
The Importance Of Buckling Your Seatbelts

From the moment one gets in car, there are warnings and advisories to wear a seat belt. Everyday, people in the United States use cars as their main mode of transportation and see these warnings. In fact, there were roughly 3.9 trillion person-miles of travel in 2017 (Transportation Statistics Annual Report, 2018). Not only are there warnings to wear a seat belt posted in each individual car, there are signs along highways, radio ads, and billboards advising passengers and drivers alike to buckle up. Although 90% of drivers do use their seat belts, that still leaves 390 billion person-miles of travel unprotected on the road. This number increases for right-front passengers, and increases even more for passengers in the backseat. This begs the question: Why is it that after 60 years of implementation, and startling statistics in their support, seat belts are still not universally respected and used. Many angles can be considered in analyzing this question, including a look into the history of seat belts and why they came about, the current statistics on motor vehicle accidents and how seat belts may change their outcome, societal influences on seat belt use within different demographics, and most recently, the marketing towards and education about seat belt safety.

Being an expected feature in any motor vehicle today, seat belts were not originally mandated, or even built in, to early automobile models. The earliest recorded use of a seat belt was in the 1930's, when physicians began to employ makeshift seat belts in their personal vehicles. Though they urged others to do so as well, there was no large platform to spread the idea, nor was there significant evidence of the necessity of them. Even as this early use of seat belts began, these were not the 3-point belts of today, but rather 2-point belts that secured from one side of the hip to the other. In 1954 race car drivers began to wear 2-point belts, and in 1956, Ford, Chrysler, and Volvo began to commercialize and market 2-point belts. While all of this innovation was slowly coming about, the major modernization of seat belts did not occur until 1958, when Nihls Bohlin, working under Volvo, patented "Basics of Proper Restraint Systems for Car Occupants" - the 3-point belt that we know of today. By 1963 Volvo had introduced this seat belt to the American market and by 1969 the company had implemented it in the rear seats in addition to the front seats. Just as they had lead the pack in the pioneering of seat belts in the past, Volvo continued to blaze the trail by introducing emergency locking retractors to all their belts, front and rear, by 1971. While seat belts developed steadily, the first airbag was not sold commercially in a car until 1971. That being said, the development of seat belts was an improvement to occupant safety, but overall safety was still nowhere near the caliber that it is today (The History of Seat Belt Development, 2018).

The overall development and implementation of seat belts was completed by the early 1970's, and since then the history of seat belts has been a story written by lawmakers and the government. Although safety was greatly improved by seat belts, it was a slow process to require seat belts as well as their use in personal vehicles, and even slower in community vehicles. Private companies were able to fully implement seat belts, and simply charge more money for their cars, however, funding was not, and still is not, large enough to implement 3-point seat belts in all US busses and school busses. It was not until 2007 that the US Department of Transportation (USDOT) announced the "first ever federal rules for three-point belts" in the largest class of school busses. And to this day many school busses still only feature 2-point seat belts, if any at all (The History of Seat Belt Development, 2018).

Within non-community vehicles, the statistics evolved from motor vehicle crashes speak for themselves in supporting the day-to-day necessity of seat belt usage. In 2016, 37,641 people were killed in motor vehicle accidents. Of those killed, nearly 18,100 were unrestrained by a seat belt. Of those unrestrained and killed, professionals estimate and report that 2,549 of them could have been saved had they been restrained at the time of the collision (Curren, 2019). This statistic, the fact that almost half of all motor vehicle fatalities happened to those unrestrained, and that nearly 14% of them could have reversed their fate by wearing a seat belt, should send a strong message. However, it seems that this message has been ill-received, as on average only about 85.9% of Americans “regularly” wear a seat belt.

