. *Compendium of Papers, Traffic Safety and Auto Engineering Stream, World Congress on Whiplash-Associated Disorders*, pp.182-207, Vancouver, British Columbia, Canada, February 7-11, 1999.

Brault JR, Siegmund GP, Wheeler JB. Whiplash Injury Biomechanics: Cervical Electromyographic Response and Influence on Whiplash Dynamics. *Proceedings of the International Symposium Whiplash '98*, p.25, Tempe, Arizona, November 5-6, 1998.

Siegmund GP, Wheeler JB, Brault JR. Volume Changes in the Human Cervical Spinal Canal Between the Neutral and Retracted Head Positions. *Proceedings of the International Symposium Whiplash '98*, p.41, Tempe, Arizona, November 5-6, 1998.

Wheeler JB, Smith TA, Siegmund GP, Brault JR, King DJ. Validation of the Neck Injury Criterion (NIC) Using Kinematic and Clinical Results from Human Subjects in Rear-end Collisions. *Proceedings of IRCOBI'98, The International Conference on the Biomechanics of Impact*, pp.335-348, Göteborg, Sweden, September 16-18, 1998.

Brault JR, Smith TA, Wheeler JB, Siegmund GP. Cervical Muscle Response to Rear-end Automobile Collisions: Implications for Injury. *Proceedings of the North American Congress on Biomechanics*, pp.347-348, Waterloo, Ontario, Canada, August 14-18, 1998.

Brault JR, Wheeler JB, Siegmund GP, Brault EJ. Clinical Response of Human Subjects to Rear-end Automobile Collisions. *Archives of Physical Medicine and Rehabilitation*, 79:72-80, January 1998.

Siegmund GP, King DJ, Lawrence JM, Wheeler JB, Brault JR, Smith TA. Head/Neck Kinematic Response of Human Subjects in Low-speed Rear-end Collisions. SAE Technical Paper No. 973341, Society of Automotive Engineers, *Proceedings of the 41<sup>st</sup> Stapp Car Crash Conference*, pp.357-385, Lake Buena Vista, Florida, November 13-14, 1997.

Wheeler JB, Gregor RJ, Broker JP. The Effect of Clipless Float Design on Shoe/Pedal Interface Kinetics: Implications for Overuse Knee Injuries During Cycling. *Journal of Applied Biomechanics*, 11(2):119-141, 1995.

Gregor RJ, Wheeler JB. Biomechanical Factors Associated with Shoe/Pedal Interfaces: Implications for Injury. *Sports Medicine*, 17(2):117-131, 1994.

Wheeler JB, Gregor RJ, Broker JP, Mandelbaum BR. Cycling Knee Pain and Shoe/Pedal Interface Kinetics. *Proceedings of the XIVth International Congress on Biomechanics*, Paris, France, pp.1458-1459, 1993.

Gregor RJ, Wheeler JB, Broker JP, Ryan MM. The Effect of Shoe/Pedal Interface and Load on Pedalling Kinetics in Cycling. *Proceedings of the XIVth International Congress on Biomechanics*, Paris, France, pp.508-509, 1993.

Wheeler JB, Gregor RJ, Broker JP. A Dual Piezoelectric Bicycle Pedal with Multiple Shoe-Pedal Interface Compatibility. *International Journal of Sport Biomechanics*, 8(3):251-258, 1992.

Wheeler JB, Broker JP, Gregor RJ. A Comparison of Torsional Moments Across Different Shoe/Pedal Interfaces in Cycling. *Medicine & Science In Sports & Exercise*, 24(5):S186, 1992.

Hight PV, Wheeler JB, Reust TJ, Birch N. The Effects of Right Side Water Drag on Vehicle Dynamics and Accident Causation. SAE Technical Paper No. 900105, In: Accident Reconstruction: Human, Vehicle and Environmental Factors, pp.95-106, 1990.

Marcosky J, Wheeler JB, Hight PV. The Development of Seat Belts and an Evaluation of the Efficacy of Some Current Designs. *Journal of the National Academy of Forensic Engineers*, V1(2):21-46, 1989.

Hight PV, Wheeler JB, Reust TJ, Birch N. Asymmetric Water Drag, The Latent Cause of Some Accidents. *Proceedings of the Canadian Multidisciplinary Road Safety Conference VI*, Fredericton, New Brunswick, 1989.

