UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MISSOURI
EASTERN DIVISION

LAURETTA ROBERTS,	)	
	)	
Plaintiff,	)	
	)	
v.	)	No. 4:13-CV-541 CAS
	)	
GENERAL MOTORS, LLC,	)	
	)	
Defendant.	)	

MEMORANDUM AND ORDER

This diversity matter is before the Court on defendant General Motors, LLC's ("GM") motions to exclude the testimony of plaintiff's expert witnesses Larry Sicher and Joseph Burton, M.D., pursuant to Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993). Plaintiff Lauretta Roberts opposes the motions and they are fully briefed. Also pending is plaintiff's motion to exclude the testimony of GM's expert witness Jeya Padmanaban. GM opposes the motion and it is fully briefed. No party has requested an evidentiary hearing, and the parties have submitted an evidentiary record including exhibits and deposition testimony.[1] No party requested an evidentiary hearing or oral argument and the Court finds it can make a proper Daubert analysis without the need for a hearing or argument.

[1]The parties were ordered to submit paper courtesy copies of the Daubert motion briefing and all exhibits thereto. Although the Court did not specify the manner in which the exhibits were to be provided, GM's method of submission is unacceptable. GM submitted more than 40 exhibits without any label or other indication of the exhibits' letter designations. Also, GM did not staple or otherwise secure its exhibits, and instead merely separated them with blank pieces of colored paper. Confusingly, some of GM's exhibits bear deposition or other exhibit labels that do not correspond to the exhibit designations as stated in the accompanying Declaration of Mary E. Bolkcom. Considerable chambers resources were expended in labeling and stapling GM's exhibits to avoid confusion and disarray, and to permit the Court's accurate reference to the exhibits. In the future, GM must label all exhibits submitted to the Court and secure each with an appropriate fastener.

For the following reasons, GM's motions to exclude plaintiff's expert witnesses Sicher and Burton will be denied. Plaintiff's motion to exclude GM's expert witness Padmanaban will be granted.

I. Background

Plaintiff Lauretta Roberts filed this case against GM on March 22, 2013, following a motor vehicle accident on February 23, 2012, outside of Gainesville, Florida. The complaint alleges that plaintiff was driving a 2004 GMC Savana full-size van (the "vehicle") on Interstate 75, and as she was exiting the highway at a rest area exit ramp, the vehicle went off the south side of the ramp and completed two full rolls before coming to rest on its wheels. During the rollover, the interior compartment of the vehicle buckled and the roof caved in on plaintiff. Plaintiff alleges that she suffered serious and permanent injuries as a result, including spinal fracture and permanent paralysis.

The complaint alleges that the vehicle was defective in its design and manufacture and was unreasonably dangerous because (1) GM failed to use a technologically feasible and available electronic stability control system to prevent a rollover; (2) the structure of the vehicle, including the roof, doors and supporting pillars, failed to protect occupants during a rollover event; (3) GM failed to design the roof and supporting structure to minimize intrusion into the occupant compartment; (4) the restraint system failed to adequately restrain occupants in a foreseeable accident sequence; (5) GM failed to use technologically feasible and available side and/or canopy air bags; (6) the vehicle was designed and manufactured with a defective restraint system, body

joints and driver side structural support; and (7) the vehicle was manufactured with insufficient bonds, welds, and seams of the driver side structural support. Complaint ¶ 26 at 4-5 (Doc. 1).[2]

The complaint alleges that GM failed to adequately test the vehicle before and during its design, production and sale to the public, and/or knowingly placed the dangerously designed vehicle into the stream of commerce. The complaint also alleges that GM rendered the vehicle defective and unreasonably dangerous by failing to adequately warn consumers about the hazard of driving the vehicle with a defective and/or inadequately designed, tested and manufactured electronic stability control system, structural system, and restraint system.

Plaintiff asserts claims for strict product liability (Count I) and negligence (Count II), and seeks actual and punitive damages.

II. Legal Standard

The admission of expert testimony in federal court is governed by Federal Rule of Evidence 702. In Daubert, the United States Supreme Court interpreted Rule 702 to require district courts to be certain that expert evidence based on scientific, technical or other specialized knowledge is "not only relevant, but reliable." Daubert, 509 U.S. at 589. The district court must make a "preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue." Id. at 592-93.

[2]As discussed *infra*, plaintiff has subsequently narrowed the scope of her claims against GM. On October 1, 2015, plaintiff was ordered to file an amended complaint solely to include additional factual allegations concerning the parties' citizenship. Plaintiff complied with the Court's Order and filed an amended complaint which is identical to the original complaint, except for allegations concerning the parties' citizenship. See Doc. 84.

