

44th International Workshop on Human Subjects for Biomechanical Research

National Highway Traffic Safety Administration
Hyatt Regency Washington on Capitol Hill – Washington, DC

Rodney W. Rudd, Chair
Sunday, November 6, 2016

PROGRAM

7:30-9:00 REGISTRATION

9:00-10:20 SESSION I

Predicting Head and Neck Posture Through the Biomechanical Response to Vertical Loads

Brian D. Goodwin, F. A. Pintar, N. Yoganandan
Medical College of Wisconsin

Effects of Chestbands on the Global Response and Localized Loading of the Human Thorax

Benjamin K. Shurtz, A. M. Agnew, Y-S Kang, J. H. Bolte IV
Injury Biomechanics Research Center at The Ohio State University

Foot Flexion Alters Ankle Injury Patterns and Tolerance during Forced External Rotation

Alexander Mait¹, J. P. Donlon¹, B. Nie¹, J. Forman¹, R. Anderson², M. T. Cooper³, R. Kent¹
¹ University of Virginia Center for Applied Biomechanics, ² OrthoCarolina LLC, ³ University of Virginia Musculoskeletal Center

Establishing a Hierarchical Approach to Explore Biological Contributors to Dynamic Response and Failure in the Human Thorax

Amanda M. Agnew¹, Y-S Kang¹, M. M. Murach¹, K. Moorhouse², J. H. Bolte IV¹
¹ Injury Biomechanics Research Center at The Ohio State University, ² National Highway Traffic Safety Administration

10:20-10:40 BREAK

10:40-12:00 SESSION II

Sled-level Correlations of the THOR-M 50th Dummy Finite Element Model

Fuchun Zhu, Z. Zhou, S. Fu
Humanetics Innovative Solutions, Inc.

A Parametric Study to Evaluate Shoulder Belt Retention Under Far-side Impact Using a Human Body Model

Mike W. J. Arun, S. Umale, N. Yoganandan, F. A. Pintar
Medical College of Wisconsin

Investigation of Parameters Affecting Brain Displacement Histories Using the SIMon FE Model of the Human Brain

Aaron Drake
Bowhead Logistics Solutions

Rotationally-induced Brain Injuries in Frontal and Oblique Crashes

Maika Katagiri
TK Holdings, Inc.

12:00-1:30 LUNCH

1:30-2:50

SESSION III

THOR 5th Percentile Female ATD Design

Z. Jerry Wang

Humanetics Innovative Solutions, Inc.

Developing Anthropometric Targets for ATDs Using Statistical Body Shape Modeling

Matthew P. Reed, S. M. Ebert, B. D. Park

University of Michigan Transportation Research Institute

The Introduction of a New Elderly Anthropomorphic Test Device (EATD)

Mike Beebe, I. Ubom, T. Vara, K. Sullenberger, M. Burleigh, J. McCarthy

Humanetics Innovative Solutions, Inc.

Biofidelity Corridors Using Arc-length Parametrization to Capture Temporal Variation Among Source Time-histories and to Facilitate Analysis of Cross-plots

John-Paul Donlon, H. Jadooki, J. Toczyski, D. Lessley, J. Forman

University of Virginia Center for Applied Biomechanics

2:50-3:10

BREAK

3:10-4:30

SESSION IV

Development of an Open Source Framework to Position and Personalize Human Body Models

Philippe Petit¹, P. Beillas², S. Kirscht³, S. Kleiven⁴, A. Chawla⁵, E. Jolivet⁶, F. Faure⁷, N. Praxl⁸, A. Bhaskar⁹

¹ Laboratory of Accidentology and Biomechanics, ² Université Lyon, ³ Technische Universität Berlin,

⁴ Kungliga Tekniska Högskolan, ⁵ Indian Institute of Technology Dehli, ⁶ Centre Européen d'Etudes

de Sécurité et d'Analyse des Risques, ⁷ INRIA and Université J. Fourier, ⁸ Partnership for Dummy

Technology and Biomechanics, ⁹ University of Southampton

Rapid Development of Finite Element Human Body Models to Represent a Diverse Population

Kai Zhang^{1,2}, A. Fanta¹, M. P. Reed¹, L. Cao², J. Hu¹

¹ University of Michigan Transportation Research Institute, ² State Key Laboratory of Advanced Design and Manufacturing for Vehicle Body, Hunan University

Effect of Physiological Activities and Subject-specific Geometry on Volunteer Responses in Low-energy Dynamic Events

Baptiste Sandoz¹, V. Attali^{1,2,3}, S. Laporte¹, D. Subit¹

¹ Arts et Métiers ParisTech, ENSAM, Institut de Biomécanique Humaine Georges Charpak, ² Groupe Hospitalier Pitié-Salpêtrière Charles Foix, ³ Sorbonne Université

Responses of Minimally-aware Passengers to Abrupt Braking and Steering Maneuvers

Matthew P. Reed¹, C. S. Miller¹, B. D. Park¹, J. J. Hallman², R. Sherony²

¹ University of Michigan Transportation Research Institute, ² Collaborative Safety Research Center, Toyota Technical Center USA

4:30-4:40

CONCLUDING REMARKS