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Editorial Article

LETTER TO THE EDITOR: THE SEAT BELT MUST BE USED BY LAW AGENTS WHEN THE VEHICLE HAS AN AIRBAG AND BRIEF REVIEW OF THE LITERA TURE

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[2]http://lattes.cnpq.br/3807106463587266
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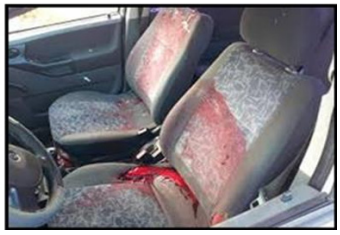
ABOUT THE TOPIC

Routinely, agents of the Brazilian police forces, more specifically from the state of Rio de Janeiro, do not use seat belts when on duty.

The non-use of this Personal Protective Equipment (PPE – seat belt) is justified by the violence faced daily by these agents, who are often targeted by shots fired directly at the windshields of vehicles, forcing them to disembark quickly, and if they were wearing a seat belt, the time spent unfastening it could be the difference between life and death.

The photograph shown alongside, published by the specialized press and publicly available, demonstrates a team of three civil police officers who are forced to disembark quickly to avoid being hit by gunfire.

To demonstrate what I am stating here, I present below photographs published by the specialized press, which are publicly accessible, showing a Military Police vehicle with its windshield perforated by bullet holes, and an image of the vehicle's interior, with bloodstains on both front seats.



The way to minimize the risks faced by Police Officers when in vehicles equipped with airbags is the installation of ballistic shields in operational vehicles of the Military Police, the Civil Police, and the Penitentiary Police of the State of Rio de Janeiro, as expressed in Bill No. 8,146 A of 2014, which became LAW No. 9,103 OF NOVEMBER 18, 2020, sanctioned by His Excellency the Governor of the State of Rio de Janeiro, Mr. Cláudio Bomfim de Castro e Silva.

This Law makes it mandatory for the government to install bulletproof windshields in police vehicles.

With the installation of ballistic shields in vehicles, officers would have time to unfasten their seatbelts, time which they currently do not have and, consequently, do not use seatbelts, thus exposing themselves to the risk of suffering the injuries previously described when colliding with vehicles in which airbags are an integral part.

To understand how airbags work, we refer the reader to the article published in the journal PERSPECTIVAS (Official publication of the Brazilian Association of Legal Medicine and Forensic Medicine) [1].

NOT WEARING A SEATBELT INCREASES THE CHANCE OF BEING KILLED BY AN AIRBAG

One of the most common excuses people give for not wearing a seatbelt is that the car's airbags offer sufficient protection in the event of an accident. However, they are wrong. Airbags are designed to work in conjunction with seatbelts to reduce injuries and fatalities.

Next, we will explain how airbags work in conjunction with seat belts.

Seat belts and airbags are the first line of defense for protection in a car accident. The seat belt restrains you, preventing the occupant from literally flying forward, against the dashboard, or out of the car [2].

Of the deaths caused by frontal airbags, more than 80% involved people who were not wearing seat belts or were not wearing them correctly.

Children and infants are particularly vulnerable to airbag fatalities if they do not wear seat belts correctly.

Most passenger deaths involving those not wearing seatbelts were children. Infants in rear-facing seats were also especially vulnerable because their heads were very close to the deployed airbag. This is one of the many reasons why you should never place an infant or child in a rear-facing car seat in the front seat of a vehicle unless absolutely necessary.

EXPLAINING
Collision Scenario

In the case of a frontal collision, when a vehicle equipped with airbags is involved in an accident, the initial impact can be quite significant.

Not Wearing a Seat Belt

If the occupant is not wearing a seat belt at the time of the collision, they will not be properly restrained in the vehicle seat.

Forward Throw

Without a seatbelt to hold them in place, the occupant can be violently thrown forward at the moment of the collision.

Airbag Impact

The airbag is designed to inflate rapidly in a frontal collision, providing an impact- absorbing surface for the occupants.

However, if the occupant is being thrown forward due to the lack of a seatbelt, they could collide with the inflated airbag with great force and speed.

Studies and Research

Several studies in the specialized literature address this phenomenon.
In motor vehicle accidents that result in airbag deployment, drivers and passengers who do not wear seat belts are at greater risk of cervical spine (neck) fractures and other spinal cord injuries, according to a study published in the Spine edition [3].

Using a Pennsylvania trauma database, researchers identified accidents that resulted in injuries to drivers and front-seat passengers from 1990 to 2002.

The study included approximately 12,700 patients with spinal cord injuries — 8,500 drivers and 4,200 passengers. Of these, 5,500 patients had cervical spine fractures.

The rate of cervical spine fractures was 54% in drivers who used only airbags, compared to 42% in drivers who used both airbags and seat belts. Adjusting for other factors, the relative risk of cervical spine fracture was 70% higher for drivers who used airbags without seat belts, compared to drivers who used both safety devices. This was even greater than the 32% increase in cervical fracture risk for drivers who used neither airbags nor seat belts.

