

# injury biomechanics

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MEA's Injury Biomechanics group combines specialized knowledge of injury, anatomy and human performance with fundamental engineering mechanics to determine how injuries are caused and prevented.

In order to assess injury causation, we compare the forces applied to the body during an event to the forces required to generate a diagnosed injury. We incorporate modifying factors like age, gender, medical history and occupation to quantify a specific individual's exposure and tolerance. Our goal is to provide clients with solid, science-based answers that stand up in court.

Our engineers have advanced degrees in injury biomechanics and have conducted laboratory tests on biological tissues. This combination of education and hands-on experience allows them to better understand and apply the scientific literature to the real-life events and injuries in our clients' cases.

MEA's Injury Biomechanics group conducts research related to topics that range from head to toe: from studying brain injury, concussion and helmets, to measuring shoe/floor friction during slip and falls. We publish our research in peer-reviewed biomechanical, clinical and safety journals to ensure our work is properly vetted and widely distributed to the relevant scientific communities. Our research puts us at the leading edge of knowledge on a wide range of injury and safety-related topic, and has generated experimental capabilities that can be used to answer specific case-related questions.

The Injury Biomechanics group often collaborates with MEA's other practice groups to build a complete picture of an incident and the resulting injuries.

## Motor Vehicle Crashes

Injury causation

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Seatbelt effectiveness

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## expertise contact

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## associated

Exposure/risk comparisons

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Helmet effectiveness

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Occupant kinematics

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Driver identification

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Pedestrian impacts

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Crash survivability

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## Sport, Recreation & Playgrounds

Bicycle and diving accidents

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Sports and safety equipment

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Product failure

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Amusement park incidents

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Exercise equipment

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Playground structures and surfaces

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## Slip, Trip & Fall

Injury mechanics

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Stairs, ramps and handrails

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Code compliance

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Property standards

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Obstacle avoidance

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## professionals

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### vancouver

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Alyssa DeMarco

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Shannon Kroeker

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Peter Crompton

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### los angeles

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Ross Hunter

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Stephanie Bonin

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Tim Nelson

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Bradley Rutledge

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### toronto

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Benjamin Elkin

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# Human Movement & Interaction

Assaults

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Firearms and shootings

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Strength and reaction time

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Ergonomics

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Visibility and conspicuity

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Fatigue and distraction

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