

This Is A Must-Read Guide for all pregnant women.

Safer Driving During Pregnancy

Everything You Need To Know To Keep You
and Your Unborn Baby As Safe As Possible in the Car



by Amie Durocher with
additions by Greg Durocher

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Everything You Need to Know to Keep You and Your Unborn Baby as Safe as Possible in the Car

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I am the mother of three children. Each time I was pregnant the thought crossed my mind, "is the seat belt really safe in a crash? I mean, it goes right across my belly."

Plus, I was super uncomfortable wearing a seat belt. At the time I thought my only options were to wear it and deal with the discomfort and potential injury from the seat belt OR not wear it and face the potential death of myself and/or my baby in the event of a crash.

Ultimately, being a firefighter's wife and a child passenger safety technician, I chose to wear the seat belt and deal with the discomfort. I almost always drove with my thumb tucked into the lap portion to hold it in place and to keep it from digging into my belly.

I want to share with you some tips that will help keep you and your baby safer when you drive during your pregnancy.

But first, I think it's relevant to understand why this is such an important subject.



How Big of a Problem is Pregnancy Safety while Driving?

It is actually hard to tell exactly how many pregnancies are lost due to motor vehicle crashes. Different studies estimate different numbers, anywhere from 700-5,000 pregnancies being

“Automobile crashes are the largest single cause of death for pregnant women and the leading cause of traumatic fetal injury mortality in the United States.”



U.S. National Library of Medicine



Let's look at some comparisons:

Left in Car Deaths: Every summer people share the concern and media give a lot of attention to the number of children who die from being left in cars (usually hot cars but sometimes freezing during winter months). An average of 38 children per year die as a result and a total of over 600 since 1990. (<http://www.KidsandCars.org>)

Car Crash: For children ages birth to 4 in 2012, there were 405 fatalities. This averages to about 80 children per year in each age of the 5 year age span covered. (<http://www-nrd.nhtsa.dot.gov/Pubs/812032.pdf>)



Fire: For children ages birth to 4 in 2007 there were 275 fatalities. This averages to about 55 children per year in each age of the 5 year age span covered. (<https://www.usfa.fema.gov/downloads/pdf/statistics/v11i9.pdf>)

Drowning: For children 1-4 in

2011 there were 401 fatalities. This averages to about 100 children per year in each age of the 4 year age span covered. (http://www.cdc.gov/injury/wisqars/pdf/leading_causes_of_death_by_age_group_2011-a.pdf and <http://www.cdc.gov/homeandrecreationalafety/water-safety/waterinjuries-factsheet.html>)

lost in car crashes every year. There are a couple reasons researchers cannot determine a more accurate number. One is that because miscarriage occurs in 10 to 20% of all pregnancies early on, only miscarriages over 20 weeks gestation are legally recognized and required to be recorded when lost. Secondly, not all miscarriages caused by a car crash are attributed to the car crash because they may occur weeks later and are not correlated to the possible previous injury.

We say an estimated 3,000 lost pregnancies a year because it's an average number from all the various studies we've reviewed.

Based on the frequencies of pregnancies and crash involvement of the general population, one study shows a higher estimate of between 1,500 and 5,000 fetal losses occurring each year in the U.S. as a result of automotive crashes (Pearlman, 1997). That would mean about four to 14 miscarriages a day due to injuries sustained during a car crash.

Additional uncounted adverse fetal outcomes occur as well. Many children grow up disabled as a result of injuries sustained in utero (Klinich, 1998).

A study by the University of Michigan estimates that about 170,000 car crashes in the U.S. each year involve pregnant women. On average, 2.9% of women report being hurt in a "car accident" during pregnancy. If you do the math based on an average of 4 million babies born a year, that's 116,000 crashes where a mom-to-be is injured, at least somewhat.

Plus — and I'll refer to this again later — there's a 2014 Canadian study which shows pregnant women in the second trimester have a 42% greater chance of getting into a car accident than pre-pregnancy or first trimester.

For those mothers-to-be who are committed to a healthy baby, it is important to remember that even a relatively insignificant traffic collision can result

in severe trauma to an unborn child. This is why it's absurd to us that the topic is so rarely discussed.

