Kevin Adanty, Ph.D.

Biomechanist & Engineer

OFFICE: +1 530.759.9069
EMAIL: kevin.adanty@aperturellc.com

NOT FOR EXPERT DESIGNATION

EDUCATION

Ph.D. Mechanical Engineering
University of Alberta, Edmonton, Canada. 2023

M.Sc. Human Kinetics
University of Ottawa, Ottawa, Canada. 2018

B.Sc. Human Kinetics
University of Ottawa, Ottawa, Canada. 2016

WORK EXPERIENCE

Dr. Adanty is a forensic expert in biomechanics at Aperture LLC, formerly Biomechanical Consultants Inc. He applies his expertise in biomechanics, human kinetics, and engineering to determine the mechanism of human injuries. Since commencing his role as a forensic biomechanist, Dr. Adanty has consulted on civil cases such as automotive collisions, slips, trips, and falls, injuries spanning pediatric to elderly populations, and assaults. He also applies his biomechanical expertise in complex criminal matters involving homicides of adults and pediatrics, attempted homicides, and assaults. Dr. Adanty has experience preparing Rule 26 federal reports and has provided expert testimony in both civil and criminal courts at the state and federal levels.

Before transitioning into forensic consulting, Dr. Adanty conducted graduate-level research in head and brain injury biomechanics. He remains actively engaged in research and continues to contribute to the field of biomechanics by publishing peer-reviewed articles, abstracts, and conference proceedings in the areas of head and spine biomechanics.

- **Aperture LLC, formerly Biomechanical Consultants Inc.**
  2023-Present, Biomechanist & Engineer.

  Apply biomechanics, human kinetics, and engineering principles to assist in the investigation and analyses of injury causation in civil and criminal matters such as automotive, slips, trips and falls, homicides or assaults, pediatric to elderly injuries, and occupational or recreational incidents.

- **University of Alberta, Biomedical Instrumentation Lab.**
  2018-2023, Graduate Research Assistant.

  Experimental testing of human and animal tissue and synthetic materials. Work included CT imaging, image analysis, material testing at various impact rates, cadaveric dissections, and assisting in experimental work using the Hybrid III head form and BIPED head form.

- **University of Victoria, Biomedical Instrumentation Lab.**
  2022, Graduate Visiting Researcher

- **University of Alberta.**
  2020-2022, Teaching Assistant.

  Teacher, lab demonstrator, and corrector for courses in mechanical engineering and kinesiology: Mechanical Engineering Laboratory II, Advanced Strength of Materials I, Mechanical Measurements, and Quantitative Biomechanics of Human Movement.

- **University of Ottawa, Neurotrauma Impact Science Lab**.
  2016-2018, Graduate Research Assistant

  Collected and analyzed biomechanical data such as head acceleration and brain strain metrics from helmet impacts in cycling and equestrian. Analyzed and reconstructed head impacts using a Hybrid III head form in youth and professional ice hockey, high school American football, and the NFL to study brain injury risk. Designed a custom steel anvil for oblique impact testing of cycling helmets.

- **University of Ottawa.**
  2016-2018, Teaching Assistant.

  Teacher, lab demonstrator, and corrector for courses in human kinetics: Biophysical Aspect of Human Movement, Musculoskeletal Anatomy, and Prevention and Care of Athletic Injuries.

INVITED LECTURES

Adanty, K, "Forensic Biomechanics: Applying biomechanical engineering and science to the legal field". Department of Biomedical Engineering, University of Victoria, Victoria, BC, Canada March 5, 2024.

Adanty, K, "Bone Mechanics and Surrogate Development". Department of Kinesiology, University of Alberta**,** Edmonton, AB, Canada March 22, 2022.

Adanty, K, "Bone Mechanics and Biomechanical Modelling of Human Tissues and Systems". Department of Mechanical Engineering, University of Alberta**,** Edmonton, AB, Canada January 25, 2021.

SELECTED TRAINING

January-August, 2026	**Micro-credential in Injury Biomechanics (3 ECTS Units)** Universidad Pontificia Comillas
October 28-29, 2025	**53rd NHTSA Workshop on Human Subjects for Biomechanical Research** National Highway Traffic Safety Administration
June 9-13, 2025	**9th International Advanced Course on Injury Biomechanics** Universidad Pontificia Comillas, Madrid, Spain
October 4, 2024	**Assessing Closed Head Injury Claims in Low-Speed Rear End Collisions** Illinois Defense Counsel
February 1, 2024	**Bicycle/E-Bike Dynamics** California Association of Accident Reconstruction Specialists
November 15-16, 2023	**Abbreviated Injury Scale (AIS) 2015** Association for the Advancement of Automotive Medicine

NOT FOR EXPERT DESIGNATION

June 5-16, 2023	**Injuries, Anatomy, Biomechanics & Federal Regulation** Society of Automotive Engineer
May 25, 2023	**Seatbelts, Pre-Tensioners, and Airbags: How they work and their effect on occupant safety** California Association of Accident Reconstruction Specialists
Sep 9-Dec 9, 2022	**Project Management for Biomedical Device Development** University of Victoria-Micro Credential
May 9-12, 2022	**Injury Biomechanics and Traffic Crash Reconstruction** Northwestern University for Public Safety
October 26-27, 2021	**9th NHTSA Workshop on Human Subjects for Biomechanical Research** National Highway Traffic Safety Administration
April 12-14, 2019	**Tissue Constitutive Models In Human Body Models for Enhanced Safety** Banff International Research Station (BIRS)

CONSULTING WORK

The work I perform as a biomechanist and engineer comprises:

- The causes of injury an individual may have sustained as a result of an industrial, occupational, criminal, or motor vehicle accident;
- Whether the alleged injuries sustained in an accident were consistent with the magnitude and forces a person would have experienced;
- The effect of external objects such as head restraints, dashboards, seat belts, falling objects, or other mass would have on the body;
- The movement patterns (kinematics) experienced by the person during an incident;
- The mechanism of injury from interacting with a machine or device.

With my extensive knowledge in biomechanics, human kinetics, and mechanical engineering, I possess the ability to analyze and understand the specific types of injuries that different tissues may endure. By examining the forces and movements involved in an incident, I can accurately assess the traumatic experiences of individuals and construct a biomechanical model of the accident. Furthermore, I specialize in identifying the mechanism of injury that occurs when a person interacts within person-machine environments.

COLLISION TESTING

- Southwestern Association of Technical Accident Investigators (SATAI) Crash Testing.
  February 25-26, 2026

Volunteered in low-speed rear-end crash tests while seated in the bullet vehicle, a 2013 Hyundai Sonata, which rear-ended a target vehicle, a 2022 Tesla Model 3. The airbag deployed in the bullet vehicle during one of the impacts. Also assisted in organizing and performing high-speed rear-end, automobile-versus-motorcycle, and head-on crash tests. All tests also utilized instrumented anthropomorphic test devices (ATDs) or a Rescue Randy crash dummy.

NOT FOR EXPERT DESIGNATION

COMPLETED RELEVANT UNIVERSITY COURSEWORK

- Introduction to Biophysical Aspects of Human Movement
- Musculoskeletal Anatomy
- Human Anatomy and Physiology I and III
- Motor Control and Learning
- Principles of Physics 1
- Biomechanical Analysis of Human Movement
- Exercise Physiology 1
- Laboratory Techniques in Exercise Physiology and Biomechanics
- Neural Control of Human Movement
- Measurement and Data Analysis in Human Kinetics
- Posture, Movement, and Injury Prevention
- Psychomotor Behaviour Laboratory
- Prevention and Care of Athletic Injuries
- Musculoskeletal Biomechanics
- Selected Topics in Sport, Physical Activity, and Health: Graduate Level Biomechanics
- Quantitative Data Analysis in Sport, Physical Activity, and Health
- Continuum Mechanics
- Optical-Mechanical Sensing
- Rehabilitation Engineering: Assisted Movement After Injury
- Biostatistics I

ACHIEVEMENTS

- Published 16 full manuscripts in peer-reviewed biomechanical, scientific, and engineering journals.
- Published over 25 biomechanical and engineering peer-reviewed short communications, conference proceedings, and abstracts.
- Orally presented at nearly 10 national and international biomechanics and engineering conferences.
- Mentored 2 upper-year undergraduate mechanical engineering students related to tissue biomechanics.
- Reviewer for “Journal of Forensic and Legal Medicine”.
- Reviewer for “Computer Methods in Biomechanics and Biomedical Engineering”.
- Reviewer for “Heliyon”.
- Reviewer for “Clinical Biomechanics”.
- Reviewer for “Journal of Biomechanics”.
- Reviewer for “Annals of Biomedical Engineering”.
- Reviewer for abstracts submitted to the World Congress of Biomechanics conference, 2026.

SELECTED INVITED PRESENTATIONS

Adanty, K. “Academia To Industry”. **10th World Congress of Biomechanics**. Vancouver, British Columbia, Canada. July 14, 2026. Panel Session.

Adanty, K. “Occupant Kinematics and Injury Patterns In Crash Investigations”. **Midwest Traffic Safety Conference (MTSC)**. Itasca, Illinois. November 6, 2025.

Adanty, K. “Occupant Biomechanics in Motor Vehicle Collisions”. **Southwestern Association of Technical Accident Investigators (SATAI)**. Glendale, Arizona. October 11, 2025.

Adanty, K. “Head and Brain Injuries in Auto vs. Cyclist Accidents: Helmet Protection Capabilities”. **National Association of Professional Accident Reconstruction Specialists**. Virtual. August 22, 2025.

Caraan, J.A., White, H., **Adanty, K.,** Shimada, S.D. “Modelling Occupant Lumbar Spine Accelerations During Far-Side Lateral Impacts”. **Canadian Society For Biomechanics**. Edmonton, Alberta, Canada. Poster Presentation. August 19-22, 2024.

Adanty, K. “Motor Vehicle Collisions: Injury Biomechanics Perspective”. **Mercury Insurance’s Minimum Continuing Legal Education.** Virtual. August 7, 2024.

NOT FOR EXPERT DESIGNATION

Adanty, K. "Pedestrian vs. Auto: Injury Biomechanics Perspective". **American Automobile Association's (AAA) Minimum Continuing Legal Education.** Virtual. March 21, 2024.

Adanty, K. "Pedestrian Injury Analysis/Biomechanics". **California Association of Accident Reconstruction Specialists,** Lake Tahoe, California, October 26-28, 2023.

Li. Y., **Adanty, K**., et al. "The Effect of Scalp Thickness on The Impact Response of a Physical Head Brain Model" **International Research Council on Biomechanics of Injury (IRCOBI)**, Porto, Portugal, October 14-16, 2022.

Adanty, K., et al. "The Design of a Preliminary Surrogate Model of the Human Calvarium Using a Readily Available Epoxy" **International Research Council on Biomechanics of Injury (IRCOBI)**, Porto, Portugal, October 14-16, 2022.

Adanty, K., et al. "Mechanical Properties of Male and Female Calvaria in Four-Point Dynamic Impact Bending" **International Research Council on Biomechanics of Injury (IRCOBI)**, Virtual, September 8-10, 2021.

Adanty, K., et al. "Determining the Relationship Between Skull Diploë Morphometry and Mechanical Properties in Four-Point Bending" **International Society of Biomechanics Congress**, Virtual, July 25-29, 2021.

Adanty, K. "Surrogate Skull Development" **Tissue Constitutive Models In Human Body Models for Enhanced Safety,** Banff International Research Station (BIRS), Banff, Canada, April 13, 2019.

Adanty, K., et al. "A Comparison Between Two Oblique Test Protocols for Cycling Helmets" **World Congress of Biomechanics**, Dublin, Ireland, July 8-12, 2018.

Adanty, K., et al. "Dynamic Head Response for Helmeted (American Football) and Non-Helmeted At Varying Horizontal Impact Offsets" **International Society of Biomechanics Congress**, Brisbane, Australia, July 23-27, 2017.

ACADEMIC SCHOLARSHIP AWARDS

August 20, 2024	**Canadian Society of Biomechanics** Travel Award
October 14, 2022	**IRCOBI Travel Grant Award** IRCOBI Europe
August 25, 2022	**Mary Louise Imrie Graduate Student Award** University of Alberta
March 11, 2022	**Ohio State University, Injury Biomechanics Research Center Honorarium Award** Ohio State University
October 5, 2021	**University of Alberta-Travel Award-Online Conference** University of Alberta
September 1, 2018	**Faculty of Engineering Early Career Research Award From Supervisor to Student** University of Alberta
September 1, 2018	**University of Alberta Doctoral Recruitment Scholarship** University of Alberta
September 1, 2016	**University of Ottawa Admission Scholarship for Graduate Studies** University of Alberta
April 20, 2015 & 2016	**University of Ottawa Dean's Honours List** University of Ottawa

NOT FOR EXPERT DESIGNATION

September 1, 2012 **University of Ottawa Undergraduate Admission Scholarship**
University of Ottawa

MEMBERSHIP IN PROFESSIONAL AND SCIENTIFIC SOCIETIES

2021-Current	California Association of Accident Reconstruction Specialists (CA2RS)
2021-Current	International Society of Biomechanics (ISB)
2023-Current	Society of Automotive Engineers (SAE)
2024-Current	Canadian Society of Biomechanics (CSB)
2025-Current	Southwestern Association of Technical Accident Investigators (SATAI)
2025-2026	National Association of Professional Accident Reconstruction Specialists (NAPARS)
2022-2025	American Society of Mechanical Engineers (ASME)

NOT FOR EXPERT DESIGNATION