

Abstract

Title: Analysis of the localization of the impact impulse and its course during a collision between a dummy and a tram

Objectives: To create a methodical thesis dealing with the analysis of the impact impulse during a collision between Jasti Hybrid III dummy and different types of trams (T3, KT8D5, 14T and 15T), based on data of the acceleration of individual segments during a side collision at speed of 15 km/h.

Methods: The thesis presents a method of working with acceleration data of individual body segments of a dummy during a collision with tram, in order to interpret the course of the impact impulse. Data are interpreted using newly introduced PIIC (Parametr Implementing Injury Criterion), which was calculated using the Microsoft software program and graphically interpreted using the Origin 2023 program.

Results: The method of analysis of the impact impulse during the collision between a dummy and a tram based on the PIIC (and also $PIIC_{kum}$) seems to be a useful tool for interpreting the course of this impulse. When comparing the PIC results, an obvious connection was found with the analysis of video recordings of individual experimental measurements.

Keywords: tram-pedestrian collision, analysis of primary impact, injury criteria, pedestrian safety