Just what are the possible adverse results of and injuries caused to pregnant women from car crashes?

The most common and most life-threatening injury caused to pregnant women during a car crash is placenta abruption. Placenta abruption can cause the placenta to be prematurely detached from the uterine wall, which cuts off blood flow to the placenta. That's a delicate attachment, and it doesn't take a lot of force to detach the placenta.

This is, obviously, a critical medical condition that can be fatal not only to the baby but also place

distress syndrome) can lead to long-term negative consequences for the child.

What causes these injuries?

There are a lot of factors involved.

The anatomy of pregnant women while seated in automotive posture poses a unique challenge to restraint designers because of difficulty positioning the lap belt and close proximity to the steering wheel and airbag module (Klinich, 1998).

Stefan Duma, Virginia Tech's head of biomechanical engineering and driving while pregnant researcher, said the biggest problem is the steering wheel. The larger the belly, the closer the steering wheel, and the steering wheel is what hits the abdomen. But knowing crash dynamics, we question whether women's pregnancies aren't first struck by the seat belt locking and engaging the hip bones then compressing into the pregnancy.

“Patients who are pregnant ask me the strangest questions about scuba diving, flying and roller coasters,” ER doctor Donald Redelmeier told NPR. “They never talk about road safety, despite it being a substantially larger threat to health.”

the mother's health in serious and potentially life-threatening danger. Internal bleeding resulting in severe abdominal pain and dizziness can be signs of placental abruption.

In general trauma can be accompanied by:

- severe abdominal pain,
- urgent or painful urination,
- excessive vaginal bleeding,
- dizziness loss of consciousness,
- swelling of the mother's face or fingers,
- chills or fever,
- severe headache,
- a change in the baby's movement.

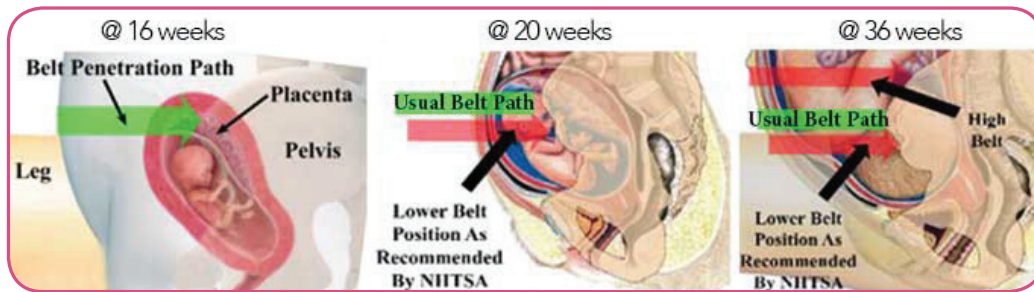
It is important to remember however, that outward symptoms are not always evident. You must be evaluated by a doctor as soon as possible after a crash.

Even when a fetus survives, complications arising from early emergency delivery of a premature fetus (such as low birth weight and neonatal respiratory

It is the seat belt that is designed to keep people in their seat. It is the seat belt that occupants contact first in a crash.

It's important to understand, during a crash an occupant actually experiences three collisions. First the car collides into whatever it has hit. Secondly the occupant collides into the vehicle's restraints ie. the seat belt and air bags. If the seat belt is not worn or for some reason does not adequately keep the occupant in their seat, the occupant will then hit the steering wheel, dashboard, windshield etc. The third collision is when the body's organs collide internally with each other or the skeletal system.

In a USA Today article, Steve Rouhana, senior technical leader for safety in Ford's passive safety research and advanced engineering department (he retired from this position in Dec. 2014), said, “the seat belt is the best safety device in the vehicle today, but it doesn't mean we can't make it better.” He also said



pregnant women should continue using seat belts until answers are found.

Pregnant women's exposure to motor vehicle crashes has increased over the years with more women in the work force and women driving more in general compared to when seat belts were first being installed in cars in the 1960s. Although exposure increased, the public health message has lagged behind. For most women in an autocentric society, Weiss says, "not driving isn't an option. That doesn't mean that their risk can't be significantly reduced," said Hank Weiss, MPH, PhD, Center for Injury Research and Control, University of Pittsburgh.

