

## **Chantal S. Parenteau, Ph.D.**

Dr. Parenteau has more than 30 years-experience in automotive safety, providing valuable information to the crash safety community. While working in the automotive industry in the US and Europe, in academia, and as a consultant, she has actively conducted a wide breadth of biomechanical research projects resulting in more than 130 technical peer-reviewed publications, as well as numerous patents and patent-related publications.

### **Professional Specialization**

Biomechanics, occupant kinematics, human tolerance, injury mitigation, analysis of traumatic injury associated with crashes and sport, research evaluating occupant responses and injury in front, side, rear and rollover using crash test dummies, cadavers, and modeling, field crash data analysis of FARS and NASS-CDS/CISS data.

### **Academic Background**

Ph.D., Chalmers University of Technology, Sweden, 1996  
M.Sc., University of Pennsylvania, 1992  
B.Sc., University of Pennsylvania, Magna Cum Laude, 1992

### **Professional Background**

Technical Leader in Biomechanics and Field Data Analysis  
Design Research Engineering, Novi, Michigan, 2022–Present  
Manager  
Exponent, Farmington Hills, Michigan, 2019-2022  
Research Assistant Professor in the Department of Surgery  
University of Michigan, Ann Arbor, Michigan  
Technical Leader in Biomechanics and Field Data Analysis  
ProBiomechanics, Bloomfield Hills, Michigan 2005-2018  
Technical Leader  
Delphi, Troy, Michigan 2001-2005  
Senior Engineer  
Delphi/General Motors, Troy, Michigan 1998-2000  
Engineer  
Exponent, Phoenix, Arizona 1997

### **Awards**

SAE Rodica Baranescu Award for Technical & Leadership Excellence, Society of Automotive Engineers, 2022.  
SAE/InterRegs Standards and Regulations Award, Society of Automotive Engineers, 2003  
David Foust Memorial Fund administered by AAAM, 1994.

### **Academic Appointments**

Interviewer, University of Pennsylvania, 2013-present  
Research Assistant Professor of Surgery, University of Michigan, 2012-2014  
Interviewer, University of Pennsylvania, 2013-present  
BioEngineering Instructor, Wayne State University, 2006-2011  
Mentor, UROP program, University of Michigan, 2012-2013  
Instructor, Occupant and Vehicle Kinematics in Rollovers, SAE Seminar, 2004-2009  
Member of Kettering University's Mechanical Engineering Advisory Board, 2000-2005  
SAE World Congress – Biomechanics Session organizer, Chairperson, 2001-2005  
Invited guest lecturer at University of Montreal, 2001-2002  
SAE World Congress: Rollover/Rear/Side Impacts Session Organizer, 2001  
Co-organizer for the Society of Automotive Engineers Lower Extremity TOPTEC, 2001



### Patents

Airbag For Pedestrian Protection - Windshield Frame, PT Number 6467563, 2002  
Head Support For Smaller Rear Occupants With Optimal Torso Belt Routing, PT Number 6547333, 2003  
Lower Extremity Inflatable System (Lexis), PT Number 6578867, 2003  
Break-Away Knee Bolster, PT Number 7331606 02/2008

### Defensive Publication

Dynamic Shoulder Belt Positioner And Static Presenter, DP Number 443105, 2001  
Smart Belt, DP Number 444071, 2001  
Lower Limb Airbag, DP Number 448048, 2001  
Foot Pedal Airbag, DP Number 448046, 2001  
Safety Net For Occupant Protection In A Vehicle Rollover Event, DP Number 457102, 2002  
Adjustable Toeplate With Pressure Sensitive Pedals, DP Number 465003, 2003  
Power Adjustable Pedals With Moving Foot Support, DP Number 457102, 2003

### Books

1. Viano DC, Parenteau CS. Editors. Rollover Crashes: Vehicles, Crashes and Injuries. SAE Book PT-101, Society of Automotive Engineers, 2004.
2. Kent R, Parenteau C. Bio-Mechanics: SP-1872, Society of Automotive Engineers, 2004.