The Eighth Circuit Court of Appeals has stated that proposed expert testimony must meet three criteria to be admissible under Rule 702. "First, evidence based on scientific, technical, or other specialized knowledge must be useful to the finder of fact in deciding the ultimate issue of fact. This is the basic rule of relevancy." Lauzon v. Senco Prods., Inc., 270 F.3d 681, 686 (8th Cir. 2001). "Second, the proposed witness must be qualified to assist the finder of fact." Id. (citation omitted). "Third, the proposed evidence must be reliable or trustworthy in an evidentiary sense, so that, if the finder of fact accepts it as true, it provides the assistance the finder of fact requires." Id. (internal quotation marks omitted). To meet the third requirement, the testimony must be "based on sufficient facts or data" and be "the product of reliable principles and methods," and the expert must have "reliably applied the principles and methods to the facts of the case." Fed. R. Evid. 702(b)-(d). "Rule 702 reflects an attempt to liberalize the rules governing the admission of expert testimony[,]" Weisgram v. Marley Co., 169 F.3d 514, 523 (8th Cir. 1999), and "favors admissibility if the testimony will assist the trier of fact." Clark ex rel. Clark v. Heidrick, 150 F.3d 912, 915 (8th Cir. 1998). Doubt regarding "whether an expert's testimony will be useful should generally be resolved in favor of admissibility." Id. (citation and internal quotation omitted).

Under Rule 702, the trial court has gatekeeping responsibility to "ensur[e] that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand." Kumho Tire Co. v. Carmichael, 526 U.S. 137, 141 (1999) (citing Daubert, 509 U.S. at 597). "When making the reliability and relevancy determinations, a district court may consider: (1) whether the theory or technique can be or has been tested; (2) whether the theory or technique has been subjected to peer review or publication; (3) whether the theory or technique has a known or potential error rate and standards controlling the technique's operation; and (4) whether the theory or technique is generally accepted in the scientific community." Russell v. Whirlpool Corp., 702 F.3d 450, 457 (8th Cir.

2012) (citing Daubert, 509 U.S. at 593-94). "This evidentiary inquiry is meant to be flexible and fact specific, and a court should use, adapt, or reject Daubert factors as the particular case demands." Unrein v. Timesavers, Inc., 394 F.3d 1008, 1011 (8th Cir. 2005). "There is no single requirement for admissibility as long as the proffer indicates that the expert evidence is reliable and relevant." Id.

As a general rule "the factual basis of an expert opinion goes to the credibility of the testimony, not the admissibility, and it is up to the opposing party to examine the factual basis for the opinion in cross-examination." Nebraska Plastics, Inc. v. Holland Colors Am., Inc., 408 F.3d 410, 416 (8th Cir. 2005) (quoted case omitted). However, "if the expert's opinion is so fundamentally unsupported that it can offer no assistance to the jury, it must be excluded." Id. (quoted case omitted). An expert opinion is fundamentally unsupported when it "fails to consider the relevant facts of the case." Id.

III. Discussion

A. GM's Motion to Exclude Expert Witness Joseph Burton, M.D.

GM moves to exclude testimony and evidence from plaintiff's biomechanical expert, Joseph Burton, M.D., concerning his theory of the mechanism of plaintiff's cervical spinal column injury. GM argues that Dr. Burton's opinions are unique to him and are unsupported by the literature on which he relies, testing, or any other scientific basis.

Plaintiff responds that Dr. Burton is qualified to opine on the mechanism of plaintiff's spine injury, and his opinions are supported by peer-reviewed literature as well as his own experience. Plaintiff also asserts that Dr. Burton's opinions are widely accepted by the independent scientific community.

1. The evidence would assist the finder of fact

The Court finds that an expert's testimony on the mechanism of the cervical spine injury plaintiff sustained in the rollover of the subject vehicle would assist the jury in determining an ultimate issue of fact in this case. Dr. Burton's proposed testimony is therefore relevant.

2. Dr. Burton is qualified to assist the finder of fact

GM does not challenge Dr. Burton's qualifications as an expert in the field of biomechanics. Dr. Burton is a trained forensic pathologist and a licensed medical doctor in the State of Georgia. and has been a State Medical Examiner in Atlanta, Georgia since 1974. Dr. Burton has consulted on over 1,270 vehicle rollover cases and evaluated over 500 additional vehicle rollover cases as a medical examiner. Dr. Burton has been a consultant for the National Transportation Safety Board and the National Highway Traffic Safety Administration. Dr. Burton is qualified to testify as an expert in biomechanics.

