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An Expert Guide to the Seat Belt Defense

The injured plaintiff's damage award may be reduced if he was not strapped in at the time of the accident

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Although New Jersey is a "no-fault" state when it comes to automobile insurance, defendants in a motor-vehicle case may raise the issue of an injured driver or passenger exacerbating his or her injury by not wearing a seat belt. This is known as the "seat belt defense." When successful, this defense can result in a reduction of the damages paid to the plaintiff. Below is an exploration of the seat belt defense, from both a legal and an engineering point of view.

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Legal Guide

We begin with the legal ramifications of the nonuse of seatbelts. Any analysis must start with the general proposition that whether or not a plaintiff is wearing a seat belt is not relevant in deciding who is at fault for causing the accident.

The New Jersey Supreme Court clarified this issue in the case of *Waterson v.General Motors*, 111 N.J. 238 (1988). Anyone handling a seat belt issue must be extremely conversant with this case. While not wearing a seat belt is not relevant in deciding who is at fault for causing the accident, it may be meaningful in determining the amount of money the plaintiff may recover.

The amount of damages can be reduced if the defendant proves the following: 1) the plaintiff was not using an available seat belt at the time of the accident; 2) the plaintiff was negligent in not using that seat belt at the time of the accident; and 3) the plaintiff's injuries were made greater or more severe because he or she was not using the seatbelt. In other words, some or all of the plaintiff's injuries could have been prevented or avoided if he had been using a seatbelt. The defense will need an expert witness in this regard if it chooses to raise this defense.

It is important to review the Model Jury Charge 8.21 dealing with this issue.

Keep in mind that it is the responsibility of a driver to ensure his passengers are properly wearing seat belts. This includes both front and rear seat passengers. See N.J.S.A. 39:3-76.2(f). There are also requirements regarding children's passenger restraint systems, which are the driver's responsibility as well. The law does say that the failure to wear a child passenger restraint system or to use a booster seat shall not be considered as contributory negligence nor shall the failure to wear the child passenger restraint system be admissible as evidence at trial. See N.J.S.A. 39:3-76.2(a).

It is hard to imagine that anyone in 2013 does not understand the risk of not using seat belts. Tragically, however, we continue to read stories of needless deaths and catastrophic injuries that are caused by failing to wear seat belts. Please make a personal resolution to always be belted and ensure your family and friends do the same.

Engineering Guide

A typical automotive seat belt utilizes a three-point lap/shoulder belt found

in all front outboard seats since the late 1960s, in all outboard seating positions (both front and rear) since 1991, and in all center rear seating positions since 2005. Only older vehicles and some limited contemporary vehicles with three-position bench seats still have lap-belt-only restraints at center positions. Seat belt performance can be expressed in the following three ways:

• *An occupant stays in motion during a crash unless acted upon by the seat belt.*A crash alters a vehicle's speed and/or direction of motion. The unbelted occupant inside the vehicle continues to move at the pre-impact speed and direction until his/her motion is altered by hitting something. The seat-belted occupant stays with the vehicle, which minimizes or prevents interior impacts. If the vehicle's forward speed is decreased by the crash (frontal collision), then the seat belt is the primary restraining device. If the vehicle's speed is increased by the crash (rear-end collision), then the seat back is the primary restraint.

• *An occupant moves in a direction opposite to the line-of-force of the crash.* During the crash, the action of the vehicle provides a "principal direction of force" (PDOF), which the occupants follow. Therefore, in a frontal collision the PDOF causes the occupants to move toward the front of the vehicle. In a rear-end collision, the PDOF causes the occupants to move toward the rear of the vehicle. In other types of collisions, the PDOF may not be readily apparent and must be reconstructed.

