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ALAN M. IMMERMANN, D.C.

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EXCERPTS FROM A PELES REBUTTAL REPORT

Joseph D. Peles, Ph.D., is frequently hired by the defense in motor vehicle cases. I have rebutted him more than 100 times since 1997. The arguments change over the years and here are some of the newest:

Inaccurate calculation of Delta V

Dr. Peles concluded that the Delta V for the subject Dodge was less than 4.7 mph. In doing so he noted: "Given the conservative crush profile and given the upper bound stiffness for the rear of the Dodge (Neptune Engineering), the upper bound average impact force was calculated to be 3,768 pounds."

The Neptune data was obtained using higher speed collisions (35-40 mph) with greater Delta Vs and cannot be applied to a relatively low speed collision. This fact alone renders Dr. Peles' figure for Delta V invalid.

Moreover, the Neptune Engineering data is based on rigid barrier-to-car impacts, not vehicle-to-vehicle impacts as occurred in the subject accident. Dr. Peles has compared the stiffness values found with rigid barrier-to-car impacts to the damage caused by the subject vehicle-to-vehicle impact even though the two are not substantially similar.

The Delta V required to cause a prescribed amount of damage to the subject target vehicle as a result of a vehicle-to-vehicle collision is significantly greater than the Delta V required to produce the same amount of damage to an identical vehicle as a result of a rigid barrier-to-vehicle impact. It is possible to have a 100% variation. Considering this fact and using Dr. Peles' figure of Delta V less than 4.7 mph, the actual Delta V for the subject Dodge could have been as high as 9.4 mph.

There is no known threshold of injury for all populations of people

Dr. Peles quoted Bogduk as stating that the threshold for symptomatic injury is approximately 5 mph, and that "patients subjected to impacts four to eight times as great could develop lasting injuries and symptoms." These statements were made in a one page editorial published in 1999. (Bogduk, 1999) This editorial was not peer reviewed and merely represents the beliefs of one individual. It cannot be used as a basis for establishing the threshold for symptomatic injury following a rear end collision.

In the Bogduk editorial, two human volunteer studies were cited, each testing fewer than 20 individuals. The laws of statistical science require testing of hundreds or thousands of people

to establish a human threshold for injury. In addition, a by Brault found that the threshold for symptomatic injury is 2.5 mph, not 5 mph, in 29% of volunteers (Brault et al, 1998). If the plaintiff in this matter is similar to the 29% of volunteers in the Brault et al study, then a Delta V 5.0 mph impact would have transferred four times the energy to the plaintiff than experienced by the volunteers. This severity level would then fall into Bogduk's range when he noted that an accident four to eight times more severe than the threshold could cause lasting injuries and symptoms to occur. It is noted that Dr. Peles calculated a Delta V of less than 4.7 mph, quite close to the 5.0 mph threshold for 29% of Brault volunteers. It is also noted that Bogduk stated that his four to eight times was "approximate."

Dr. Peles cites human volunteer studies but then concludes that "the above cited human volunteer testing was not relied upon in the generation of opinions regarding injury mechanisms. The injury mechanism opinions are based on an analysis utilizing the deterministic laws of physics and engineering and thus are independent of the volunteer research." Dr. Peles has claimed that human volunteer tests are not required to determine the amount of Delta V required to cause injury in human beings, and that the laws of physics and engineering may be relied upon instead.

This is false. There is no way to know how much force is required to injure individuals unless there is testing of hundreds or thousands of individuals. If Dr. Peles is correct that human volunteer tests are unnecessary, why have so many human volunteer tests such as those cited by Dr. Peles been conducted around the world in the past ten years? Scores of researchers, including those cited by Dr. Peles, have concluded that human volunteer testing was required and that it is impossible to determine injury threshold based merely on the laws of physics and engineering.

Clearly, human testing is needed just as the FDA will not approve a new drug without human testing. The FDA has never claimed that drug approval can be based on the laws of biochemistry in the absence of human testing. Dr. Peles stands alone in the accident reconstruction community when he claims that human testing is not required and that one can simply rely on the laws of physics and engineering. Dr. Peles' opinion that human volunteer tests are not needed and that it is sufficient to rely on physics and engineering laws has not achieved general acceptance in the scientific community, or any specific acceptance whatsoever.

While it may be correct to state that a 4.7 mph Delta V rear impact collision will only result in a significant injury in one in 100 individuals, this low probability of injury is unrelated to the actual result of the crash in an individual, as they may very well be the one in 100 who was injured. The low probability of injury in the general population does not help determine the presence of injury in the individual any more than the low probability of dying in a plane crash helps to determine whether an individual is dead following a crash. Using probability to predict a non-injury outcome of a crash, in spite of medical evidence to the contrary, is another classic application of junk science.

A recent review of the literature regarding injury threshold noted: "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." (Duffy et al, 2004) Clearly, one

cannot simply calculate a figure for Delta V and then accurately predict the risk or severity of injury.

In the past five years I have rebutted Dr. Peles on more than one hundred occasions. In each case the medical evidence clearly reflected the presence of injury following a low speed accident. In each case Dr. Peles claimed that it was impossible for such injuries to occur as a result of the accident. Ironically, Dr. Peles has now conducted the largest study of crash victims ever performed to date. A simple review of the one hundred cases actually proves that serious injuries are possible following low speed accidents. Dr. Peles has documented this fact with his own work.

In addition, I have attached a report from the Florida Department of Highway Safety and Motor Vehicles dated July 11, 2000 which discloses the number of low-speed crashes (defined as crashes when no vehicles are traveling over 10 mph and does not involve bicycles or pedestrians), number of fatalities and number of injuries for the period of 1994-1999. In a typical year such as 1998 the report noted that there were 396 fatalities. For the entire six year period there were more than 1,800 fatalities following low speed collisions in which Dr. Peles would surely claim that significant injury was impossible. These facts defeat Dr. Peles' claim that there are no injury mechanisms with low speed impacts.

Engineer Malcolm C. Robbins (Society of Automotive Engineers, #970494, 1997) reported that "A common misconception formulated is that the amount of vehicle crash damage due to a collision, offers a direct correlation to the degree of occupant injury. This paper explores this concept and explains why it is false reasoning . . . minor vehicle damage can relate or even be the major contributing factor to occupant injury." When there is an impact with significant vehicle crush damage, the forces of the impact are more likely to be absorbed by the vehicle than transferred to the occupant, thereby decreasing the likelihood of injury. Conversely, when there is an impact with little or no vehicle crush damage, the forces of the impact are not absorbed by the vehicle and they are transferred to the occupant, thereby increasing the likelihood of injury.