3. Reliability and Trustworthiness of the Proposed Evidence

a) Reliability of Principles and Methods

GM argues that Dr. Burton's opinions are his alone, and are not supported with any data, test results, scientific protocol or objective methodology. GM also asserts that Dr. Burton's opinions concerning the timing of plaintiff's injury are inconsistent with rollover testing he accepts as authoritative.

Dr. Burton conducted his own inspection of the subject vehicle and reviewed deposition summaries of plaintiff, her passenger in the subject vehicle and several fire rescue personnel who responded to the accident scene. In forming his analysis of how plaintiff was injured in the accident, Dr. Burton used the State of Florida's motor vehicle crash report data, the Collision Analysis Report of engineer Tom Green on accident reconstruction and roof crush, the subject vehicle's Crash Data

Retrieval ("CDR") report, GM's drop testing conducted in this case, and plaintiff's medical records. In forming his opinions, Dr. Burton used his own knowledge, medical training and experience gained from his evaluation of over 1,200 individual rollover cases, the testimony of other automotive safety experts concerning occupant kinematics in rollover cases, and peer-reviewed scholarly literature and testing concerning occupant kinematics in rollover situations. Dr. Burton's report discusses the amount of force required to cause plaintiff's injury, his understanding of the forces involved in the rollover, and how the vehicle kinematics would dictate the movement of plaintiff's body during the rollover. Dr. Burton's deposition testimony explained how he used this information to support his opinions.

The Court finds that Dr. Burton has used reliable principles and methods in formulating his opinions. GM's criticisms of Dr. Burton's opinions appear to misstate his testimony and do not warrant the exclusion of his opinions, but rather are matters for testimony by its own experts and cross-examination of Dr. Burton.

b) Application to the Facts of this Case

GM argues that Dr. Burton's opinions are based on "minimal analysis" of Dr. Roberts' accident, and asserts that he "has little to offer on the subject of how Dr. Roberts' body moved in the crash," did not perform an analysis of how much motion or excursion an occupant of her height and weight would experience in the crash, did not analyze the magnitude of the roof to ground impacts in the crash, "was not provided with an accident scene [report] that would inform him about the vehicle motion in the crash," and does not know what the drop heights were in the crash. GM Mem. Supp. Mot. Exclude Testimony of Joseph Burton at 4 (Doc. 69-1).

As stated above, Dr. Burton inspected the subject vehicle and reviewed the official crash report, an engineer's analysis on accident reconstruction and roof crush, the vehicle's CDR report,

deposition summaries of plaintiff, her passenger and the fire rescue personnel who responded to the accident scene, GM's drop testing conducted in this case, and plaintiff's medical records. Dr. Burton took this evidence and applied it to the accident: two complete rolls of plaintiff's vehicle which involved roof crush and a restraint system that allowed plaintiff's head to come into contact with the roof of the subject vehicle. Dr. Burton used the charts GM created to reflect the results of its drop testing which illustrate the pressure increase on a head during both the roof's initial ground contact and the subsequent crushing of the roof. Dr. Burton uses this data to hypothesize that the crush on plaintiff's spinal column was caused by her body being pinned between the crushing roof and the seat. This hypothesis is not unique as defendant argues, and plaintiff has provided several studies that support Dr. Burton's theory. See George Rechnitzer, et al., Rollover Crash Study—Vehicle Design and Occupant Injuries, 15th ESV, 821, 827 (1996), and other sources cited in plaintiff's opposition memorandum. Pl.'s Response to Mot. Exclude Testimony of Burton at 2, n.1 (Doc. 72). The matters raised by defendant can be addressed by its expert witness as well as on cross examination of Dr. Burton.

The Court finds that plaintiff has shown Dr. Burton will be able to assist the jury as a qualified expert, as the reasoning or methodology underlying his opinions are scientifically valid and have been applied to the facts in issue.