Taking a closer look at those involved in motor vehicle accidents, medical professionals too can agree that seat belt use is integral to a safe lifestyle. In a motor vehicle accident 3 collisions occur: the vehicle with the exterior object, the occupant with the interior of the car, and the occupants organs with the inner walls of their body. This trio of collisions can cause an abundance of injuries, the most common one being a neck sprain and the next being a contusion of the trunk (Ferrando, 2000). In a restrained motor vehicle accident, the effect of the latter two collisions, and therefore the injuries incurred, can be minimized as the seat belt locks, preventing the extent to which the body collides with the interior of the car, and decreasing the distance that the body and the organs travel forward during rapid deceleration. Without even considering the numbers, the physics of being held back during this procession of collisions indisputably improves the possible outcome of the occupant post-collision (Abbas, 2011).

Not only is it important that all occupants are belted for their own personal safety, but an unrestrained occupant can actually increase risk of injury for all other occupants. Known as the “human collision”, unbelted occupants often become projectiles as their inertia launches them forward in the rapidly decelerating vehicle. Having an unbelted occupant causes a 90% increase in risk of injury for those other occupants who are belted, but not surprisingly, other unbelted occupants are still at an equally high level of risk whether or not they are the only one unbelted (MacLennon, 2004). In recent years human projectiles have become more and more prominent as occupants of ride-hailing services admit to not wearing their seat belt more times than they do (IIHS News, 2017). As discussed before, not only are they putting themselves at risk, but they are putting their driver, a stranger, at a much higher risk of injury.

While medical data and recorded statistics support seat belt use, there are many factors that affect their use and sometimes even decrease it throughout the country. Compared to other high-income and developed countries, the United States falls short on seat belt usage. In 2013, France had the highest percentage of front seat belt use at 99%, with Austria the lowest at 86%. The United States fell close to Austria on the lower-half of the spectrum with 87% of front seat passengers using their seat belts (Motor Vehicle Crash Deaths, 2016). Within the United States, demographics of seat belt usage can be broken down into a number of factors - these include but are not limited to: age, gender, location, laws, and ride-hailing services. When broken down into age-groups, adults within the age range of 18 – 34 are 10% less likely to wear a seat belt. Comparing by gender, men are 10% less likely to wear the restraint than women (Adult Seat Belt Use, 2011). Population density also plays a role in seat belt statistics, with adults in cities being more likely to wear their seat belts than adults in rural areas. One of the largest influences in whether one decides to wear their seat belt or not are the laws within each individual state. Specifically, whether or not the state has a primary or secondary law enforcing seat belt restraints.

Figure A. Primary Laws and Seat Belt Usage (Adult Seat Belt Use, 2011)

The National Highway Traffic Safety Administration declares that:

A jurisdiction that can enforce traffic laws, such as a State or the District of Columbia, has a “primary enforcement law” if occupants can be ticketed simply for not using their seat belts. Under “secondary enforcement laws” occupants must be stopped for another violation, such as an expired license tag, before being cited for seat belt nonuse (Pickrell, 2012).

In 2012, it was reported that states on the west coast of the country, specifically California, Oregon, and Washington, have the highest rates of seat belt use of up to 97%. While the rates for the lowest seat belt use percentages are scattered through the country, New Hampshire has the lowest at 69% (Seat Belt Use US Map, 2015). These statistics are mirrored in Figure A, which displays which states have primary laws and the percentage of drivers that are reported to use their seat belts.

When comparing the statistics within each state to the laws of the state, such as in Figure B and Figure C, it is evident that a primary law increases the likelihood of drivers and passengers using their seat belts. Another factor that can sway seat belt use is if a passenger is in their own car or is using a ride-hailing service. In 2017, the Insurance Institute for Highway Safety conducted a study and reported that four out of five passengers who participated in the study stated that they do not use seat belts on short trips or traveling by taxi or ride hailing services (IIHS News, 2017). With the rise of ride-share apps such as Uber and Lyft, the number of people who do not use their seat belts with drivers they do not know is alarmingly high. However, over the years, there has been an increase in people using their seat belts – and it continues to rise. With new marketing strategies and education tactics in place, this number can continue to increase.