Weiss told The Atlantic CityLab he doesn't anticipate that we'll be seeing warning labels about driving while pregnant on cars anytime soon, similar to the ones that hang at establishments serving alcohol, and he doesn't think that type of warning makes a meaningful impression anyway. "It's more effective if it comes from a health care provider," he says. "It should involve clinicians and direct counseling. It should be on the list of things that women are told to think about."

On average, reported prenatal care provider counseling for seat belt use occurred in only 48.7% of prenatal visits. (Weiss et al, 2007) However, another study showed 73% of pregnant women did not recall having received advice on seat belt use even though they received brief counseling by a clinician and a pamphlet on seat belt use during pregnancy during their initial visit. (Tyroch AH et al, 1999)

Why hasn't anything been done by the car manufacturers?

A 2015 study shows the fetus of a pregnant woman is shown to be at 5 times the risk of a 0 to 1 year old child in the same car using standard, mandated restraint systems. This is just based on the number of pregnancies lost when the mother was fatally injured in

the crash as well. It does not take into account the great number of pregnancies lost when the mother survives. (Evans, Redelmeier, 2015)

The National Highway Traffic Safety Administration recommendation (see image to right) is to adjust your seat as far back as possible and wear your seat belt below your belly. James E. Hofferbrth of the Center For Prenatal Safety and former Director of the Office Of Crashworthiness at NHTSA, on the other hand says, "It is impossible to prevent crushing the baby by 'wearing the seat belt low.'" His images indicate there is no way to wear the seat belt below the fetus and even wearing the seat belt low on the belly, as recommended by NHTSA, it still crosses the abdomen and the fetus, placenta, etc.



Clinical studies have shown that "...the lap belt ... has been implicated in causing specific trauma to the placenta and fetus ... in relatively minor vehicular accidents." (Klinich et al, 1998) And "...the tightened lap belt can cause direct injury to the fetus without severely injuring the pregnant woman." (Griffiths et al, 1991)

This may best be shown by images. Below are simulated time lapse images of the seat belt considered in correct position on a pregnant belly going through a crash.



There have been many studies by universities, even with car manufacturers involved, yet there has been no great improvement or design changes to address the safety issue. Why? The primary reason could be that it is at any given time a low demographic of

people affected in comparison to the whole number of people driving. Plus the crash and injury data regarding pregnant women and unborn children is dramatically under reported -- we talked about that earlier -- thus the issue hasn't been deemed a major health concern by the auto industry.

What can I do to reduce my risk?

NHTSA reminds moms-to-be that buckling up is the "single most effective action you can take to protect yourself and your unborn child in a crash." Yes, absolutely. No matter how uncomfortable it is, it's definitely safer to wear a seat belt than to not.

"Pregnant women not wearing a seat belt during a motor vehicle crash were 1.3 times more likely to have low birth weight babies and 3 times more likely to experience fetal death compared to pregnant women who wear seat belts," said Hank Weiss, MPH, PhD, Center for Injury Research and Control, University of Pittsburgh.

In my three pregnancies I hated the seat belt. I knew I was safer with it than without so I wore it. But I hated it. It was SO uncomfortable! And I questioned the safety because the seat belt was as low as it could go but was still going across my womb, across where my precious baby -- who I was so anxious about after losing three already -- was hitching a ride. **No one ever mentioned a possible danger.** No doctors. No books I read. No friends who had been pregnant. I Googled it but didn't find anything other than the usual: wear your seat belt low and properly positioned.

But there is so much more to know.

Ideally, pregnant women would reduce their driving/riding in the car during pregnancy. Since that is not a very realistic solution for most pregnant women. You can follow our tips for safer driving while pregnant:

✔ Gauge how you feel.

Based on the Canadian study indicating an increase of crashes in pregnant women, we suspect the increase in accidents for pregnant women is likely due to fatigue, nausea, lack of focus etc. So before you leave check in with how you feel and if you feel any of those things, ask someone else to drive or postpone your trip until you are feeling better. Eat a snack, drink some



water, take a rest and see how you feel after that. Are you feeling more awake? Do you have better focus? If so, go and travel safe.

✔ Cut down the distractions.