B. GM's Motion to Exclude Expert Witness Larry Sicher

GM moves to exclude testimony and evidence regarding the following three opinions of plaintiff's expert Larry Sicher:

1. Alternative seat belt design theories as applied to this crash;

2. Inversion and drop testing upon which Sicher relies to support his opinions concerning alternative seat belt designs and/or the performance of the driver's seat belt in the subject vehicle; and

3. Any opinions concerning the efficacy or availability of a rollover sensor for the subject vehicle.[3]

GM asserts that Mr. Sicher has "minimal qualifications, at best" to opine on the design of restraint systems for automotive applications. GM argues that Mr. Sicher's alternative design opinions should be excluded because they are not supported with scientifically valid data, test results, scientific protocol or objective methodology. GM also argues that the testing Mr. Sicher relies on is flawed and unrealistic and has no real comparative value to the issues presented in the case, as Mr. Sicher has never tested a GM full-size van similar to the subject vehicle, does not know of any similar van that incorporates his purported design alternatives, and has done no study of the efficacy of any design alternatives.

Plaintiff responds that Mr. Sicher is well qualified to offer his opinions through his education and extensive experience, as his career has focused on finding solutions for restraining occupants during crashes. Plaintiff asserts that Mr. Sicher's opinions are well grounded in peer-reviewed literature, testing conducted by others including GM itself, and his own non-litigation testing. Finally, plaintiff states that Mr. Sicher's testing is repeatable, reliable and universally accepted in the automotive industry.

1. The evidence would assist the finder of fact

[3]Plaintiff's counsel stated on the record at Mr. Sicher's deposition that he is not offering opinions on rollover sensors, (Sicher Dep. 61:17-20, 65:19-20; GM Ex. Q (Doc. 69-19), and Mr. Sicher testified that he is not offering opinions about rollover sensors in this case. (Id. 53:6:8.) GM's motion to exclude Mr. Sicher's testimony is therefore moot to the extent it seeks to exclude testimony concerning rollover sensors.

The Court finds that an expert's testimony on the safety of the restraint system in the subject vehicle, as well as the possibility of alternative designs, would assist the jury in determining an ultimate issue of fact in this case. Mr. Sicher's proposed testimony is therefore relevant.

2. Mr. Sicher is qualified to assist the finder of fact

GM does not appear to contend seriously that Mr. Sicher is unqualified to testify as an expert witness in this case. GM states that Mr. Sicher has a bachelor's degree in engineering, "took some graduate courses in math computations," and has had "some involvement in government contract work," but observes that "none of his government work has ever resulted in improvements to motor vehicles driven by the motoring public." GM Mem. Supp. Mot. Exclude Testimony of Sicher at 4 (Doc. 70-1). GM states that since 2011, Mr. Sicher has "done nothing but litigation cases on the plaintiff side of cases." (Id.) GM notes that Mr. Sicher is not a biomechanic and disclaims any knowledge about injury mechanisms in general and about the injury mechanism in this case.

Mr. Sicher has a mechanical engineering degree from Pennsylvania State University. After graduation he worked as an engineer designing, testing, developing and analyzing restraints worn in fighter jets, including ejection seats, at the Department of Defense's Naval Air Development Center. One of the focuses of his testing and development was finding ways to keep pilots in a normal seating position when inverted and prior to ejection, which required extensive testing of more than a dozen restraint systems.

Since 1997, Mr. Sicher has been employed as an occupant crash protection engineer at ARCCA, Incorporated and has tested, designed, evaluated and developed restraint systems under government contracts. Among other projects, Mr. Sicher was the lead designer for a project on the U.S. Army's High Mobility Multipurpose Wheeled Vehicle (HMMWV), tasked with evaluating the lap and shoulder belt system and creating a better design. Mr. Sicher conducted full vehicle rollover

testing and static inversion testing using alternative designs, including a three-point, seat-mounted lap and shoulder belt with a cinching latch plate. The results of this project were published in three separate scholarly articles. Mr. Sicher obtained a patent for the seat-mounted restraint system, and it was later installed in the Army's Mine Resistant Ambush Protected (MRAP) vehicles. Mr. Sicher has three patents related to occupant crash protection and has authored over twenty publications related to occupant crash protection, including articles on seat belt pretensioners, vertical occupant excursion, and occupant protection during rollover events.

The Court finds that Mr. Sicher is qualified by education and experience to testify as an expert on the use and effectiveness of different restraint system designs in passenger cars, including full-size vans such as the subject vehicle in this case.

3. Reliability and Trustworthiness of the Proposed Evidence

a) Reliability of Principles and Methods

GM argues that Mr. Sicher's opinions concerning alternative design theories are unreliable because they are not supported with scientifically valid testing. GM asserts that the ARCCA inversion testing on which Mr. Sicher relies and the resulting design recommendations have no reasonable relationship to the vehicle or issues in this case and would only serve to confuse and mislead the jury. GM argues that the ARCCA drop testing followed no accepted protocol, the tested configurations were modified so there is no reasonable basis to compare a production design to an alternative design, and the alternative design tested in the drop test contains a pretension that Mr. Sicher expressly disclaims as a design alternative in this case.