• *The crash forces acting on an occupant are directly proportional to both the acceleration and mass of the occupant.* Basically, this is a restatement of Newton's equation, F = M*A, where F is the force acting on the occupant, M is the occupant's weight, and A is the acceleration of the occupant. Of these parameters, the acceleration usually becomes the primary variable for determining bodily injury during a crash. Generally, human bodies with properly designed restraint systems are more tolerant of front and rear crashes, and less tolerant of side crashes. The accelerations that an occupant experiences during a crash result directly from the crushing behavior of the vehicle during the crash, which is usually expressed as the change of velocity (Delta-V). In broad terms, the higher the Delta-V, the higher the acceleration levels experienced by the occupants. The specific performance of a vehicle during a crash is generally referred to as the "crashworthiness" of the vehicle.

Seat Belt Effectiveness

A considerable amount of research has been performed over the years to evaluate the effectiveness of vehicles and seat belts to protect occupants during crashes. The research has shown that seat belts have limitations and that not all seat belts are created equal. In the extreme example, a seat-belted occupant may "walk away" from a crash in one vehicle and yet be fatally injured in an identical crash with a different vehicle, simply due to the design and performance differences between the two vehicles.

The potential for injury varies not only as a function of the individual seat belt design, but as a function of several other factors as well. One must determine the position of each occupant within the vehicle and whether or not he or she wore the available seat belt. One must establish the characteristics of each occupant — age, height, weight and the nature and extent of the injuries sustained. The crash parameters must have to determined, i.e., Delta-V, PDOF and structural intrusion into the occupant compartment. Finally, the performance of the subject vehicle's crashworthiness and seat belt design has to be evaluated.

This detailed analysis will provide the necessary information to determine the viability of either proffering or countering of the seat belt defense.

When To Proffer the Seat Belt Defense

The following three basic accident scenarios define the most appropriate conditions for considering the use of a seat belt defense:

• *Frontal collision without significant intrusion.* A frontal collision is generally the direction of best performance for a good three-point seatbelt.

• *Occupant ejection.* Ejection from the vehicle can be an extremely hazardous event. However, if the vehicle sustains intrusion into the occupant's space, the seat belt may not have protected the occupant if he had stayed inside the vehicle.

• *Belted occupant in the same car sustains substantially less injuries.* A crash where an equally vulnerable belted occupant fared better than an unbelted occupant.

When To Consider Countering the Seatbelt Defense

The following five basic scenarios are usually worth considering a counter to the SBD:

• *High Delta-V and/or significant intrusion into the occupant compartment.* These types of crashes are usually beyond the protection and survival limits of seat belts.

• *When a known seat belt design defect could account for an injury of equal or greater severity.* The determination of a defect and its effects on occupant protection in a particular crash can only be determined by analyzing the specific characteristics of the subject seatbelt. Examples of this can be the load limiting devices, passive restraints, recalls, test problems, etc.

• *Lap-belt-only restraints (no shoulder strap).* Lap belts are outdated restraints and have been a known source of causing severe injuries in certain types of crashes.

• *Side impacts without occupant ejection.* In a side impact, the crash forces can cause occupants on the far side of the collision to slide out of the shoulder belt, while occupants on the near side of the collision can strike the vehicle structure next to them or penetrate the plane of the window. In side impacts, the seatbelt's ability to protect is very case specific and very design dependent.

• *Rear-end crashes.* In a rear-end crash, the seat back surface is the primary occupant restraining device, not the seat belt. And if the seat back fails rearward during the crash, seatbelt effectiveness may be voided.

The Use of Experts

There are several areas the expert should consider during an evaluation. First, he must establish the position of each occupant within the vehicle and determine whether or not they were wearing the available seat belt during the crash. The expert should assess the per-

formance capabilities of the seat belt for the particular vehicle, as it applies to each occupant in the vehicle. Next, he should establish the Delta-V, PDOF and accelerations generated during the crash, as well as the kinematics and the contact surface(s) of a hypothetically belted occupant and compare this to the known patterns of any unbelted occupant in the crash. Finally, the expert must establish the mechanism for the injuries sustained by the occupants so that seat belt usage (or nonusage) can be related to the injury itself.

This article is intended to provide a basic understanding and general guidelines for the evaluation of the possible proffering or countering of the seat belt defense. It must be emphasized, however, that each case is unique in many aspects and must be evaluated individually. ■