You are pregnant, you have enough going on in your body and on your mind without additional distractions. Let your cell phone and radio be and concentrate on the road. Be extra cautious -- or don't drive -- in inclement weather conditions or during high traffic times.

✔ Take frequent breaks.

If you'll be in the car for several hours, stop, stretch and walk a bit. (It's a good excuse to visit the restroom too.) You'll get the blood moving and feel more alert.

✔ Be a passenger.

When possible, don't drive, especially as your pregnancy progresses and your uterus gets closer and closer to the steering wheel.

✔ Move far back from the steering wheel.

When you have to be the driver, move your seat as far back as is comfortable. Try to position yourself so that your breastbone is at least 10 inches from the steering wheel. Also, tilt the steering wheel up toward your breastbone rather than toward your abdomen.

- ✔ **Remove extra layers.**
Coats and jackets could interfere with the placement of the seat belt.
- ✔ **Wear a lap-shoulder belt.**
Whether you're the driver or a passenger, be sure to wear a full lap-shoulder belt, not a lap belt alone.
- ✔ **Buckle up correctly.**
NHTSA recommends that pregnant women wear their safety belt with the lap portion placed under the abdomen and across the upper thighs, as low as possible on the hips -- never above or over the belly. (I don't know about you but when I sat down while pregnant there was no "under" the abdomen. I could not do anything to keep the seat belt that low.) Keep the safety belt snug, and make sure the shoulder strap runs across your chest. Never place the shoulder belt under your arm or behind your back. Kathleen Klinich, a leading researcher who published a 2008 study on pregnant women in crashes noted that "There's nothing I know of suggesting that the shoulder belt is responsible for loading the pregnant abdomen; case reports I have seen indicate if there is a problem, it is loading from the lap belt which is riding up too high over the abdomen."

- ✔ **Use a Tummy Shield.**
There are several products available which "keeps the seat belt low" but only one that safely positions the seat belt away from the pregnant abdomen. Crash testing shows the Tummy Shield effectively restrains the woman at least as well as the seat belt **while** protecting the abdomen from possible injury from the seat belt. (No matter how low the woman keeps the seat belt it does impact the baby in the

womb and/or pelvis area.) Consider the Tummy Shield™ Baby's First Car Seat™.

- ✔ **Airbags and seat belts work together.**
Continue to wear your seat belt even if your car has airbags for optimum protection, says NHTSA. The American College of Obstetricians and Gynecologists agrees, saying the benefits of an air bag outweigh the risks to a pregnant woman and her baby. Side air bags have not been shown to pose a risk to passengers, just remember to resist resting against the side air bag storage compartment.

What if I'm just uncomfortable?

The comfort factor of a seat belt across the pregnant belly is obvious. Using a seat belt and being pregnant just don't equate to comfort for many women driving in the car.

For me even in the very beginning it was uncomfortable. In the beginning of my pregnancies the seat belt bothered me for one of two reasons and sometimes both. One was the seat belt seemed to just dig into my always-having-to-pee bladder. As if I wasn't already about to pee my pants, I could hardly deal with the added pressure. Two was the seat belt pushed from the outside on my already nauseated-feeling belly. It made my stomach want to revolt. Then of course as time went on and my belly grew to inhuman proportions, there was just no good place to put the seat belt. So from the beginning to the end, I drove around with a thumb pulling the seat belt away from my belly. I knew this wasn't really safe but it was all I could do to still wear a seat belt.



“We were in a car accident three days before I delivered my baby girl. We weren't seriously injured, but she was born with a black eye and bruised face from the seat belt. This product would've prevented that,” said Brandy Perry Pruitt, a new mother in Louisiana.

To me the Tummy Shield is intuitively the answer to my discomfort from the seat belt.

What is the Tummy Shield?

You will hear from many safety advocates that one should never trust your safety to “aftermarket” or “unregulated” products and, in general, that is good advice but not always the whole story.

The term “unregulated” simply means that there are no government issued testing standards to certify or test a product to. It does NOT always mean that the product is poorly designed or not adequately tested.