Mr. Sicher's report cites to significant literature to support his opinions, including numerous peer-reviewed papers, presentations and publications concerning, among other things, performance of automotive seats belts and restraint systems during rollover conditions and inverted drop tests.

Mr. Sicher's report also relies on testing conducted by others, including GM's 1995 confidential non-litigation testing, and his own non-litigation testing to support his opinions. Mr. Sicher's analysis supporting his opinion that better restraint systems existed than the one found in the subject vehicle relies on, among others, Benda, B.J., et al. (2006), Performance of Automotive Seat Belts During Inverted (-Gz) Rollover Drop Tests, Icrash 2006—International Crashworthiness Conference, Athens, Greece, University of Bolton; Herbst, Brian, et al. (1996), The Ability of 3-Point Safety Belts to Restrain Occupants in Rollover Crashes, 1996 ESV Conference (Australia), Paper No. 96-S5-O-12; Bahling, G., et al. (1990), Rollover and Drop Tests – The Influence of Roof Strength on Injury Mechanics Using Belted Dummies (SAE 902314) ("Malibu II"). Warrendale, PA: Society of Automotive Engineers; Pywell, J., et. al. (1997); "Characterization of Belt Restraint Systems in Quasistatic Vehicle Rollover Tests", (SAE 973334) Warrendale, PA: Society of Automotive Engineers. Mr. Sicher's report cites to these articles, other literature and multiple studies he used to formulate his opinions. In addition, Mr. Sicher's company, ARCCA, has conducted its own, non-litigation testing regarding vehicle restraint systems, different from the one in the subject vehicle, in rollover circumstances.

Mr. Sicher's testing uses repeatable methods that have been consistently utilized in the automotive industry, including by GM, to study belt design in rollover situations, specifically inversion testing to measure static excursion and drop testing to measure dynamic excursion. The testing uses vehicle seats attached to a test fixture that can be rotated, inverted and sometimes dropped, and test dummies, human cadavers, or volunteer test subjects.

The Court finds that Mr. Sicher's opinions are grounded in the methods and procedures of science, and meet at least three of the four Daubert factors for evidentiary reliability, as they have

been tested, the testing methods have been peer reviewed and published, and the methods have general acceptance within the relevant scientific community.

b) Application to the Facts of this Case

GM also argues that the testing Mr. Sicher relies on for his opinions is flawed and unrealistic, and has no real comparative value to the issues presented in this case. Mr. Sicher testified in his deposition, however, that he relied on the accident reconstructionists' opinions for the vehicle kinematics during rollover (Sicher Dep. 32:2-16; GM Ex. Q (Doc. 69-19); used the defense expert's report as the source of information concerning the crush in the vehicle (id. 34:2-18); accepted as accurate the defense's accident reconstruction and its examination and documentation of the seat belts; (id. 34:15-22); used the defense's determinations regarding the subject vehicle's orientation when plaintiff was injured (id. 41:23-42:7) and plaintiff's biomechanics and mechanism of injury as the rollover occurred (id. 41:14-42:8; 42:25-43:1; 44:7-15; 49:2-8; 90:18-91:4-7). Mr. Sicher then applied this data to the known capabilities of various restraint systems, including the one in the subject vehicle. (Sicher Report at 12-18; GM Ex. O (Doc. 69-17)). The Court finds Mr. Sicher's opinions are well grounded in the facts of this case.

The Court finds plaintiff has shown that Mr. Sicher is qualified to testify as an expert in this matter, and the reasoning or methodology underlying his testimony is scientifically valid and can be applied to the facts in issue. GM's motion to exclude testimony and evidence regarding Mr. Sicher's opinions as to alternative seat belt design theories, and inversion and drop testing used to support his opinions, should therefore be denied. GM's motion is denied as moot to the extent it seeks to exclude any opinions by Mr. Sicher concerning the efficacy or availability of a rollover sensor for the subject vehicle.

C. Plaintiff's Motion to Exclude Expert Witness Jeya Padmanaban

Plaintiff moves to exclude the opinions of GM's expert witness statistician Jeya Padmanaban.[4] Ms. Padmanaban opines about statistical associations and comparative risk, and will not offer any opinions about the cause of plaintiff's injury, accident reconstruction, vehicle design, or the nature and severity of plaintiff's injury.