### Technical Publications

1. Young A., Axel L, Dougherty L, Bogen D, Parenteau C. Validation of Tagging with MR Imaging to Estimate Material Deformation. Radiology, Vol 188, 101-108, 1993.
2. Parenteau C, Viano D. A New Method to Determine the Biomechanical Properties of Human and Dummy Joints. 1995 IRCOBI Conference, pp. 183-198, 1995.
3. Parenteau C. Foot-Ankle Injury: Epidemiology and Method to Investigate Joint Biomechanics. Licentiate thesis, Chalmers University of Technology, 1995.
4. Parenteau C, Viano D, Lövsund P. Foot-Ankle Injury Epidemiological and Biomechanical Studies. International Conference on Pelvic and Lower Extremity Injuries, National Highway Traffic Safety Administration, Department of Transportation, pp. 191-200, December 4-6, 1995.
5. Petit P, Portier L, Foret-Bruno J-Y, Trosseilles X, Parenteau C. Influence of Muscle Tension on the Biomechanical Foot-Ankle Joints Responses and Updated Accidentological Data, 1996 ASI International Conference of Active and Passive Safety, Capri, Italy, 1996.
6. Parenteau C, Viano D, Petit P. Reanalysis of Wayne State University Foot-Ankle Data. Chalmers University of Technology Department of Injury Prevention Report R-034, 1996.
7. Parenteau C, Viano D. Analysis of Foot-Ankle Injury, 1996 ASI International Conference of Active and Passive Safety, Capri, Italy, 1996.
8. Parenteau C. Foot-Ankle Joints Responses: Injury Epidemiology, Biomechanical Tests and Mathematical Modeling. Doctoral thesis, Chalmers University of Technology, 1996.
9. Petit P, Potier L, Foret-Bruno J-Y, Trosseille X, Parenteau C, Coltat J-C, Tarriere C, Lassau J-P. Quasi-static Characterisation of the Human Foot-Ankle Joints in Simulated Tensed State and Updated Accidentology Data., 1996 International IRCOBI Conference, 1996.
10. Parenteau C, Viano D. Mathematical Models of the Human and Dummy Foot-Ankles, International Journal of Crashworthiness, 1(4):381-39, 1996.
11. Parenteau C, Viano D, Lövsund P, Tingvall C. Foot-Ankle Injuries: Influence of Impact Location, Seating Position and Occupant Age, Accident Analysis and Prevention, 28(5):607-617, 1996.
12. Parenteau C, Viano D. Contribution of the Ankle Joint to the Foot-Ankle Motion. In Ph.D. Thesis, Chalmers University of Technology, 1996.
13. Parenteau C, Viano D, A New Method to Determine the Biomechanical Properties of Human and Dummy Joints, PT 56, Society of Automotive Engineers Book on Biomechanics of Impact Injury and Tolerance of the Extremities, SAE, 1996.



