

52nd NHTSA Workshop on Human Subjects for Biomechanical Research

National Highway Traffic Safety Administration

Pfahl Conference Center, Room 140, The Ohio State University – Columbus, OH

Rodney W. Rudd, Ph.D., Chair

Monday, October 21, 2024

PROGRAM

8:00-8:50 a.m. REGISTRATION

8:50-9 a.m. OPENING REMARKS – NHTSA

9-10:30 a.m. SESSION I

Enhanced Understanding of Thoracic Injury Through Strain Analysis

Collin Rogus¹, Y-S Kang¹, G. Baker¹, A. Marcallini Jr.¹, E Hutter², J. Bolte IV¹, A. Agnew¹

¹ Injury Biomechanics Research Center, The Ohio State University, ² National Highway Traffic Safety Administration

Preliminary Evaluation of Small Female Human Body Model Thoracic Soft Tissue and its Effect on Thoracic Response in Simplified Frontal Impacts

Ryan Lang¹, A. Agnew¹, G. Baker¹, A. Marcallini Jr.¹, E Hutter², Y-S Kang¹

¹ Injury Biomechanics Research Center, The Ohio State University, ² National Highway Traffic Safety Administration

Assessment of Submarining Risk in Frontal Impact Tests: Insights from Whole-Body PMHS Experiments Under Varied Boundary Conditions

Karthik Somasundaram¹, R. Richardson², K. Driesslein¹, N. Yoganandan¹, D. Parent², F. Pintar¹

¹ Medical College of Wisconsin, ² National Highway Traffic Safety Administration

Seat Belt Fit in Relation to Internal Anatomy in Pregnant Occupants Using an Upright Open MRI

Vivian Chung¹, J. Levine¹, D. Rowlands¹, J. Forman², M. Oyen³, D. Reichhardt⁴, J. Hallman⁵, A. Ahmed⁵, J. Burrows⁴, P. Crompton¹

¹ School of Biomedical Engineering, The University of British Columbia, ² Center for Applied Biomechanics, University of Virginia, ³ McKelvey School of Engineering, Washington University in St. Louis, ⁴ Department of Obstetrics & Gynaecology, Faculty of Medicine, The University of British Columbia, ⁵ Toyota Motor Engineering & Manufacturing North America, Inc.

10:30 a.m. BREAK

- 10:50 a.m.

10:50 a.m. SESSION II

- Noon

Real-World Pedestrian Crash Reconstruction using Generic Vehicle Model Tuned using Pedestrian Crash Test Data

Karan Devane, **Luis Poveda**, L. Miller, W. Armstrong, K. Check, F-C Hsu, F. S. Gayzik, A. Weaver, J. Stitzel

Wake Forest University School of Medicine

Impact Location and Vehicle Class in Pedestrian Collisions: Results from the VICIS Study

William Lindahl, K. Somasundaram, D. Hallway, N. Yoganandan, F. Pintar

Medical College of Wisconsin

Investigation of Ankle Injuries in the CIREN Database

Devon Albert, W. Hardy

Center for Injury Biomechanics, Virginia Tech

Noon LUNCH

- 1:20 p.m.

1:20-2:50 p.m. SESSION III

Comparison of 50th Percentile Male GHBM and VIVA+ Human Body Models

Eric Lee¹, E. Takhounts², V. Hasija², **Tejas Ruparel¹**

¹ Bowhead Mission Solutions, ² National Highway Traffic Safety Administration

Assessment of the THUMS Lumbar Spine in Dynamic Injurious Loading Conditions

Katarzyna Rawska¹, S. Tushak¹, **Bronislaw Gepner¹**, J. Kong¹, Z. Sun², J. Kerrigan¹

¹ Center for Applied Biomechanics, University of Virginia, ² Toyota Motor Engineering & Manufacturing North America

Development of a Biofidelic Dummy for Representation of Complex Injuries During Vehicle Crash

Benjamin Härtel

University of Applied Sciences HTW Dresden

A Human Body Model Inspired Cervical Spine Surrogate: A Pilot Evaluation

Katie R. G. Zilevicius¹, M. Hederick¹, B. von Kleeck¹, E. Coltoff¹, T. Roy¹, B. Graybill², J. Wilbur², F. S. Gayzik¹, P. Brown¹

¹ Wake Forest University School of Medicine, ² Creare LLC

2:50-3:10 p.m. BREAK

3:10-4:40 p.m. SESSION IV

A Parametric Cervical Spine Model Accounting for Geometric Variations for the Adult Population

Mizuho Takayama¹, J. Hu¹, S. Khandale¹, A. Bonifas¹, J. Hallman², Z. Sun²

¹ University of Michigan Transportation Research Institute, ² Toyota Motor North America R&D

A Multi-Modality Data Set for Validating Human Body Models in Settling

Seth Mischo, K. Brandt, J. Wolf, B. von Kleeck, G. Liverett, J. Sullivan, A. Robinson, F. S. Gayzik

Wake Forest University School of Medicine

Standardizing Human Body Model Positioning for Automotive Virtual Testing

Tushar Arora, G. Velmurugan, R. Jagadish, A. Soni, R. T. de la Piedra, C. Shah

Humanetics Group

Human Body Model Rib Fracture Injury Risk Curve Development for Side Impact

Jaehyuk Heo¹, B. Gepner¹, Z. Sun², J. Forman¹

¹ Center for Applied Biomechanics, University of Virginia, ² Toyota Motor Engineering & Manufacturing North America

4:40 p.m.

CONCLUDING REMARKS

Admission to the NHTSA Workshop is free of charge.
The NHTSA Workshop is not affiliated with the Stapp Car Crash Conference.

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