#### **UNPUBLISHED RESEARCH PAPERS**

Wheeler JB. Applied  $M_z$  Moment Patterns at the Shoe/Pedal Interface: A Biomechanical Analysis of Clipless Pedals, Float Features, and Their Implications for Overuse Knee Injury During Cycling. Unpublished Masters Thesis, Department of Physiological Science, University of California, Los Angeles, June 1993.

Gregor RJ and Wheeler JB. Knee Pain: A Biomechanical Analysis in Elite Cyclists. Final Report to the United States Olympic Committee Sports Medicine Science Committee, United States Olympic Training Center, Colorado Springs, Colorado, November 1992.

#### **ORAL PRESENTATIONS**

Catena RD, Jones KO, Wheeler JB. Concussion Awareness in Ice Hockey - Arvada Hockey Association Coaching Clinic, February 2010.

Wheeler JB. Guest Lecture - Bioengineering Seminar Series - Colorado School of Mines, Golden, Colorado, September 2005.

Wheeler JB. Roundtable Discussion: Forensic Biomechanics. XIXth International Congress on Biomechanics, Dunedin, New Zealand, July 2003.

Wheeler JB. Research and Applied Science in Forensic Biomechanics. XVIIIth International Congress on Biomechanics, Zürich, Switzerland, July 2001.

Wheeler JB. Cervical Disc Prolapse in Rear-End Automobile Collisions: Injury Mechanism Unique to Occupant and Head Restraint Geometry. XVIIIth International Congress on Biomechanics, Zürich, Switzerland, July 2001.

Wheeler JB. Computer Aided Simulation, Visualization, and Animation: Current Technology and Application in Biocommunications. Plenary Lecture – Association of Biomedical Communication Directors, Biocommunications Association, Health Sciences Communications Association Joint Annual Meeting, Dallas, Texas, June 2001.

Gardner CG, Wheeler JB. Child Occupant Safety in Automobiles. ABC Child Development and Community Services, Commerce, California, March 1999.

Wheeler JB. Validation of the Neck Injury Criterion (NIC) Using Kinematic and Clinical Results from Human Subjects in Rear-end Collisions. IRCOBI International Conference on the Biomechanics of Impact, Göteborg, Sweden, September 1998.

Wheeler JB. Biomechanics of Low-speed Rear-end Automobile Impacts: Current Knowledge and Review of Recent Human Subject Research. 1998 Combined Conference SOAR/WATAI/TAARS, Colorado Springs, Colorado, August 1998.

Wheeler JB. Human Subject Protection in Low-speed Rear-end Automobile Testing. Twenty-Fourth International Workshop on Human Subjects for Biomechanical Research, Albuquerque, New Mexico, November 1996.

Wheeler JB. Guest Lecture – UCLA Department of Physiological Science, Limb Dynamics – PhySci 151, University of California, Los Angeles, May 1996.

Wheeler JB. Biomechanics of Low-speed Rear-end Collisions. National Institute of Forensic Studies Biomechanics of Injury From Traffic Collisions, Anaheim, California, May 1996.

Wheeler JB. Biomechanics of Low-speed Rear-end Collisions. Texas A&M University Texas Engineering Extension Service, Downey, California, September 1995.

Wheeler JB. Biomechanics of Low-speed Rear-end Collisions. Southwestern Association of Technical Accident Investigators, Phoenix, Arizona, July 1995.

Wheeler JB. A Comparison of Torsional Moments Across Different Shoe/Pedal Interfaces in Cycling. American College of Sports Medicine Annual Meeting, Dallas, Texas, May 1992.

Wheeler JB, Broker JP. Guest Lecture – UCLA Department of Kinesiology, Biomechanical Bases of Human Movement – K122, University of California, Los Angeles, March 1992.

Broker JP, Wheeler JB. Forensic Issues in Biomechanics. American Association of Legal Nurse Consultants, Los Angeles Chapter, Manhattan Beach, California, October 1991.

Reust TJ, Wheeler JB. Anti-lock Brake Systems (ABS): Results of Recent Testing. Society of Forensic Engineers and Scientists, Las Vegas, Nevada, April 1989.

