

WORKSHOP WRAP-UP

Unearthing the Nature, Extent of Injuries

By Christina Bramlet

Bodily injury claims stemming from vehicle collisions, slips and falls, product use, and industrial accidents invariably end up on the SIU investigator's desk. In any number of these cases, it may not be immediately apparent if the severity of the alleged injury is consistent with the conditions of the accident.

To find out what really happened when the loss description seems downright implausible, investigators increasingly rely on biomechanical engineers. The effective collaboration between these two parties to reveal the true nature and extent of claimed injuries and thus quell insurance fraud was the subject of yesterday's session, "Injury Causation: Did the Injuries Really Happen Here? Assessing Injury Causation Using Biomechanical Engineering."

David Gushue, PhD, biomedical engineer at ARCCA Incorporated, hosted the session, which was a continuation of the well-received ARCCA IASIU seminars of 2007 and 2008. Dr. Gushue began with the same fundamental framework as past biomechanical seminars, adding fresh examples, data, and video footage to convert scientifically complex concepts into easily digestible morsels for the laymen.

Points for discussion included the customary breadth of expertise of biomechanical engineers and how their multifaceted knowledge can assist SIU with low- and high-impact vehicular accident investigations and other queries. As Dr. Gushue explained, engineers of this kind have a firm grasp of human anatomy and physiology, kine-



matics, and neuroscience — among other disciplines. Thus, they understand how muscles, tissues, tendons, and bones will react to a given force, such as impact sustained in various types of accidents. All of this can be applied to establish injury causation in a given case. The biomechanical engineer would weigh factors, such the mechanism of the accident; the kinematics of the claimant; the nature and magnitude of forces generated; and the tolerance of a particular body part to certain forces applied by a certain mechanism.

Biomechanics is increasingly appropriate for analyzing suspicious minor-impact soft-tissue (MIST) bodily injury claims, including those related to low-speed frontal, rear-end, and sideswipe accidents. These can present myriad challenges for adjusters and investigators, partially because of the sheer volume.

"An estimated 2.9 million Americans are injured in car accidents each year," Dr. Gushue reported. "Of those injuries, 26 percent involve

alleged whiplash. In these instances and others, we can examine the damage to the vehicle(s) involved to ascertain if the force of the crash equates to the probability of injury. We can gauge the severity of an accident by calculating delta-v, the human tolerance, and by factoring the design of the vehicle."

Dr. Gushue incorporated videos of actual testing for collisions and slip-and-fall cases, using recent case studies to illustrate various biomechanical concepts as they pertain to a range of injuries, from the likely to the unlikely. This included an overview of how much force is required to cause a herniated disc on a lumbar spine, for example, as well as other ailments, such as carpal tunnel; cervical as well as thoracic and lumbar spine strains and sprains; compression fractures, TMJ; rotator cuff; ACL tear; whiplash; vision and hearing loss; and migraines.

The importance of the subtle differences between slips, trips, and falls was also discussed in detail.

"A slip causes different injury mechanisms than a trip," explained Dr. Gushue. "Slips might result in lower back, wrist, and head injuries, whereas trips could involve rotator cuff, wrist, and knee injuries."

Above all, this session accentuated the viability of biomechanics in SIU investigations to ensure separation of the diagnosis from causation, as well as the bogus claimed injury from the legitimate.

"At the end of this presentation, the SIU professional should have the tools and knowledge to better evaluate the reported injuries," concluded Dr. Gushue. "They should also realize when to take their investigation to the next level." ■

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