Plaintiff characterizes Ms. Padmanaban's opinions as follows:

> 1. "Safety belts are the most effective crashworthiness countermeasure to reduce fatalities in rollovers."
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> 2. "NASS/CDS data shows that for belted drivers in vans, fewer than 1% sustains serious head/face/neck injuries in rollover crashes. These rates are lower than the serious head/face/neck injury rates for belted drivers in passenger car rollovers."
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> 3. "Police-Reported State Accident data . . . showed that the serious injury rate for belted drivers in the GMC Savana Group is low and is comparable to the serious injury rates for other vans."
>
> 4. The serious injury rate and severe injury rate for belted drivers in the GMC Savana group is comparable to the rates for belted drivers in the Volvo XC-90s and Subaru Foresters.
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> 5. "Field data from NASS/CDS shows that a belted occupant in rollover with a topography impact (impact with change in terrain) is about two times more likely to sustain serious head/face/neck injury than in a non-arrested rollover with a level ground-only impact."
>
> 6. "NASS/CDS data shows that for light trucks, the serious injury rates for belted drivers in rollover crashes are comparable for vehicles with a roof SWR

[4]The Court notes that Ms. Padmanaban's deposition, submitted as an exhibit to plaintiff's motion to exclude her testimony, was taken in a similar case in this district involving a driver who suffered a permanent spinal injury in a rollover accident in a GMC Savana, Bavlsik v. General Motors LLC, No. 4:13-CV-509 DDN (E.D. Mo.). Plaintiff did not take Ms. Padmanaban's deposition in this case and refers to her deposition from Bavlsik. Plaintiff asserts that the two cases present "identical issues, and the majority of Ms. Padmanaban's opinions are, word for word, the same." Pl.'s Mem. Supp. Mot. Exclude Defendant's Statistician Jeya Padmanaban at 4 n.2 (Doc. 67).

[strength-to-weight ratio] greater than or equal to 4.0 [and] for vehicles with a roof SWR less than 4.0."

7. "Several factors, including crash severity factors, influence injury outcome in rollovers. This demonstrates that rollovers are complex event and that a single parameter (such as roof strength) cannot explain the injury potential for occupants."

8. "[T]here is no relationship between roof SWR and likelihood of fatality or serious injury for belted or unbelted occupants in rollovers."

9. "When important confounding factors are accounted for (belt use, ejection, alcohol, rural/urban, driver age), roof SWR is not a statistically significant predictor of likelihood of fatality or serious injury in single-vehicle rollovers."

10. "NASS/CDS data shows that there is no relationship between roof strength to weight ratio and roof deformation at position."

11. Five percent of seriously injured occupants in rollovers are belted front seat occupants with serious head, face, and neck injury resulting from roof contact where roof deformation is also coded at the seating position. Even for these, testing shows that the roof contact occurs before there is any significant roof deformation.

12. Rollovers are complex events and that a single parameter (such as roof performance or pretensioners) cannot explain the injury potential for occupants.

13. A rollover crash with 2 or more complete rolls is an extremely rare event. Of all tow-away crashes involving light trucks, 0.6% are rollovers with 2 or more rolls.

14. There is no statistically significant difference between fatality or serious injury rates for belted drivers in vehicles with seat integrated belts versus conventional belts in single vehicle accident rollovers. Both seat integrated belts and conventional belts reduce fatalities and injuries in rollovers.

15. The presence of Seat Integrated Restraint Systems is not a statistically significant predictor influencing the odds of fatality or serious injury to belted drivers in rollover crashes.

16. The risk of serious injury, including serious head/face/beck injuries to belted front outboard occupants increases as the number of rolls increases.

17. 65-year old occupants involved in rollovers with 8 quarter turns and 10.5 inches of intrusion are 2.5 times more likely to sustain serious head/face/neck injuries than are 65-year old occupants involved in rollovers with only 2 quarter turns and 10.5 inches of intrusion.

Pl.'s Mem. Supp. Mot. Exclude Padmanaban at 5-6 (Doc. 67).

Plaintiff argues that Ms. Padmanaban's statistical opinions are irrelevant and unreliable because they are based on dissimilar accidents and dissimilar injuries to those in this case, and that she made no effort to restrict her data to similar accidents or injuries. Plaintiff contends that some of Ms. Padmanaban's opinions are unreliable because they are merely general observations about rollover accidents that have no relation to the issues in this case. Plaintiff argues that Ms. Padmanaban's sixth opinion is based on a sample size too small to be reliable, and that she has manipulated the data by controlling certain variables in order to reach pre-conceived conclusions. Plaintiff contends Ms. Padmanaban's testimony will confuse and mislead the jury and cause needless delay.