14. Moffatt E, Cooper E, Croteau J, Parenteau C, Togli A, Head Excursion of Seat Belted Cadaver, Volunteers and Hybrid III ATD in a Dynamic Rollover Fixture. 41th Stapp Conference, SAE 973347, pp. 509-525, Society of Automotive Engineers, 1997.
15. Parenteau C, Viano D, Petit P. Biomechanical Properties of Ankle-Subtalar Joints in Quasi-static Loading to Failure. *Journal of Biomechanical Engineering*, 120:105-111, 1998.
16. Lau E, Ray R, Parenteau C. Characteristics of Children in Rollover Accidents. 43rd Annual Meeting of the AAAM, Barcelona, Spain, 1999.
17. Shen W, Parenteau C, Roychoudhury R, Robbins J. Seated Weight Distribution of Adults and Children in Normal and Non-Normal Positions. 43rd AAAM, Barcelona, Spain, pp. 383-398, 1999.
18. Parenteau C, Shah M, Tieman C. Common Rollover Characteristics In US Rollover Crashes. *International Journal of Traffic Medicine*, 27 (4): 97-106, 1999.
19. Parenteau C, Shah M, Desai T, Nilson G, Frampton R. US And UK Belted Driver Injuries With and Without Airbag Deployments - A Field Data Analysis, SAE 1999-01-0673, Society of Automotive Engineers, 1999.
20. Parenteau CS, Viano DC. Center of rotation and ligament properties of the ankle-subtalar joints. *J. Traffic Med.* 28(1-2): 35-44, 2000.
21. Parenteau C, Shen W, Shah M. The Effectiveness of Adjustable Pedal Usage. 1999 IRCOBI Conference, Poster Session, pp. 527-528, 2000.
22. Parenteau C, Shen W, Shah M. The Effectiveness of Adjustable Pedal Usage. SAE 2000-01-0172, Society of Automotive Engineers, 2000.
23. Parenteau C, Shah M. Driver Injuries in US Single-Event Rollovers, SAE 2000-01-0633, Society of Automotive Engineers, 2000.
24. Parenteau C, Thomas P, Lennart J. US And UK Field Rollover Characteristics. SAE 2001-01-0167, Society of Automotive Engineers, 2001.
25. Parenteau C, Gopal M, Viano D. Near and Far Side Adult Front Passenger Kinematics in Vehicle Rollover. SAE 2001-01-0176, Society of Automotive Engineers, 2001.
26. Parenteau C, Shah M, Gopal M. Volunteer and Dummy Head Kinematics in Low-Speed Lateral Sled Tests. *Journal of Traffic Safety and Prevention*, Vol. 3(3), pp. 233-240, 2002.
27. Steffan H, Hofinger M, Parenteau C, Shah M, Webber J. Abdominal Responses to Dynamically Lap Belt Loading. 2002 IRCOBI Conference, Munich, Germany, pp. 315-322, 2002.
28. Parenteau C, Viano D, Shah M, Gopal M, Nichols D, Davies J, Broden J. Field Relevance of a Suite of Rollover Tests To Real-World Crashes and Injuries. *Accident Analysis and Prevention*, Vol 35(1):103-10, 2003.
29. Parenteau C, Viano D, Field Data Analysis of Rear Occupant Injuries - Part I: Adults and Teenagers. SAE 2003-01-0153, Society of Automotive Engineers, 2003.
30. Viano D, Parenteau C. Case Study of Vehicle Maneuvers Leading To Rollovers: Need For A Vehicle Test Simulating Off Road Excursions, Recovery And Handling. SAE 2003-01-0169, Society of Automotive Engineers, 2003.
31. Meijer R, Parenteau C, van Hoof J, Gopal M. (2003) Validation of a MADYMO mathematical human body model with detailed neck in low speed lateral impacts. 2003 International IRCOBI Conference on the Biomechanics of Impacts: 357-358.
32. Parenteau C, Viano D. Field Data Analysis of Rear Occupant Injuries - Part II: Children, Toddlers and Infants. SAE 2003-01-0154, Society of Automotive Engineers, 2003.
33. Parenteau C, Viano D. Bounce-Overs: Fixed Object Impacts Then Rollovers. SAE 2004-01-0334, Society of Automotive Engineers, 2004.
34. Viano D, Parenteau C. Rollover Crash Sensing and Safety Overview. SAE 2004-01-0342, Society of Automotive Engineers, PA, 2004.
35. Malott A, Parenteau C, Marigowda S, Arbogast K. Sled Test Results Using The Hybrid III 6 y.o.: An Evaluation of Various Restraints and Crash Configurations. SAE 2004-01-0316, Society of Automotive Engineers, 2004.
36. Lemmen P, Gietelink O, Shah M, Parenteau C, Kosiak W, Cashler B. Development of a Pre-Crash System Using the Vehicle Test Facility, ESV conference, Paper 05-0322, 2005.



