

Research on Low Impact Motor Vehicle Collisions and the Risk of Occupant Injury

Even if one ignores the voluminous clinical evidence, the medical research on low impact collisions confirms that injury can occur even in the absence of any significant vehicle damage. In short, one cannot rationally deny the likelihood of occupant injury in motor vehicle accidents based upon the amount of vehicle damage alone. Those who attempt to do so are not relying upon credible research or scientific consensus.

1. **"The results rigorously show that in a no damage accident the struck, or target vehicle, can obtain a delta-V of 10 mph or greater, which is well into an injury producing range."** Research published by Batterman and Batterman, accident reconstructionists, noted that any literature which proclaimed one cannot sustain whiplash injury in a low-speed impact is scientifically and methodologically flawed and invalid. (Batterman SD and Batterman SC; Delta-V, Spinal Trauma, and the Myth of the Minimal Damage Accident; Journal Of Whiplash & Related Disorders; Vol. 1, No, 1, 2002.)
2. **"The degree of damage to the vehicle was not a predictor of outcome."** Based upon a prospective study that followed 135 whiplash patients for one year. (Gun, Richard Townsend MB, BS; Osti, Orso Lorenzo MD, PhD; O'Riordan, Alison MPhil; Mpelasoka, Freddie PhD; Eckerwall, Claes Goran Mikael MD, PhD; Smyth, James Farrell; Risk Factors for Prolonged Disability After Whiplash Injury: A Prospective Study; Spine: Volume 30(4), February 15, 2005, pp 386-391).
3. **"There is little evidence that the severity of the impact predicts the early onset of neck pain or pain at 1 year."** Based upon a prospective study over one year to 503 whiplash-injured patients. (Pobereskin LH, Whiplash following rear end collisions: a prospective cohort study; Journal of Neurology, Neurosurgery, and Psychiatry, August 2005;76:1146-1151.)
4. **"Attempts to correlate outcome with the extent of damage to the involved cars and their speed has previously been shown to be of little prognostic value."** Based upon a study of 117 consecutive whiplash patients that were followed for more than 12 months. (Sturzenegger M, Radanov BP, Di Stefano G, The effect of accident mechanism and initial findings on the long-term course of whiplash injury, J. Neurology, 1995, 443-449.)
5. **"The myriad of dynamic variables between occupant and vehicle precludes a definition of change-in-velocity thresholds for neck injury from car collisions."** Additionally, it was stated that **"A variety of factors, including the occupant's awareness or head position in a colliding vehicle, defines the risk of neck injury to passengers in colliding vehicles. One can only conclude that the threshold of injury is a complex dynamic relying on velocity, force, head position, head-torso angles, restraint placement, anticipation, tissue elasticity, tissue strength, and any multitude of variables that evade accurate determination."** Based upon a study of disability cases following low-speed bumper car collisions. These subjects had suffered chronic, debilitating pain and no positive findings on MRI, CT, and EMG studies. (Duffy, Michael F. MD; Stuberg, Wayne PhD; DeJong, Stacey MS; Gold, Kurt V. MD; Nystrom, N Ake MD, PhD; Case Report: Whiplash-Associated Disorder From a Low-Velocity Bumper Car Collision: History, Evaluation, and Surgery; Spine: Volume 29(17) September 1, 2004 pp 1881-1884.)
6. **"The risk of WAD (Whiplash Associated Disorders) symptoms for more than one month was found to be 20% (of those studied) at a change of velocity of approximately 8 km/h (5 mph) and at a mean acceleration of approximately 5 g."** Based upon real-life rear-end collisions of 60,000 vehicles with collision acceleration monitoring devices. Maria Krafft, Anders Kullgren, et al, Influence of crash severity on various whiplash injury symptoms: a study based on real-life rear-end crashes with recorded crash pulses. National Highway Traffic Safety Administration, Paper Number: 05-0363).
7. **"Property damage is neither a valid predictor of acute injury risk nor of symptom duration."** Additionally, the authors stated that **"Based upon our best evidence synthesis, the level of vehicle property damage appears to be an invalid construct for injury presence, severity, or duration."** Based upon a comprehensive best evidence synthesis of the existing medical and engineering literature to investigate the relationship between vehicular structural damage and occupant injury in motor vehicle crashes. (Croft AC, Freeman MD: Correlating crash severity with injury risk, injury severity, and long-term symptoms in low velocity motor vehicle collisions. Med Sci Monit 2005 11(10):RA316-321).