48th NHTSA Workshop on Human Subjects for Biomechanical Research

National Highway Traffic Safety Administration
Rodney W. Rudd, Chair
GoToWebinar 476-223-163
Tuesday and Wednesday, October 27 and 28, 2020

PROGRAM

TUESDAY, OCTOBER 27 – DAY 1

9:00-9:10 OPENING REMARKS

9:10-10:50 SESSION I

Comparison of Hybrid III and THOR in Recline Frontal Sled Tests without a Knee Bolster
Jason Kerrigan1, R. Richardson1, J. Forman1, B. Gepner1, M. Ostling2
1 Center for Applied Biomechanics, University of Virginia, 2 Autoliv, Inc.

A Novel Methodology to Examine Occupant Motion During the AEB Pulses Present in the Modern Fleet
Madeline Griffith1, T. Seacrist1, A. Jordan2, R. Sherony2, J. Hallman3, K. Arbogast1,4, V. Graci1
1 Center for Injury Research and Prevention, Children’s Hospital of Philadelphia, 2 Jordan & Co., 3 Perelman School of Medicine, University of Pennsylvania

Evaluation of Thoracic Injury Risk for the Hybrid III and THOR-M 50th Percentile Male ATDs in the Rear Seat during NCAP Severity Sled Tests with Comparisons to the Front Seat
Samuel Bianco, A. Guettler, W. Hardy, A. Kemper
Virginia Tech-Wake Forest Center for Injury Biomechanics

Evaluation of Submarining for the Hybrid III and THOR-50M in the Rear Seat during Frontal Crash Sled Tests
Allison Guettler, S. Bianco, A. Kemper, W. Hardy
Virginia Tech-Wake Forest Center for Injury Biomechanics

THOR-AV Biofidelity Evaluation
Jerry Wang
Humanetics Innovative Solutions, Inc.

10:50-11:10 BREAK

11:10-12:30 SESSION II

Proposed Lumbar L1 Injury Assessment Reference Value
Alan Goertz
CCDC Army Research Laboratory

Compressive Material Properties of Human Rib Trabecular Bone
Andrew Kemper1, D. Albert1, M. Katzenberger1, A. Agnew2
1 Center for Injury Biomechanics, Virginia Tech, 2 Injury Biomechanics Research Center, The Ohio State University

Assessment for a Perfusion Method for Detecting Soft Tissue Injuries in a Cadaveric Model
Cynthia Bir1, D. Sherman1, K. Raafals2, E. Matheis2, K. Inaba3, M. Minneti3, R. Villalta1
1 Wayne State University, 2 Army Research Laboratory, 3 Keck School of Medicine, University of Southern California

THOR-05F Matched-Pair Tests in a Generic Automotive Environment
John Humm, N. Yoganandan
Department of Neurosurgery, Medical College of Wisconsin

12:30 ADJOURN DAY 1

WEDNESDAY, OCTOBER 28 – DAY 2

9:00-10:40 SESSION III

Updates on THOR-05F and THOR-AV-05F Dummy FE Model Development
Fuchun Zhu, A. Lakshminarayana, C. Shah
Humanetics Innovative Solutions, Inc.

Integration and Validation of a Deformable Spine into a Simplified Human Body Model
Mitesh Lalwalaa1,2, B. Koya1,2, F. Gayzik1,2, A Weaver1,2
1 Virginia Tech-Wake Forest School Center for Injury Biomechanics, 2 Wake Forest School of Medicine

A Parametric Active Human Model for Simulating Occupant Responses in Abrupt Vehicle Maneuvers
Jingwen Hu, Y-S Lin, K. Boyle, M. Reed
University of Michigan Transportation Research Institute

Applicability of Neck Injury Criteria Critical Intercepts for Human Body Finite Element Models
Dale Johnson1,2, B. Koya1,2, K. Devane1,2, F. Gayzik1,2
1 Wake Forest School of Medicine, 2 Virginia Tech-Wake Forest School Center for Injury Biomechanics

Deep Learning Model for Predicting Head Kinematics
Vikas Hasija1, E. Takhounts2
1 Bowhead (Systems and Technology), 2 National Highway Traffic Safety Administration

10:40-11:00 BREAK

11:00-12:20 SESSION IV

Lumbar Spine and Pelvis Injury and Response on Oblique-facing Aircraft Seat – A Preliminary Computational Study
Karthik Somasundaram1, J. Humm1,2, P. Khandelwal2, D. Moorcroft3, N. Yoganandan1,2, Frank Pintar1,2
1 Department of Biomedical Engineering, Medical College of Wisconsin, 2 VA Medical Center, Milwaukee, WI, 3 Civil Aerospace Medical Institute

Deep Learning Head Model for Entire Brain Deformation Calculation in Real-time for Concussions
Xianghao Zhan1, Y. Liu1, S. Raymond1, H. Alizadeh1, A. Domel1, O. Gevaert2, M. Zeineh3, G. Grant4, D. Camarillo1
1 Department of Bioengineering, Stanford University, 2 Department of Biomedical Informatics, Stanford University, 3 Department of Radiology, Stanford University, 4 Department of Neurosurgery, Stanford University

The Effect of Active Head Restraints (AHRs) on Head Kinematics in Rear Impact Sled Tests
J. Michio Clark, J. Wheeler
Vector Scientific, Inc.

Injury Comparison Between 5th Percentile Female and 50th Percentile Male Simplified GHBMC Models in Various Frontal Impact Scenarios
Rohit Kelkar1, V. Hasija1, E. Takhounts2
1 Bowhead (Systems and Technology), 2 National Highway Traffic Safety Administration

12:20 ADJOURN DAY 2 AND CONCLUDING REMARKS

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