37. Parenteau CS. Far-Side Occupant Kinematics in Low Speed Lateral Sled, *Traffic Injury Prevention*, 7 (2), 2006.
38. Parenteau CS. A Comparison of Volunteers and Dummy Upper Torso Kinematics with and Without Shoulder Belt Slack in a Low Speed Side/Pre-Roll Environment, *Traffic Injury Prevention*, 7 (2), 2006.
39. Viano DC, Parenteau CS, Prasad P, Burnett R. Stiff versus Yielding Seats: Analysis of Matched Rear Impact Tests. SAE 2007-01-0708, Society of Automotive Engineers, 2007.
40. Viano DC, Parenteau CS, Edwards ML. Rollover Injury: Effects of Near- and Far-Seating Position, Belt Use and Number of Quarter Rolls. *Traffic Injury Prevention*, 8(4):382-392, 2007.
41. Viano DC, Parenteau CS. Field Accident Data Analysis of 2nd Row Children and Individual Case Review for Safety Priorities. SAE 2008-01-1851, SAE, 2008.
42. Viano DC, Parenteau CS. Fatalities by Seating Position and Principal Direction of Force for 1st, 2nd and 3rd Row Occupants. SAE 2008-01-1850, SAE, 2008.
43. Viano DC, Parenteau CS, Edwards ML. Crash Injury Risks for Obese Occupants Using a Matched-Pair Analysis. *Traffic Injury Prevention*, 9(1) 2008.
44. Viano DC, Parenteau CS. Crash Injury Risks for Obese Occupants. Submitted to the SAE, 2008 Congress, 2008.
45. Viano DC, Parenteau CS. Analysis of Head Impacts Causing Neck Compression Injury. *Traffic Injury Prevention*, 9(2):144-152, 2008.
46. Viano DC, Parenteau CS. Serious Injury in Very-Low and Very-High Speed Rear Impacts. SAE 2008-01-1485, Society of Automotive Engineers, 2008.
47. Viano DC, Parenteau CS, Prasad P, Burnett R. Occupant responses in high-speed rear crashes: analysis of government-sponsored tests. SAE 2008-01-0188, Society of Automotive Engineers, 2008.
48. Kent R, Stacey S, Parenteau C. Dynamic pinch tolerance of the phalanges and interphalangeal joints. *Traffic Injury Prevention*, 9(1):83-8, 2008.
49. Viano DC, Parenteau CS. Fatalities of Children 0-7 Years Old in the 2nd Row. *Traffic Injury Prevention*, 9(3):231-237, 2008.
50. Viano DC, Parenteau CS. Seat Belt Use: Comparison of NASS-CDS and Police Crash Reports. *Traffic Injury Prevention*, 10(5):427-435, 2009.
51. Viano DC, Parenteau CS. Front Seat Performance in Rear Impacts: Effect on 1st and 2nd Row Occupant Injury. SAE 2009-01-0252, SAE, 2009.
52. Viano DC, Parenteau CS, Gopal M, James M. Vehicle and Occupant Responses in a Friction Trip Rollover. SAE 2009-01-0830, SAE, 2009.
53. Viano DC, Parenteau CS, Burnett, R, James M. Influence of Seating Position on Dummy Responses with ABTS Seats in Severe Rear Impacts. SAE 2009-01-0250, Society of Automotive Engineers, 2009.
54. Edwards M, Viano DC, Parenteau CS. Analysis of Front-Seat Occupant Injuries in Rear Impacts. SAE 2009- 01-1200, Society of Automotive Engineers, 2009.
55. Viano DC, Parenteau CS. Severe Injury to Near- and Far-Seated Occupants in Side Impacts by Crash Severity and Belt Use. *Traffic Injury Prevention*, 11(1):69-78, 2010.
56. Viano DC, Parenteau CS. Severe-Fatal Injury Risks in Crashes with Two Front-Seat Occupants by Seatbelt Use. *Traffic Injury Prevention* 11(3):294-299, 2010.
57. Viano DC, Parenteau CS. Ejection and Severe Injury Risks by Crash Type and Belt Use with Focus on Rear Impacts. *Traffic Injury Prevention*, 11(1):79-86, 2010.
58. Viano DC, Parenteau CS. Injury Risks in Frontal Crashes by Delta V and Body Region with Focus on Head Injuries. *Traffic Injury Prevention*, 11(4):382-390, 2010.
59. Parenteau CS, Viano DC. Basilar Skull Fractures by Crash Type and Injury Source. SAE 2011-01-1126, Society of Automotive Engineers, 2011.
60. Viano DC, Parenteau CS. BioRID Dummy Responses in Matched ABTS and Conventional Seat Tests on the IIHS Rear Sled. In review *Traffic Injury Prevention*, 2011.
61. Viano DC, Parenteau CS, Burnett R. Rear Impact Tests of Starcraft-Type Seats with Out-of-Position and In-Position Dummies. SAE 2011-01-0272, Society of Automotive Engineers, 2011.
62. Viano DC, Parenteau CS, Burnett R. Influence of standing or seated pelvis on dummy responses in rear impacts. *Accid Anal Prev*. 2012 Mar;45:423-31, 2012.