GM responds that plaintiff's experts' opinions are based on the same type of statistical analysis presented by Ms. Padmanaban in rebuttal. GM asserts that plaintiff's experts' opinions rely heavily on field statistics concerning rollover crashes, belt use, injury rates and roof crush to bolster their views, and Ms. Padmanaban's testimony is directly addressed to these contentions as well as whether plaintiff can meet her burden to show the subject vehicle was in a defective condition unreasonably dangerous. GM states that Ms. Padmanaban's testimony covers four distinct areas:

> 1. Opinions on the relationship between vehicle roof strength and likelihood of injury to belted occupants, using field data;
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> 2. Injury risk associated with conventional belts versus All Belts to Seats (ABTS) systems, using field data on rollover crashes;
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> 3. The safety record of the subject GMC Savana group vehicles involved in rollover crashes, using field data; and
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> 4. Key statistical studies heavily relied on by plaintiff's engineering experts Burton and Batzer to address rollover injuries, using field data.

GM Mem. Opp. Mot. at 6-7 (Doc. 74).

GM argues that Ms. Padmanaban's opinions are premised on well-accepted statistical principles and reliable data used by lawmakers, federal agencies, the automotive industry and the highway safety community, and are based on adequate sample sizes. GM asserts that Ms. Padmanaban's report directly addresses and rebuts a statistical analysis on which plaintiff's expert Dr. Batzer relies and is responsive to the alternative design opinion of plaintiff's expert Mr. Sicher.

1. The evidence would assist the finder of fact

For a court to allow scientific or technical testimony, it must find that the jury needs the specialized testimony to determine an ultimate issue in the case. Lauzon, 270 F.3d at 686. Experts in the field of statistics often offer testimony in product liability cases to compare and contrast the safety of the product at issue with similar products on the market. See, e.g., Jaramillo v. Ford Motor Co., 116 F. App'x 76, 78-79 (9th Cir. 2004) (rollover statistics); Glastetter v. Novartis Pharm. Corp., 252 F.3d 986 (8th Cir. 2001) (per curiam) (statistics linking stroke and medication); Morales v. American Honda Motor Co., Inc., 151 F.3d 500 (6th Cir. 1998) (motorcycle-related accident statistics). The Court finds that an expert in statistics could be helpful to the jury in the present case.

2. Ms. Padmanaban is qualified to assist the finder of fact

Plaintiff does not challenge Ms. Padmanaban's qualifications as a statistician and the Court finds she is qualified to assist the jury. Ms. Padmanaban has a bachelor's degree in Advanced Mathematics from the University of India and a Master of Science in Operations Research/Statistics from George Washington University. Since 1995, she has been the president and owner of a research company, JP Research, Inc., and previously was a Principal Managing Scientist, a Senior Operations Research Analyst, and a Statistical Consultant at various companies. Ms. Padmanaban has experience in data analysis and statistical methods to evaluate field performance of motor vehicles and consumer products. She has extensively published and researched regarding the subject

of motor vehicle safety statistics, and has received a number of awards and industry recognitions. Ms. Padmanaban serves on several boards, including the Association for the Advancement of Automotive Medicine, is on the Editorial Advisory Board for the journal *Accident Analysis and Prevention*, and has served on numerous Society of Automotive Engineers committees.

3. Reliability and Trustworthiness of the Proposed Evidence

a) Reliability of Principles and Methods

Ms. Padmanaban used two different data sources for her statistics: the National Automotive Sampling System/Crashworthiness Data System ("NASS/CDS") and police-reported motor vehicle accident data files from state highway patrol agencies ("state accident data"). The NASS/CDS is a

> nationally representative probabilistic sample of police-reported, tow-away crashes that occur on public traffic ways and result in death, injury or property damage. Selected crashes meeting these criteria are invested in detail by NASS teams to obtain detailed descriptions of injuries and crash factors. The NASS investigative teams consist of engineers, biomechanical experts, medical personnel, and statisticians who investigate about 5,000 crashes a year involving passenger cars, light trucks, vans, and utility vehicles.

Padmanaban Report of July 18, 2014 at 3-4 (Doc. 67-5).