#### **GRANT FUNDED RESEARCH PROJECTS**

1996 TECHNOLOGY BC INVESTMENTS IN RESEARCH AND DEVELOPMENT  
SCIENCE COUNCIL OF BRITISH COLUMBIA, CANADA  
*Identification of Injury Mechanisms in Low-Speed Rear-End Automobile Impacts*

1995 CYCLING PROJECT '96 – UNITED STATES CYCLING FEDERATION  
UNITED STATES OLYMPIC COMMITTEE SPORT SCIENCE & TECHNOLOGY COMMITTEE  
*A Winning Tradition*

## PROFESSIONAL ACTIVITIES

- 2010 Journal of Forensic Biomechanics  
Board of Associate Editors (2010 - 2013)
- American College of Sports Medicine (ACSM)  
1994 American College of Sports Medicine Annual Meeting – Indianapolis, Indiana  
1992 American College of Sports Medicine Annual Meeting – Dallas, Texas
- American Society of Biomechanics (ASB)  
1992 The Second North American Congress on Biomechanics:  
The Sixteenth Annual American Society of Biomechanics and  
The Seventh Biennial Canadian Society of Biomechanics - Chicago, Illinois
- ASTM International  
2008 ASTM Committee F08 on Sports Equipment and Facilities:  
*Fifth International Symposium on Safety in Ice Hockey* – Denver, Colorado
- Association for the Advancement of Automotive Medicine (AAAM)  
1997 41<sup>st</sup> Annual Proceedings – Lake Buena Vista, Florida  
1989 33<sup>rd</sup> Annual Proceedings – Baltimore, Maryland  
1988 32<sup>nd</sup> Annual Proceedings – Seattle, Washington
- International Research Council on the Biomechanics of Impact (IRCOBI)  
1998 International IRCOBI Conference on the Biomechanics of Impact – Göteborg, Sweden  
1998 Neck Injury Criterion (NIC) measurement techniques and result interpretation – Göteborg, Sweden
- International Society of Biomechanics (ISB)  
2005 **The XXth International Congress on Biomechanics and 29<sup>th</sup> Meeting of the American Society of Biomechanics - Cleveland, Ohio (Reviewer, Chairperson - Injury Biomechanics Session)**  
2003 The XIXth International Congress on Biomechanics – Dunedin, New Zealand  
(Reviewer, Chairperson – Forensic Biomechanics Session)  
2001 The XVIIIth International Congress on Biomechanics – Zürich, Switzerland  
1993 The XIVth International Congress on Biomechanics – Paris, France  
1989 The XIIth International Congress on Biomechanics – Los Angeles, California
- Society of Automotive Engineers (SAE)  
1998 International Symposium Whiplash '98 – Tempe, Arizona  
1997 41<sup>st</sup> Stapp Car Crash Conference – Lake Buena Vista, Florida  
1997 2<sup>nd</sup> Child Occupant Protection Meeting – Lake Buena Vista, Florida  
1995 39<sup>th</sup> Stapp Car Crash Conference – San Diego, California  
1991 35<sup>th</sup> Stapp Car Crash Conference – San Diego, California  
1989 33<sup>rd</sup> Stapp Car Crash Conference – Washington, DC  
1988 32<sup>nd</sup> Stapp Car Crash Conference – Atlanta, Georgia  
1988 SAE Accident Investigation Practices Committee, Anti-Lock Brake System Workshop,  
California Highway Patrol Academy – Sacramento, California
- Southwestern Association of Technical Accident Investigators (SATAI)  
1995 Staged Vehicle Crash Test: Auto vs. Auto – Phoenix, Arizona  
1990 Staged Vehicle Crash Tests: Auto vs. Auto; Motorcycle vs. Auto – Phoenix, Arizona  
1989 Staged Vehicle Crash Test: Solo Auto Rollover – Phoenix, Arizona  
1995 Passenger Car Staged Crash Tests – Texas Engineering Extension Service (TEEX)

Texas A&M University, College Station, Texas  
*Car vs. Car Low-Speed; High-Speed Frontal Crash Air Bag Evaluation*

- 1994 Low-Speed Passenger Car Crash Tests – MacInnis Engineering Associates (MEA)  
Vancouver, British Columbia  
*Car vs. Barrier; Car vs. Car; Human Volunteer Tests*
- 1993 Tour de France – Team Carrera/Tassoni  
*Observer and Guest of Team Physician Giovanni Grazzi, M.D.*
- 1992 Scientific Aspects of Cycling – Seminar and Clinic – UCLA Biomechanics Laboratory  
*Clinic Organizer and Supervisor*
- 1990 United States Olympic Training Center – Colorado Springs, Colorado  
*US Cycling Junior National Team Camp, Technical Support*
- 1989 First World Congress of Biomechanics  
University of California, San Diego
- 1990 National Aeronautics and Space Administration (NASA)  
Ames Research Center, Moffett Field, California  
*The Influence of Gravity and Activity on Muscle and Bone*
- 1987 New England Professional Tennis Association Science Committee  
Storrs, Connecticut