63. Viano DC, Parenteau CS. Front-to-rear crashes involving two vehicles with severe driver injury. *Traffic Inj Prev.*;13(1):55-60, 2012
64. Viano DC, Parenteau CS, Burnett R. Influence of belt pretensioning on dummy responses in 40 km/h rear-impact sled tests. *Traffic Inj Prev.* 13(1):65-71, 2012.
65. Viano DC, Parenteau CS, Burnett R. Rebound after rear impacts. *Traffic Inj Prev.* 14(2):181-7, 2013.
66. Parenteau CS, Holcombe S, Zhang, P, Kohoyda-Inglis C, Wang SC. The effect of age on fat and bone properties along the vertebral spine, SAE Technical Paper 2013-01-1244, Society of Automotive Engineers, 2013.
67. Parenteau CS, Zhang, P, Holcombe S, Wang SC Characterization of vertebral angle and torso depth by gender and age groups with a focus on occupant safety. *Traffic Inj Prev.* 2014;15(1):66-72
68. Parenteau CS, Zuby D, Brolin KB, Svenson MY, Palmertz C, Wang S. Restrained male and female occupants in frontal crashes: are we different? In the Proceedings of the IRCOBI conference, 2013.
69. Parenteau CS, Zhang P, Holcombe S, Kohoyda-Inglis C, Wang S. Analysis of Morphomics Parameters by Gender and BMI Groups: Thorax Shape and H-point Location. In the Proceedings of the IRCOBI conference, 2013.
70. Zhang PC, Parenteau CS, Wang L, Holcombe S, Kohoyda-Inglis C, Sullivan J, Wang S. (2013). Prediction of thoracic injury severity in frontal impacts by selected anatomical morphomic variables through model-averaged logistic regression approach, *Accident Analysis & Prevention*, 5;60C:172-180., 2013.
71. Holcombe S, Kindig M, Zhang P, Parenteau C, Rabban P, Hully L, Wang S. Age-based predictive model of the pediatric ribcage, JSAE 2013.
72. Parenteau CS, Ehrlich P, Ma L, Su LG, Holcombe S, Wang SC. The Quantification of Liver Anatomical Changes and Assessment of Occupant Liver Injury Patterns, *Stapp Journal*, 2013.
73. Parenteau CS, Zhang P, Holcombe S, Kohoyda-Inglis C, Wang SC. Can anatomical morphomic variables help predict abdominal injury rates in frontal vehicle crashes? *Traffic Inj Prev.* 2014;15(6):619-26.
74. Parenteau CS, Viano DC. Light-vehicle occupancy and severe injury by vehicle and crash type. *Traffic Inj Prev.* 2014;15(5):457-61.
75. Viano DC, Burnett R, Parenteau CS. Influence of a combo side airbag on the risk for basilar skull fracture in a far-side occupant. *Traffic Inj Prev.* 2014;15(7):726-33.
76. Viano DC, Parenteau CS. Effect of cargo loading on occupant injury and seat deformation in motor-vehicle crashes. *Traffic Inj Prev.* 2014;15(8):835-43.
77. Parenteau CS, Wang NC, Zhang P, Caird MS, Wang SC. Quantification of pediatric and adult cervical vertebra-anatomical characteristics by age and gender for automotive application. *Traffic Inj Prev.* 2014;15(6):572-82.
78. Parenteau CS, Viano DC. Spinal fracture-dislocations and spinal cord injuries in motor vehicle crashes. *Traffic Inj Prev.* 2014;15(7):694-700.
79. Viano DC, Parenteau CS. Concussion, Diffuse Axonal Injury, and AIS4+ Head Injury in Motor Vehicle Crashes. *Traffic Inj Prev.* 2015;16(8):747-53.
80. Viano DC, Parenteau CS. Update on the effectiveness of high retention seats in preventing fatal injury in rear impacts. *Traffic Inj Prev.* 2015;16(2):154-8.
81. Viano DC, Parenteau CS. NASS-CDS analysis of high retention seat performance in rear impacts. *Traffic Inj Prev.* 2015;16(5):491-7.
82. Viano DC, Parenteau CS. Effectiveness of the revision to FMVSS 301: FARS and NASS-CDS analysis of fatalities and severe injuries in rear impacts. *Accid Anal Prev.* 2016 Apr;89:1-8.
83. Viano DC, Parenteau CS. Difference in dummy responses in matched side impact tests of vehicles with and without side airbags. *Traffic Inj Prev.* 2016 Jul 3;17(5):524-9.
84. Viano DC, Parenteau CS. Brainstem injury in motor vehicle crashes. *Traffic Inj Prev.* 2017 Oct 3;18(7):730-735.
85. Viano DC, Parenteau CS, Xu L, Faul M. Head injuries (TBI) to adults and children in motor vehicle crashes. *Traffic Inj Prev.* 2017 Aug 18;18(6):616-622.
86. Viano DC, Parenteau CS. Occupant-to-occupant contact injury in motor vehicle crashes. *Traffic Inj Prev.* 2017 Oct 3;18(7):744-747.
87. Viano DC, Parenteau CS. Severe Injury in Multiple Impacts: Analysis of 1997-2015 NASS-CDS. *Traffic Inj Prev.* 2018 Mar 19;1-17.