The NASS/CDS is a database of crash descriptions and factors collected by the National Highway Transportation Safety Administration ("NHTSA") from 24 different geographic sites nationwide. Each crash is weighted to represent all police-reported motor vehicle crashes occurring in the United States during the year involving passenger cars, light truck and vans that were towed due to damage. Selected crashes are then investigated in detail. The NASS/CDS provides insight into the types of injury, crash types, crash severity, vehicle damage, nature of injury by body region, and other factors associated with a crash.

The state accident data consists of data compiled from police reports on all vehicle crashes that meet each state's reporting threshold. The state accident data provides basic crash information from 29 participating states' law enforcement agencies.[5] It does not have as many variables as the NASS/CDS, because it is dependent on the information placed in databases by the state law enforcement agencies.

The two databases are used by the federal government in analyzing vehicle safety, examining vehicle defect petitions, and in rule making for motor vehicle safety standards. NHTSA and other highway safety organizations use the databases for rule making regulatory activity, safety standard assessment, and to see how vehicles perform in the field. NHTSA has used NASS data for a variety of studies including rollover prevention, passenger car front-seat occupant protection, child seat and booster seat standards, cell phone use while driving, improving fire safety standards, the economic impact of motor vehicle crashes, truck underride protection, door latch integrity, and the effect of vehicle crashworthiness design changes on injuries and fatalities. NHTSA has used state accident data for investigating the relative risk of subject and peer vehicles to support defect investigation programs, crashworthiness analysis, anti-lock braking system analysis, comparative analysis, rollover analysis, effectiveness of restraint systems, fire analysis, safety impact of permitting right turn on red, vehicle compatibility issues, and assessment of effects of fuel system integrity standards.

The databases have been tested and are in wide use by not only government agencies but also academic entities. The possibility of errors and small sample sizes are known and can be accounted for. The Court finds the data and methods used by Ms. Padmanaban are reliable.

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[5]Ms. Padmanaban used data from 20 states for the calendar years 1995 through 2011, chosen on the basis of availability of data and codes, to form her opinions concerning rollover accidents; from 22 states for her opinions regarding injury rates for seat-belted drivers; and from 19 states for her opinions regarding injury rates for seat-belted front outboard occupants.

b) Application to the Facts of this Case

In a recent case also involving a GMC Savana rollover accident, the Court stated,

> In order to introduce comparative statistics in a strict liability claim the evidence's proponent must show that the other accidents "occurred under circumstances substantially similar to those surrounding the accident in the instant case." Lockley v. Deere & Co., 933 F.3d 1378, 1386 (8th Cir. 1991). This is because dissimilar accidents may "raise extraneous controversial issues, confuse the issues, and be more prejudicial than probative." Katzenmeier v. Blackpowder Prods., Inc., 682 F.3d 948 (8th Cir. 2010).

Bavlsik v. General Motors LLC, 4:13-CV-509 DDN, 2015 WL 4920300, at *5 (E.D. Mo. Aug. 18, 2015).

Plaintiff characterizes her cause of action as a crashworthiness case. Plaintiff, the driver of a GMC Savana van, was exiting an interstate highway at a rest stop when her vehicle left the roadway and completed two full rolls, landing upright on its tires. The rollover began when plaintiff's vehicle was traveling at a trip speed of between 20 and 30 miles per hour, and the rollover started in the direction of the passenger side. Plaintiff suffered a permanent cervical spinal injury when her head came into contact with the vehicle's roof during the rollover. Plaintiff's front seat passenger was not injured. In narrowing the allegations of her complaint, plaintiff now contends her injuries were caused either because (1) the GMC Savana's roof crushed into her head, as the roof structure was too weak to withstand an otherwise survivable accident, or (2) the GMC Savana's seat belt did not properly restrain plaintiff and permitted her head to touch the roof at the same time the roof struck the ground, causing a "diving" injury.

Ms. Padmanaban offers two sets of opinions contained in two separate expert reports: (1) those involving roof strength and the propensity of the GMC Savana's roof to crush, causing head injury, Padmanaban Report of July 18, 2014 (Doc. 67-5); and (2) those involving the seat belt system, Padmanaban Report of April 28, 2015 (Doc. 67-6). Ms. Padmanaban testified she was asked

to "look at the field data and address the risk of serious injury to belted drivers in GMC Savana . . . and then to compare it to other peer vans," to use "field data that address the relationship between – or lack of, between [roof] strength-to-weight ratio and likelihood of injury or fatality in a rollover," and to look at field data and address "the risk of serious injury to a belted driver in a rollover." Padmanaban Dep. 28:23-29:15. The issue presented by plaintiff's motion is whether GM can demonstrate that the statistical data upon which Ms. