

Dr. Shekhawat specializes in accident reconstruction and biomechanics of human injury. He analyzes and resolves collision dynamics using fundamental principles and presents them in easy to understand language. Dr. Shekhawat offers assessment and analysis in biomechanics for various accident settings. He has worked on projects involving collisions relating to auto, bicycle, pedestrians, and big-rigs, personal injury, premises liability, as well as slip-trip-and-fall injuries. His doctoral research focused on the load-bearing ability of cartilage from healthy and injured joints of the knee and ankle. Dr. Shekhawat routinely serves as a reviewer for international journals and societies including Elsevier, American Journal of Sports Medicine, and Orthopaedic Research Society.

Licensure and Certification

- ACTAR Accredited Traffic Accident Reconstructionist, #3410
- Certified XL Tribometrist (CXLT)
- Crash Data Retrieval Technician, Levels 1 & 2

Formal Education

- Ph.D. in Bioengineering, University of Illinois at Chicago, 2009
- M.S. in Mechanical Engineering, Illinois Institute of Technology, 2002
- B.E. in Mechanical Engineering, Nagpur University, 1997

Professional Development

- PC Crash 11.1, Orlando, Florida, 2019
- Crash Data Retrieval Train the Trainer

Professional Affiliations

- ASTM International, Committee F13 on Pedestrian/Walkway Safety and Footwear, since 2019
- Society of Automotive Engineers since 2013
- Orthopaedic Research Society since 2009

Professional Experience

- Project Manager, Forensic Engineering Technologies, LLC, Orlando, FL, 2018
- Engineer, InSciTech, Los Altos, CA, 2010 – 2018

Honors and Awards

- Graduate Student Research Forum, Honorable Mention, University of Illinois at Chicago, 2008

Publications and Presentations

- “Implications of trauma and subsequent articulation on the release of Proteoglycan-4 and tissue response in adult human ankle cartilage.” J Orthopedic Res., Shekhawat, V. et al, 2016

- “Bicyclist Behavior at Stop Signs,” Proceedings of the Human Factors and Ergonomics Society Annual Meeting, Ayres, T., Kelkar, R., Kubose, T., Shekhawat, V., 2015
- “Prediction of Stiffness Coefficients for Frontal Impacts in Passenger Vehicles,” SAE Technical Paper, Wood, M., Shekhawat, V., Kubose, T., and Kelkar, R., 2014
- “Surface Topography of Viable Articular Cartilage Measured with Scanning White Light Interferometry,” Osteoarthritis and Cartilage, Shekhawat, V. et al., 2009
- “Influence of Kinematics on Mechano-Biological Response of Articular Cartilage – An in vitro Investigation,” Ph.D. Thesis, University of Illinois at Chicago, Shekhawat, V., 2009
- “Effect of Articular Motion in Evaluating Biosynthetic and Functional Response of Traumatized Human Cartilage,” Orthopedic Research Society, Shekhawat, V. et al. 2009
- “In vitro wear testing of living cartilage tissue.” 54th Annual Meeting of the Orthopedic Research Society, Wimmer, MA, Pacione, CA, Shekhawat, VK, Bergreen, P, Jacobs, JJ, Chubinskaya, S., 2008
- “Migrating the Articular Motion Over Cartilage Surface Improves Explant Cell Viability”, 54th Annual Meeting of the Orthopedic Research Society, Shekhawat, V., Pacione, C., Wimmer, M., 2008
- “Surface Topography of Viable Articular Cartilage Explants Varies with Location – Study Using White Light Interferometry”, Orthopedic Research Society, 2008
- “Characterizing the Surface Topography of Viable Cartilage Explants: A Novel Application of the Scanning White Light Interferometer.” ASME Summer Bioengineering Conference, Parts A and B, Shekhawat VK, Laurent M, Muehleman C, Wimmer MA. 2008
- “Increase in Superficial Zone Protein Synthesis of Cartilage by Articular Simulation with Migrating Contact”, 7th World Congress, International Cartilage Research Society, V. Shekhawat, T. Schmid, L. Madsen, M.A. Wimmer, 2007
- “Cellular Responses in Acute Trauma of Human Ankle Cartilage: Cell Survival, Catabolic Cytokines and Neuromediators”, 7th World Congress, International Cartilage Research Society, T. Willson, L. Rappoport, M.A. Wimmer, A.A. Hakimiyan, V. Shekhawat, C.A. Pacione, J.A. Borgia, M.B. Hurtig, T.R. Oegema, S. Chubinskaya, 2007
- “Joint Articulation Increases Proteoglycan Release from Cartilage in the Presence of IL1- Beta”, 7th World Congress, International Cartilage Research Society, C. Pacione, V. Shekhawat, M. Wimmer 2007
- “Catabolic and Anabolic Events Characteristic for Acute Trauma in Human Cartilage”, Orthopedic Research Society, 2007
- “Effect of Articular Motion on Cartilage-Bone Explants”, Orthopedic Research Society, Shekhawat, V., et al. 2006
- “One-Step-Insertion Technique for Osteochondral Transplantation: An Alternative Over Tapping?”, 5th World Congress of Biomechanics, Shekhawat, V., et al. 2006
- “Water Jet Cutting, An Alternative Method for Cutting Cartilage”, Journal of Biomechanics, Honl, M., Shekhawat, V., Pacione, C., Schwenke, T., Wimmer, M., 2006
- “Computer Simulation of Gas Carburizing: An Investigation of the Effect of Accurate Carbon Diffusion Coefficient”, 22nd Heat Treating Society Conference, ASM International, American Society of Materials International, 2002
- “Simulation of Gas Carburizing: Development of a Computer Program with Systematic Analysis of Process Variables Involved,” 22nd Heat Treating Society Conference, ASM International, American Society of Materials International, 2002