88. Viano DC, Parenteau CS, Burnett R. Thoracic and Lumbar Spine Responses in High-Speed Rear Sled Tests. *Traffic Inj Prev.* 2018 Mar 1:1-22.
89. Parenteau CS, Viano DC. Driver injury in near- and far-side impacts: Update on the effect of front passenger belt use. *Traffic Inj Prev.* 2018 Apr 3;19(3):264-269.
90. Viano DC, Parenteau CS. Belted driver fatalities: Time of death and risk by injury severity. *Traffic Inj Prev.* 2018 Feb 17;19(2):153-158.
91. Viano DC, Parenteau CS, Burnett R, Prasad P. Occupant responses in conventional and ABTS seats in high-speed rear sled tests. *Traffic Inj Prev.* 2018 Jan 2;19(1):54-59.
92. Parenteau CS, Viano DC. Driver and front passenger injury in frontal crashes: Update on the effect of unbelted rear occupants. *Traffic Inj Prev.* 2018 Jan 2;19(1):28-34.
93. Viano DC, Parenteau CS. Lumbar Spine Fractures in Undercarriage Impacts: Analysis of 1997-2015 NASS-CDS, SAE 2018-01-0546, Society of Automotive Engineers, 2018.
94. Parenteau CS, Viano DC. Abdominal Injuries in Frontal Crashes: Influence of Occupant Age and Seating Position, SAE 2018-01-0535, Society of Automotive Engineers, 2018.
95. Viano DC Parenteau CS. Rear-Seat Occupant Responses in NHTSA Rear Crash Tests, SAE 2018-01-1330, Society of Automotive Engineers, 2018.
96. Viano DC, Parenteau CS. Rollover injury in vehicles with high-strength-to-weight ratio (SWR) roofs, curtain and side airbags, and other safety improvements. *Traffic Inj Prev.* 2018 Oct 30:1-7.
97. Viano DC, Parenteau CS. Severe injury in multiple impacts: Analysis of 1997-2015 NASS-CDS. *Traffic Inj Prev.* 2018 Jul 4;19(5):501-505.
98. Viano DC, Parenteau CS. Analysis of 2nd Row Sled Tests with the 5th Female Hybrid III: Errors, Misrepresentations, Misstatements and Incorrect Conclusions in Bidez et al. SAE 2005-01-1708, SAE 2019-01-0618, Society of Automotive Engineers, 2019.
99. Bunn BL, Johansson S, Kohoyda-Inglis C, Wang S, Parenteau CS, Holcombe S. Quantification of Sternum Morphomics and Injury Data, SAE 2019-01-1217, Society of Automotive Engineers, 2019.
100. Viano D, Parenteau C, White S. Influence of DISH, Ankylosis, Spondylosis and Osteophytes on Serious-to-Fatal Spinal Fractures and Cord Injury in Rear Impacts SAE 2019-01-1028, Society of Automotive Engineers, 2019.
101. Parenteau C, Smedley J, Carhart M, Dibb A. The Effect of Obesity on Rollover Ejection and Injury Risks, SAE 2020-01-1219, Society of Automotive Engineers, 2020.
102. Parenteau C, Smedley J, Ian Campbell, Carhart M. Evaluation of Laminated Side Window Glazing Coding and Rollover Ejection Mitigation Performance using NASS-CDS, SAE 2020-01-1216, Society of Automotive Engineers, 2020.
103. Parenteau C, Stephens G, Yaek J, Gregory S. The Effect of FMVSS 301R on Vehicle Structure in Rear Impact, SAE 2020-01-1226, Society of Automotive Engineers, 2020.
104. Parenteau C, Campbell IA, Pasquesi SA. The Effect of Active and Conventional Head Restraints on Front Seat Occupant Responses in 16 km/h Rear Impacts 2020-01-1217, Society of Automotive Engineers, 2020.
105. Parenteau C, Caird M, Kohoyda-Inglis C, Holcombe S, Wang S. Characterization of Thoracic Spinal Development by Age and Gender and Possible Effect on Crash Occupants 2020-01-0520, Society of Automotive Engineers, 2020.
106. Parenteau C, Miller B, Burnett R. Injury Risk by Crash Severity, Belt Use and Head Restraint Type and Performance in Rear Impacts 2020-01-1223, Society of Automotive Engineers, 2020.
107. Parenteau C, Croteau J, Zolock J. The Effect of Crash Severity and Structural Intrusion on ATD Responses in Rear-End Crashes, SAE 2020-01-1224, Society of Automotive Engineers, 2020.
108. Parenteau C, Viano D. Update on Second-Row Children Responses in Rear and Frontal Crashes with a Focus on the Potential Effect of Stiffening Front Seat Structures 2020-01-1215 Society of Automotive Engineers, 2020.
109. Parenteau CS, Viano DC, Burnett R, Lau E. Second-row occupant responses with and without intrusion in rear sled and crash tests. *Traffic Injury Prevention*, 22 (1), 2021.



