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**ROBSON FORENSIC PRESENTS**

# Injury Causation

Our Bioengineering experts apply mechanical, electrical, and chemical engineering to determine the cause of bone, tissue and organ failure within the human body. Understanding exactly how an injury occurred can lead to a determination of causation, preventability, and liability in personal injury, criminal, and product related matters.

Our Bioengineering practice includes degreed and licensed Biomechanical and Biomedical Engineers. Our experts perform comprehensive analyses of traumatic injuries when the cause or mechanism of an injury is not known, is not understood, or is in dispute. We determine whether the injury could have occurred as claimed and whether the injury is consistent with evidence. Our on-point technical expertise is often applied to motor vehicle collisions, slips, trips and falls, sports and recreational activities, occupational or workplace safety and product design and failure.

To contact us, call 800-813-6736, one of our office locations on the back of this piece, or visit [www.robsonforensic.com](http://www.robsonforensic.com).

**Robson Forensic**  
Engineers, Architects, Scientists & Fire Investigators

# Injury Causation

## **Our Expertise in Bioengineering:**

- ◆ Vehicular Collisions
- ◆ Boat and Ship Collisions
- ◆ Falls
- ◆ Sports and Recreation
- ◆ Occupational and Workplace Safety
- ◆ Impacts
- ◆ Overuse
- ◆ Failures of
  - ◆ Medical Implants
  - ◆ Assistive Devices
  - ◆ Orthotics or Prosthetics
- ◆ Assaults and Fights

## **Other Expert Areas:**

- ◆ Construction
- ◆ Professional Liability
- ◆ Agriculture / Food Safety
- ◆ Dram Shop / Liquor Liability
- ◆ Medical
- ◆ Motor Vehicles
- ◆ Premises Liability
- ◆ Environmental Health and Safety
- ◆ e-Discovery
- ◆ Meteorology
- ◆ Transportation
- ◆ Workplace Safety
- ◆ Admiralty
- ◆ Child Supervision

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# Recent Case Highlights

## Woman and child killed in 52-car pile-up

A woman and her infant child were killed when they were involved in a 52-car pile-up that occurred during a winter storm. A truck driver lost control during what he claimed was a “whiteout” snow condition. The truck crashed into another stopped truck as well as other stopped/previously crashed vehicles. The crash resulted in a fire. The woman, her child, and one of the truck drivers were killed in the incident.

Robson Forensic was retained to provide a complete accident reconstruction, including vehicle and weather analysis and fire investigation; as well as an evaluation of the truck driver’s action, and injury causation. We were asked to determine how the crash occurred and if the woman and her child were killed in the initial impact, or if that impact was survivable and they perished in the ensuing fire.

Our accident reconstructionist showed that impact by the first truck caused the previously crashed truck to strike the vehicle occupied by the mother and child. Based on the accident reconstruction and damage to the vehicle, we found that the impact itself was relatively minor. Our biomechanical expert determined that both the woman and infant would have only sustained minor injuries; the collision itself was survivable. They were killed in the ensuing fire.

This case settled favorably for our client before trial.

## Criminal charges resulting from death in boat collision

A woman passenger was killed and three others were injured when a power boat collided with a personal watercraft (PWC). Robson Forensic was retained to reconstruct the collision, evaluate the injuries, and to determine if the actions of the powerboat operator caused, or could have avoided, the collision.

There were conflicting accounts of the incident. Our maritime expert reconstructed the collision and determined that as the two vessels approached each other, the PWC (the Give-Way vessel) was required to yield to the power boat (the Stand-On vessel). The PWC failed to yield and entered quickly and unreasonably into the power boat’s path. Damage to the two vessels showed that the power boat executed an evasive maneuver prior to the collision, a hard turn to starboard.

Our biomechanics expert analyzed the injuries of the two PWC riders and confirmed the reconstruction. Both the driver and the woman’s injuries were caused by direct impact and neither had any injuries indicative of coming into contact with the boat’s propellers. This was consistent with a collision with the side of the boat, as our marine expert opined. The only way that the PWC riders’ injuries could have occurred is by contacting the side of the power boat as it was turning to avoid colliding with the PWC.

The power boat operator was acquitted of all criminal charges.

## Woman burned by pizza

A woman sustained burns to her right forearm when a pizza recently removed from the oven fell onto her arm. Robson Forensic was retained to determine if her burns were consistent with the pizza falling on her and whether her failure to seek prompt medical treatment contributed to the severity of her injury.

The woman entered the kitchen area of the pizza shop owned by her son. Her son was exiting the kitchen with a hot pizza when they collided and the pizza he was carrying landed on her arm. She waited two days before visiting the emergency room and it was two more days before she followed her physician’s advice and was admitted to the burn unit for treatment of her now infected burn. The burn had been untreated for four days.