While there are no regulations available yet to test safety products for driving while pregnant, it is a case where the innovations are becoming available first, regulations may come later. Much like when seat belts were first put into cars or children's car seats were first being developed, they went unregulated for many years while inventions and innovations and renovations took place. And, finally, regulations were created -- and are still changing as they learn more. Safe Ride 4 Kids intends to be a driver of new regulations.

As a consumer it is important to understand the outcome you are trying to achieve then evaluate if a certain product accomplishes that outcome. The next step would be to research what testing has been done on the product itself.

In the world of “seat belt comfort items for pregnant women” there are several options available. When we look at what we're trying to accomplish, which is reducing or eliminating the possibility of the lap portion of the seat belt from



compressing into the abdomen in a crash, we find that most products do not even address, much less accomplish this. These products are simply a comfort item during normal driving conditions and would provide very little to no protection in the event of a crash. Some even introduce padding in between mom and seat belt which, when in a crash, will allow mom to travel forward before engaging the seat belt. Mom's pregnant belly is already closer to the steering wheel, we don't want her that much closer in the event of a crash.

There is only one crash tested product currently on the market in the USA, that completely removes the lap portion of the seat belt from the abdomen and upper pelvis area, positioning it on the legs and lower pelvis. This virtually eliminates the possibility of the lap portion intruding into the pregnant abdomen. It has been crashed tested to verify that the seat belt still functions correctly and that the crash forces experienced by the user are within the limits allowed under the crash testing criteria in Federal Motor Vehicle Safety Standards as well as the Australian equivalent, called Australian Design Rule.

This product can be described as a heavy duty stainless steel plate and anchor assembly embedded into a comfortable cushion. It creates a substantial anchor point between mom's legs, very much like a race car driver's seat belt or a child's five-point car seat.



Tummy Shield easily installs in the car. After putting on her seat belt as usual, mom reaches down and slips the

lap portion of the vehicle seat belt into the stainless steel anchor between her legs. She then snugs and tightens the seat belt to a comfortable level.

This product is called the Tummy Shield™. Originally designed and engineered in Australia, it has been for sale internationally since 2008 and brought to the USA in 2014.

The Tummy Shield™ makes wearing the seat comfortable, which will likely increase seat belt use during pregnancy and it protects baby from an

intruding seat belt during a crash. WIN, WIN!

The occurrence of a crash is just as possible pre-birth as after, if not more likely based on that Canadian study we mentioned earlier. There are laws and car seats to protect infants and children in vehicles. There are not yet laws to protect the fetus. But there is something you can do.

If you are not pregnant, share this important information with your friends and doctors. If you are pregnant, drive safe and use a Tummy Shield.

“There’s a difference between “unregulated” and “unsafe.” I am the (Child Passenger Safety) tech who test-drove (the Tummy Shield) in my most recent pregnancy. I really did like it. I stop short of outright recommending it because I don’t want that kind of liability. Sadly, we don’t have any standards to test these products against so it’s up to the consumer to make the best guess she can. But the fact is that seat belts don’t have to pass any pregnancy-related safety standards either so NOT using the Tummy Shield is just as much of a judgment call,” said Tummy Shield user, Elizabeth P.

Don't let a minor crash become a major problem for you or your unborn baby!

Get peace of mind when driving or riding in a car!

Only Tummy Shield can provide comfort AND increased safety for moms and their unborn babies when driving or riding in a car when pregnant.

Get affordable “insurance”, plus a 15-Day return guarantee!

Go to TummyShield.com to buy now!





Jacinda M., another user, said, „This was easy to use and easy to transfer from Driver’s seat to passenger, to another car. This is one item that is a must have for all pregnant women. It was such a comfort to know that I did everything in my power to protect my unborn child from injuries if I was in an accident. I don’t think I could forgive myself if I DIDN’T buy this and was in an accident that killed, or permanently harmed my baby.”

And Laurel W. said, „I love, love, love my Tummy Shield! I am now on my fourth and am carrying really low. The Tummy Shield is so much more comfortable than an ever tightening lap belt. I wish I had it with my other three pregnancies. I also like that it’s really easy to move from car to car and fits different size seats. We have a big SUV and a little Prius. I won’t go anywhere in a car without it now!”



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Links to these and additional studies used for gathering information but not directly quoted can be found here: <https://tummyshield.com/studies-news-stories/>

