

# ROCHON REPORT

Rochon Engineering

## THE ROLE OF A BIOMECHANIST IN DECIPHERING INJURY

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Human injury is a very complicated entity with many interdependent variables that can confound the likelihood of injury. Examples of such considerations include the mechanics and physics of the event, the biological responses of the body's bones, muscles, ligaments and other soft tissues to the event's mechanical consequences, and personal factors such as age, gender, weight, and pre-existing medical conditions. The combined influence of these factors may make a person more or less susceptible to injury. Another dimension can be added to the analysis of injury potential when considering individual reactions and human movement patterns.



**Biomechanists can help understand driver motions and the influence of driver-vehicle interactions in accident reconstruction.**

Complete and detailed analyses of a possible injury scenario provided by a biomechanical expert require a detailed understanding of human anatomy, anthropometry (body shape and size), physiology, mechanics, physics, psychomotor behavior and human movement. The biomechanical expert has the ability to quantify the forces imposed on

the body and determine how these forces are transferred within the body to bones, ligaments, muscles and other soft tissues.



**Biomechanics quantifies the forces experienced by the body during slips, trips or falls and then compares these forces to injury thresholds to ascertain the likelihood of injury.**

Comparing the forces experienced during the event within the body to published tissue-specific injury thresholds, the biomechanical expert can uniquely address the likelihood of injury from a quantitative standpoint. A highly qualified biomechanical expert can also assess the medical history of the claimant for any pre-existing conditions and other factors that may have influenced the likelihood of injury.

*Dr. Samuel Howarth, BSc, MSc, PhD has conducted biomechanical research for more than 8 years to identify the factors that contribute to human injury. Through his research, Samuel has developed an in depth understanding of the combined biological and mechanical factors that can lead to injury as well as the forces and movements that can produce injury.*

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