110. Parenteau CS, Viano DC, Burnett R, Lau E. Effect of ABTS and Conventional Seats on Occupant Injury in Rear Impacts: Analysis of Field and Test Data. Traffic Injury Prevention, 2021.
111. Parenteau CS, Viano DC, Lau E. Rear-Seat Occupant Demographics in Rear Impacts: Analysis of NASS-CDS. Traffic Injury Prevention, 2021.
112. White S, Parenteau CS, Burnett R, Seat Performance in Rear Impacts: Seatback Deflection and Effects of Multiple Rear Impacts, SAE 2021-01-0916. Society of Automotive Engineers, 2021.
113. Parenteau C, Campbell I, Courtney A, Lau E (2021) Prevalence of spine degeneration diagnosis by type, age, gender, and obesity using Medicare data. Nature: Scientific Reports DOI: 10.1038/s41598-021-84724-6
114. Parenteau CS, Burnett R, Kameshwari Danthurthi S, Andreacovich C. Effect of ATD Size, Vehicle Interior and Restraint Misuse on Second-Row Occupant Kinematics in Frontal Sled Tests, SAE 2021-01-0914, Society of Automotive Engineers, 2021.
115. Parenteau CS, Burnett R, Viano DC, White S. Effect of Occupant Weight and Initial Position in Low-to-High Speed Rear Sled Tests with Older and Modern Seats, SAE 2021-01-0918, Society of Automotive Engineers, 2021.
116. Viano et al. Dual-recliner ABTS Seats in Severe Rear Sled Tests with the 5th, 50th and 95th Hybrid III, SAE 2021-01-0917, Society of Automotive Engineers, 2021.
117. Buckman JL, Parenteau CS, Burnett R, Viano DC, Andreacovich C. Assessment of the 50th Hybrid III Responses in Blunt Rear Impacts to the Torso, SAE 2021-01-0919, Society of Automotive Engineers, 2021.
118. Parenteau CS, Viano DC, Hardy WN. Response Corridors for Blunt Impacts to the Back, JSAE 2021.
119. Viano DC, Burnett R, Miller GA, Parenteau CS. Influence of Retractor and Anchor Pretensioning on Dummy Responses in 40 km/h Rear Sled Tests, TIP 2021.
120. Stephens G, Michalski D, Parenteau CS, Burnett R. A Mathematical Model to Assess Occupant Compartment Intrusion on Rear Occupant Responses in Rear Crashes, IMECE2020-24613, V014T14A01, 2021.
121. Parenteau CS, Courtney A, Campbell I. An Update on Front-Seat Occupant Injury Rates in Frontal Crashes: Focus on Modern Vehicles, IRC-21-50, IRCOBI Conference, 2021
122. Parenteau CS, Andreacovich C, Sherman S, Svensson M, Teenage Activities and Postures when Passengers in a Vehicle Environment, IRC-21-74, IRCOBI Conference, 2021
123. Parenteau CS, Viano DC, Serious Head, Neck and Spine Injuries in Rear Impacts: Frequency and Sources, IRC-21-10, IRCOBI Conference, 2021
124. Parenteau CS, Viano DC, Burnett R. Evaluations of pretensioner activation in rear impacts. Traffic Inj Prev. 2021;22(7):553-558.
125. Viano DC, Parenteau CS. Change in seating position of children in towaway crashes from 1989 to 2019. Accid Anal Prev. 2021 Sep;159:106280.
126. Viano DC, Parenteau CS. Significance of Tractor-Trailer Impacts to the Rear of Light Vehicles, Traffic Injury Prevention, 23(4): 169-175. 2022
127. Parenteau CS, White S, Burnett R, Stephens G, Michalski D. Rear-End Impacts – Part 1: Field and Test Data Analysis of Crash Characteristics. SAE 2022-01-0859, Society of Automotive Engineers, 2022.
128. Parenteau CS, White S, Burnett R, Rear-End Impacts – Part 2: Sled Pulse Effect on Front-Seat Occupant Responses. SAE 2022-01-0854, Society of Automotive Engineers, 2022.
129. Parenteau CS, Viano DC, Lau E Fatalities of Second-Row Children in Front, Side and Rear Impacts by Calendar Year (CY) and Model Year (MY). SAE 2022-01-0860, Society of Automotive Engineers, 2022.
130. Viano DC, Parenteau CS. Injury by Delta V in Front, Near-Side, Far-Side and Rear Impacts: Analysis of 1994-2015 NASS-CDS 2022-01-0835, Society of Automotive Engineers, 2022.
131. Parenteau CS, Viano DC. Basilar, Skull and Facial Fractures in 2nd Row Occupants by Crash Type with a Focus on Side and Rear Impacts, Traffic Injury Prevention, 2022;23(5):238-243.
132. Parenteau CS, Viano DC, IC Campbell. Occupant Age and Size Characteristics by Seating Location in Tow-Away Crashes Involving Light Vehicles in the United States, IRCOBI Conference,
133. Parenteau CS, Viano DC. Size and age of fatal drivers by crash type, vehicle type and gender Traffic Inj Prev . 2022 Nov 16;1-5. doi: 10.1080/15389588.2022.2143235.



