

Corroboration of the data obtained by virtual methods with the real ones in the study of road accidents

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Abstract

Even though the frontal collisions occur in a much larger percentage than the lateral collisions, the lateral collisions consequences can be much more serious than the frontal collisions. This paper is meant to be a study on the importance of crush energy, which determines the mechanism that produces the severity of injuries. Using Newton laws of mechanics, we can discuss about the conservation of energy and linear momentum law which determine the impact force, speed and deformation. After, we compared the obtained data from the laboratory virtual crash tests with the determined values from the polygon experimental tests. Analytical techniques that determine the occupant and vehicle behaviour from this stage allow determining the mechanism that produces the damages and biomedical parameters, which are representative and correspond to the real applications from the practice investigation of the traffic events. The information is extremely useful to expert investigators who activates in the field of traffic events investigation and reconstruction.

Keywords: lateral collisions, crush energy, injuries, crash tests, traffic events

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