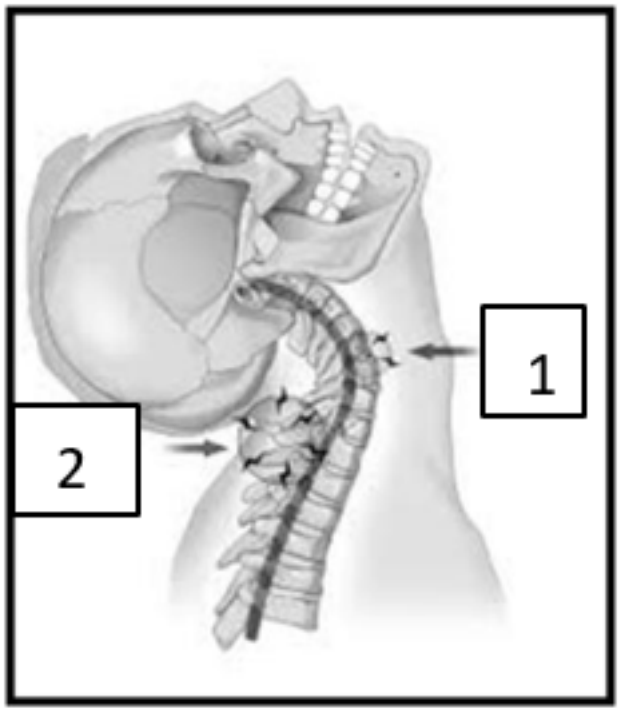
Airbags are specifically designed to be used with seat belts - serious injuries can result from victims who, because they are not properly secured by seat belts, are "out of position" when the airbags are deployed.

The use of airbags without the concomitant use of a seatbelt is associated with a higher incidence of cervical spine fractures with or without spinal cord injury. Improper use of airbags is also associated with a higher injury severity score, a lower Glasgow Coma Scale score, and longer stays in the intensive care unit and hospital, indicating that these patients suffer worse injuries than those who use airbags correctly.

The image provided below aims to demonstrate the consequences of a head-on collision, with vehicles equipped with airbags, and drivers who do and do not use seat belts.

To the left of the reader is an example of a driver not wearing a seatbelt (circled in red) being thrown against the inflating airbag, and to the right of the reader is an example of a driver wearing a seatbelt whose speed is reduced, thus being protected by the airbag.

In the image provided below, we demonstrate how the airbag acts on the spinal column, specifically the cervical segment, causing injury.



In the image provided alongside [4], the arrow identified by number 1 demonstrates the direction of the airbag's action on the cervical spine of the person who, at the moment of the collision, is not using the airbag.

The arrow identified by number 2 demonstrates the action of inertia, which keeps the body of the person not wearing a seatbelt in place at the moment of the collision.

DISCUSSION

It is important to emphasize that in the confrontations that occurred between security forces and representatives of factions and militias in the State of Rio de Janeiro, the weaponry used is that of war, represented by rifles, as can be seen in the following report [5].


RIO DE JANEIRO

PM do RJ apreende 78 fuzis em agosto, maior quantidade em um único mês já registrada pela corporação

Foi maior número registrado em um único mês desde o início do levantamento pela corporação. Em agosto de 2023, corporação apreendeu 25 armas.

Por g1 Rio

10/09/2024 16h59 · Atualizado há um mês

TRANSLATION OF THE REPORT

Rio de Janeiro police seize 78 rifles in August, the largest amount in a single month already registered by the corporation.

It was the highest number recorded in a single month since the beginning of the survey by the corporation. in August 2023 the corporation seized 25 weapons.

This knowledge is of utmost importance, since the armor needed to stop firearm projectiles (FP) fired by this type of weapon must necessarily be of Level III, which has restricted use and can only be used with express authorization from the army.

Next, for better understanding, we will make some comments about the types of armor that exist.

In Brazil, there are different types of vehicle armoring, which vary according to the level of protection offered [6].

Level I: offers limited protection against smaller caliber weapons, such as .22 and .38 revolvers. It is the cheapest option and is permitted in Brazil.

Level II and II-A: offer greater security than Level I, being able to withstand projectiles from 9mm pistols and .357 Magnum. They are also permitted in Brazil.

Level III-A: This is the most commonly used type of armor in the country, preferred by owners of armored vehicles. It offers protection against all types of handgun calibers, as well as 9mm submachine guns and .44 Magnum shots.

Level III: Offers higher protection than previous levels and is capable of withstanding rifle fire. The use of this protection is restricted and depends on a special license granted by the Army. The armor adds more weight to the vehicle, which limits the models that can support this level of protection.

Level IV: Provides the highest level of protection among the armor levels and is exclusive to legal entities, such as cash-in-transit companies. It is completely prohibited for civilians.

Based on what has been presented here, it can be concluded that the armor plating of vehicles used by security forces must be Level III, which offers a higher level of protection than previous levels and is capable of withstanding rifle fire.

CONCLUSION

Law enforcement officers, when on a mission, routinely do not use seat belts;

Law enforcement officers do not use seat belts due to the need to disembark quickly when under attack;

The time it takes to remove your seatbelt can be the difference between life and death.

Contrary to popular belief, the use of airbags without the simultaneous use of a seatbelt can cause serious injuries, and even death, to both the driver and the passenger.

The installation of ballistic shields in operational vehicles of the Military Police, Civil Police, and Penitentiary Police of the State of Rio de Janeiro, as expressed in LAW No. 9,103 OF NOVEMBER 18, 2020, will result in greater safety for the officers, allowing them to use seat belts, since, when under attack, they will have time to free themselves, protect themselves, and defend themselves from the unjust aggression.

The necessary armor used in the vehicles of security agents must be of Level III type; without it, the agents will have a false sense of security, which could mean the difference between life and death.

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