Based on medical records, we showed that her burn was initially diagnosed as second degree by emergency room physicians. Four days later, when the woman finally sought burn treatment, her burn was third-degree. If neglected, burns can become infected and the swelling and decreased blood flow in tissue can result in the burn becoming more severe.

Our biomechanical expert concluded that the second degree burn the woman received was a result of contacting a hot pizza, however the infection and increased burn severity were caused by her neglect to seek prompt medical care and follow her physician’s advice. Had she seen a doctor immediately and complied with her physician’s advice, her burn could have been treated with no worsening of her injuries. Her actions resulted in the increased severity of her injuries.

This claim was resolved to the satisfaction of our client.

## Man hit by fork lift

A man injured his leg and foot when he was struck by a forklift. The man was a contractor on-site in a warehouse, and claimed he was standing still in an aisle when the forklift ran into him. Robson Forensic was retained to determine the man’s orientation and position at the time of impact.

Our biomechanics expert found that the man had sustained fractures to his right lower leg, as well as his left big toe. The fracture pattern on his leg showed that load was applied to the inside surface of his lower right leg. There were no injuries to his left leg, with the exception of a transverse fracture across the tip of his left big toe. We showed that when the forklift contacted his right leg, the weight bearing leg, it pushed him to his right. The left leg, since it was not weight bearing, moved towards the forklift. His big toe injury was consistent with being caught by the forklift’s right wheel.

The man’s injuries indicated that he was walking when struck and that he was struck on his left side. This was consistent with him walking into the aisle into the path of the forklift. The man was not standing in the path of the forklift as he had claimed, but rather entered its path as the forklift was traveling through the aisle.

This case settled favorably for our client.

# Featured Experts

## **Larry Fennigkoh, Ph.D., PE**

*Biomedical Engineer*

Dr. Larry Fennigkoh is a Biomedical and electrical engineer who has investigated numerous injuries – particularly shocks, burns, fires, and deaths – associated with a variety of medical and non-medical electrical devices. Having worked in hospitals for over 20 years, he understands not only the pathophysiology of such injuries, but the many ways in which they may be caused. Dr. Fennigkoh is also capable of testing and evaluating electrical devices, tools, and appliances; residential and commercial electrical wiring and grounding systems; ground-fault circuit interrupters; and isolated power systems.

Currently, Dr. Fennigkoh is a professor of Biomedical engineering teaching graduate and undergraduate courses in medical instrumentation, Biomedical engineering design, Biomechanics, Biostatistics, and human physiology. He is a Registered Professional Engineer and board certified in clinical engineering. He is also a member of the Institute of Electrical and Electronic Engineers, Engineering in Medicine and Biology Society, Association for the Advancement of Medical Instrumentation, and a Fellow within the American Institute for Medical and Biological Engineering.

## **Mari S. Truman, PE**

*Impact and Injuries Biomechanics and Orthopedic Biomechanics*

Mari has been a Biomechanical engineering expert with Robson for five years. Her leading-edge technical expertise includes examining motions and forces applied by and to the body during a fall and fall recovery, projectile impacts, vehicular collisions and sports, recreation and occupational overuse or injury. She has over 26 years experience of product design and development in orthopedic medical devices. She has earned three patents for implants and instruments used for human joint and skeletal reconstruction. She has published and lectured.

Mari applies the principles of engineering mechanics to basic biological processes and mechanisms related to the structure, function and injury thresholds of body tissues, with emphasis on bone and other skeletal tissues and organ systems such as the brain, skin, heart and abdominal organs.

When evaluating medical device failures, she draws on her strong knowledge of design assurance, design control, failure modes and effects analysis, intra- and post operative device loading.

Mari is a registered Professional Engineer in Ohio. Her professional affiliations include membership in the International Society of Biomechanics and the American College of Sports Medicine.

## **Jamie R. Williams, Ph.D.**

*Biomedical Engineer / Biomechanics and Bioengineering*

Jamie's extensive research career in orthopedic and musculoskeletal Biomechanics has provided her with in-depth knowledge of anatomy and physiology in applied engineering. Her extensive technical skill enables her to comprehensively analyze the forces and motions exerted on or produced by the body during a variety of situations including vehicular collisions, falls and trauma, and overuse injuries relating to occupational conditions, sports or recreational activities.

Jamie holds multiple teaching and research appointments and has ten years experience conducting Biomechanical testing using a variety of experimental and computational methods. She has a concentrated research interest in disc degeneration and low back pain, and has overseen several industry-funded projects on development and testing of orthopedic implants. Her work has been published in several top-tiered medical and technical journals, and she has presented her research at national and international conferences and symposia. Her research is funded by federal agencies including the National Institutes of Health. Jamie also develops course-work and teaches undergraduate and graduate level Biomechanics classes, most recently on soft tissue Biomechanics.