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Engineering & Scientific Consulting

Sarah Sherman, Ph.D.

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Professional Profile

Dr. Sarah Sherman's expertise is in the biomechanics of injury, with an emphasis on injuries resulting from blunt and ballistic impacts and forensic analysis. With over 14 years of experience, she has conducted a wide variety of human and surrogate biomechanical testing to assess the mechanism of injury with respect to blunt traumatic injuries occurring in connection with law enforcement and athletic activities.

Dr. Sherman's present work includes the biomechanical analysis of injuries occurring in a variety of crashes and accidents, including vehicular, pedestrian, occupational, and recreational.

Dr. Sherman's work in the field of injury biomechanics includes research on the efficacy of protective equipment, including ballistic protection and sports equipment, and the response of the human body to blunt impacts.

Dr. Sherman continues to be involved in the injury biomechanics community through invited teaching opportunities and mentorship. Dr. Sherman is an invited speaker for biomechanics courses at both University of Michigan Dearborn and Wayne State University. She enjoys volunteering to speak with undergraduate and graduate students about technical issues and career opportunities in biomechanics. Dr. Sherman continues to expand her expertise in biomechanics by completing courses focusing on forensic investigations of trauma and has assisted in or observed numerous autopsies related to blunt or ballistic trauma.

Prior to joining Exponent, Dr. Sherman was a Research Assistant in the Biomedical Engineering Department at Wayne State University. While at Wayne State, she was the supervisor of the Sports Injury Biomechanics Laboratory, where she evaluated the efficacy of protective equipment with respect to potential injury mitigation.

Academic Credentials & Professional Honors

Ph.D., Biomedical Engineering, Wayne State University, 2015

M.S., Biomedical Engineering, Wayne State University, 2010

B.S., Chemical Engineering, Wayne State University, 2006

Kales Scholarship, 2009

Graduate-Professional Scholarship, 2007-2008

AIChE Undergraduate Poster Contest, 3rd Place, October 2005

Professional Affiliations

Society of Automotive Engineers (Member), 2018-present

Biomedical Engineering Society (Member), 2018-present

American Academy of Forensic Sciences (Associate Member), 2019-present

Publications

Webb M, Sherman SS, Sung L, Schmidt CJ, and Hlavaty L. Abusive pediatric thoracolumbar fracture due to forced hyperextension: Case report, biomechanical considerations, and review of the literature. Journal of Forensic Sciences 2020; 65(6): 2023-2029. doi: 10.1111/1556-4029.14521.

Toney-Bolger M, Sherman S, Isaacs J, et al. An evaluation of near- and far-side occupant responses to low- and moderate-speed side impacts. Society of Automotive Engineers, 2020, Technical Paper No. 2020-01-1218.

Engoren M, Rochlen LR, Diehl MV, Sherman SS, Jewell E, Golinski M, Begeman P, Cavanaugh JM. Mechanical Strain to Maxillary Incisors during Direct Laryngoscopy. BMC Anesthesiol 2017; 17(1): 151. doi: 10.1186/s12871-017-0442-z.

Esquivel AO, Sherman SS, Bir CA, Lemos SE. The interaction of intramuscular Ketorolac (Toradol) and concussion in a rat model. Ann Biomed Eng. 2017; 45(6):1581-1588. doi: 10.1007/s10439-017-1809-5.

Bir C, Lance R, Stojsih (Sherman) S, Cavanaugh J. Behind armor blunt trauma: Recreation of Field Cases for the Assessment of Backface Signature Testing. Personal Armour Systems Symposium, Amsterdam, 2016.

Stojsih (Sherman) S, Baker J, Les C, Bir C. Review of canine deaths while in service in US civilian law enforcement (2002-2012). Special Operations Medical Journal 2014; 14(4):86-91.

Hewins K, Anctil B, Stojsih (Sherman) S, Bir C. Ballistic blunt trauma assessment methodology validation. Personal Armour Systems Symposium. Nuremberg, Germany, 2012.

Stojsih (Sherman) S, Longhurst D, Bir C. Behind armor blunt trauma: Comparison of field and experimental data. Personal Armour Systems Symposium. Quebec City, 2010.

Stojsih (Sherman) S, Boitano M, Wilhelm M, Bir C. A prospective study of punch biomechanics and cognitive function for amateur boxers. British Journal of Sports Medicine 2010; 44(10):725-730.

Uygun B, Stojsih (Sherman) S, Matthew, H. Effects of immobilized gylcosaminoglycans on the proliferation and differentiation of mesenchymal stem cells. Tissue Engineering Part A 2009; 15(11): 3499-3512.

Presentations and Published Abstracts

Sherman S, and Webb M. The expanding role of biomechanics in forensic pathology. National Association of Medical Examiners. 2020

Stojsih (Sherman) S, Baker J, Bir C. Effects of a ballistic vest on field performance of law enforcement canines. Canine Science & Technology Workshop. Raleigh NC, 2014.

Stojsih (Sherman) S, Bir C. Comparison of experimental and real-time data in amateur boxers. ASME Summer Bioengineering Conference. Lake Tahoe, UT, 2009.

Stojsih (Sherman) S, Bir C. Behind armor blunt trauma: case study. 4th European Conference on Protective Clothing. Arnhem, Netherlands, 2009.

Stojsih (Sherman) S, Boitano M, Bir C. Head impact accelerations in boxing using telemetry system. American Medical Society for Sports Medicine Conference. Las Vegas, NV, 2008.

Stojsih (Sherman) S, Bir C. Behind armor blunt trauma injuries in law enforcement from ballistic impact: Body armor assessment. American Academy of Forensic Sciences Conference. Washington DC, 2008.

Book Chapters

Bir C, Stojsih (Sherman) S. The biomechanics of impact in boxing. In: Warnick, J and Martin, W. Advancements in the Scientific Study of Combative Sports, New York: Nova, 2010.

Additional Education & Training

Wayne County Medical Examiner Death Investigation Course, 2019

3D Static Strength Prediction Program training, University of Michigan, Center for Occupational Health & Safety Engineering, 2019

St. Louis Medicolegal Death Investigation Course, 2017

Northwestern University Center for Public Safety - Traffic Crash Reconstruction, 2015

Peer Reviews

Society of Automotive Engineers