In order to maintain the increase in seat belt usage, efforts must be made by government, law enforcement, schools, and the media, as well as with individual people and within their communities. Although some states currently have primary enforcement laws in place, many have still yet to follow. If governments at the state level were to put these laws into place, a dramatic difference would be made (Goodwin, 2013). The changes in these laws, as well as strengthening child and youth occupant restraint laws, has demonstrated to be effective from valuable studies and sources. Other methods of government involvement in seat belt use include putting in place higher fines for neglecting to use a seat belt, or using the driver’s license point system for seat belt violations. Within smaller communities, employers, parents, and schools can encourage positive attitudes on seat belts (Adult Seat Belt Use, 2011). School programs have been proven to be somewhat effective with consistent results. These programs can be reinforced by parents who set good examples for their children, who can then set examples for their friends and peers. Employers can educate employees with simple visual aids in workspaces, and by also informing their employees on the cost of car crashes – specifically in terms of lost wages and medical care fees. Just like any typical campaign functions, this proliferation of seat belt knowledge and information amongst communities can be a large factor in improving Americans’ use of them.

With these community pushes in place, positive attitudes regarding seat belts can be cultivated. These positive views are associated with an increase use of seat belts and have demonstrated to be a driving factor in whether or not one decides to buckle up (Beck, 2019). One way positive

attitudes have been fostered through the support of both the media and law enforcement is the “Click It or Ticket” (CIOT) campaign, which began in 1993 (Tison, 2010). By 2003, 45 states were participating in the national campaign with either full or partial mobilization. In states where the campaign was fully mobilized, there was an 8.6% increase in the number of people who used their seat belts. Partially mobilized states showed an increase of 2.7%, and states with no mobilization had a mere increase of 0.5%. Not only did citations given for seat belts also decrease during this time, but social norms changed as support for seat belt laws grew from 69% to 75%. This campaign continues to operate through the USDOT every year. In 2018, CIOT began targeting and marketing towards groups that are more likely to not use seat belts. Specifically, a commercial ad was targeted towards young adult males, who make up 44% of unrestrained occupants killed in car crashes and collisions. Other campaigns, such as “Make it Click”, have been formed to target other commuters. “Make it Click” began in 2018 as a partnership with Uber and the Governors Highway Safety Association in order encourage Uber passengers to use their seat belts during rides, as more than half of passengers killed during trips could have been saved if they were wearing a restraint (Macek, 2018). With new positive outlooks, as well as through the support of corporations and the government, efficient and promising change can be made.

As people are continually urged to use their seat belts, improvements are being made to make them more comfortable and safe. In 2013, Toyota’s Vice President of Strategic Planning, Chris Hostetter, revealed company plans for a seat belt that 'will go from those two dimensions of retention and force limiting to perhaps being customized to the driver himself.' The seat would sense driver weight and height and would also be attuned to their driving habits and comfort preferences - this way the smart belt can adapt to provide the utmost safety and comfort (Garber, 2017). Even as seat belt technology improves, American legislation is not keeping up with the trend. Currently only 34 states have primary seat belt laws, and only 39 states have any laws at all regarding rear passenger seat belt use (GHSA). On top of this, the USDOT must still press forward in efforts to provide seat belts in public busses and school buses, this way public health as well as personal health can be emphasized.

The original development of seat belts, medical and scientific explanations, and safety statistics all point towards a common theme of the importance and necessity of seat belts. Combined with an airbag, seat belts have definitively proven to save lives daily. However, lawmakers do not seem to be completely on the same page, as many states still leave the decision to buckle up or not to each motor vehicle occupant themselves. Although some trends may just be based on human nature, like the tendency of women to buckle up more than men, the fact that more people buckle up as legislation strengthens is not a coincidence. If legislation is tightened and efforts from teachers, parents, and coworkers continue to improve, the United States may be on the path to safer seat belt habits. It is not hard to buckle up, but it is hard to break a habit, and the improvement of seat belt technology and the implementation of seat belts in public transportation does nothing if people don’t use them.