134. Burnett RA, Viano DC, Parenteau CS. Quasi-static methods to evaluate seat strength in rear impacts. *Traffic Inj Prev* . 2023;24(3):218-223.
135. Parenteau CS, Viano DC. Serious-to-fatal injury to second-row occupants in rear impacts using 1994-2020 field data. *Traffic Inj Prev* , 2023;24(3):173-177.
136. Burnett RA, Parenteau CS, White SD. The effect of seatback deformation on out-of-position front-seat occupants in severe rear impacts. *Traffic Inj Prev* . 2023;24(3):184-188.
137. David C Viano, Chantal S Parenteau. Fetal deaths and maternal injury in motor-vehicle crashes using NASS-CDS and CISS field data. *Traffic Inj Prev*. 2023;24(1):14-20. doi: 10.1080/15389588.2022.2140409. Epub 2022 Nov 1.
138. Burnett AR, Parenteau CS, Vogler M, Toomey D, Orlowski KF. Evaluation of Drivers of Very Large Pickup Trucks: Size, Seated Height and Biomechanical Responses in Drop Tests, SAE 2023-01-0649, Society of Automotive Engineers, 2023.
139. Rudd RW, Parenteau CS. Serious Spine Injuries Using 2017-2021 CISS and CIREN Data: Effect of Spinal Degeneration Comorbidities, IRCOBI Conference, Cambridge UK, 2023.
140. Boysen K, Parenteau CS, Toomey D, Gregg RH. Analysis of Fluid Evidence on Various Vehicle Components 2024-01-2467, Society of Automotive Engineers, 2024.
141. Parenteau CS, Ault BN, Toomey D, Burnett R, Krishnaswami R. Side Impact Characteristics in Modern Light Vehicles, SAE 2024-01-2646, Society of Automotive Engineers, 2024.
142. Parenteau CS, Burnett R. Analysis of Occupants by Seating Location, Restraint Use and Injury Risk in Tow-Away Crashes, SAE 2024-01-2752, Society of Automotive Engineers, 2024.
143. Parenteau CS, Lau EC, Burnett RA, Toomey D. Performance Evaluation of Seat-Integrated Restraint Systems (SIRS) in Controlled Crashes, IRC-24-124, IRCOBI Conference, Stockholm Sweden, 2024.
144. Viano DC, Parenteau CS, Teoh ER. Effect of ESC (Electronic Stability Control) on Tree and Pole Impacts with Focus on Rear Impacts, *Heliyon*, Vol 10, Issue 18, September 2024, e37591.
145. Gu E, and Parenteau C, Literature Review and Framework for Identifying Seat Belt Misuse and Misrouting in Frontal Collisions, SAE Technical Paper 2025-01-8721, Society of Automotive Engineers, 2025.
146. Parenteau C, and Burnett R, Occupant Responses in High-Speed Rear Sled Tests: Focus of Initial Position, Seat Strength and ATD Size, SAE Technical Paper 2025-01-8731, Society of Automotive Engineers, 2025.
147. Parenteau C, Burnett R, and Davidson R, Overview of Seat Design Changes and Performance," SAE Technical Paper 2025-01-8729, Society of Automotive Engineers, 2025.