#### **SEMINARS AND SHORT COURSES**

- 2005 / April Society of Automotive Engineers – Professional Development Program  
*Occupant and Vehicle Kinematics in Rollovers Seminar – Detroit, MI*
- 2002 / April Society of Automotive Engineers – Professional Development Program  
*Passenger Vehicle Rollover; TOPTEC: Causes, Prevention and Injury Prevalence – Scottsdale, AZ*
- 1999 / Dec. Society of Automotive Engineers – Professional Development Program  
*Accident Reconstruction: State-of-the-Art TOPTEC – Costa Mesa, California*
- 1998 / Sept. International Research Council on the Biomechanics of Impact and the Chalmers  
University of Technology, Crash Safety Division, Department of Machine and Vehicle Design  
*IRCOBI Course on Whiplash Associated Disorders – Göteborg, Sweden*
- 1995 / Aug. Society of Automotive Engineers – Professional Development Division  
*Automotive Seat Design for Safety TOPTEC – Marina Del Rey, California*
- 1995 Inter-Industry Conference on Auto Collision Repair  
*I-CAR Collision Repair Course – Carson, California*
- 1992 / Sept. Society of Automotive Engineers – Professional Development Division  
*Vehicle Rollovers TOPTEC – Scottsdale, Arizona*
- 1992 / Aug. The Second North American Congress on Biomechanics  
*Biomechanics and Physiology of Lifting – Chicago, Illinois*

- 1991 / Nov. University of California, San Diego, School of Medicine  
*Accidental Injury: Biomechanics & Prevention* – La Jolla, California
- 1990 / April Southwestern Association of Technical Accident Investigators (SATAI):  
*Derivation of Basic Collision Formulas*  
*Occupant Kinematics* – Phoenix, Arizona
- 1989 / Nov. *Forensic Pathology of Injury Mechanisms*  
*The Technical Aspects of Accident Scene Photography* – Tucson, Arizona
- 1989 / July *Airbags; Motorcycle Dynamics* – Phoenix, Arizona
- 1989 / Oct. Association for the Advancement of Automotive Medicine (AAAM) and the Volvo Car Corporation  
*Head Injury Mechanism Symposium* – Washington DC
- 1989 / Aug. Medi-Legal Institute  
*The Biomechanics of Injury in Motor Vehicle Accidents* – San Diego, California
- 1989 / July Institute of Police Technology and Management, University of North Florida  
*Investigation of Seat Belt / Child Restraint Injuries* – Tempe, Arizona
- 1989 / Feb. Association for the Advancement of Automotive Medicine in cooperation with International Research Council on the Biomechanics of Impact  
*Crash Performance Standards and the Biomechanics of Impact: What are the Relationships?* – San Antonio, Texas
- 1989 / Jan. Engineering Dynamics Corporation  
*Computer Aided Accident Reconstruction* – Northridge, California
- 1988 / Oct. National Academy of Forensic Engineers  
*Accident Reconstruction* – Culver City, California

#### **PROFESSIONAL MEMBERSHIPS**

American Society of Biomechanics (ASB)  
Association for the Advancement of Automotive Medicine (AAAM)  
International Society of Biomechanics (ISB)  
Society of Accident Reconstructionists (SOAR)  
Society of Automotive Engineers (SAE)  
Southwestern Association of Technical Accident Investigators (SATAI)  
International Society for Skiing Safety (ISSS)

#### **AWARDS**

Co-author of Finalist for International Society of Biomechanics Young Investigator Poster Award, 2003  
“Forensic Investigation of Lumbar Disc Injury in an Industrial Setting”

Co-author of Finalist for International Society of Biomechanics Young Investigator Poster Award, 2003  
“Determination of Snowboarder Versus Snowboarder Impact Configuration Using Injury Biomechanics”

Co-author of Finalist for International Society of Biomechanics Clinical Biomechanics Award, 1999  
“Muscle Response and Whiplash Injury Biomechanics”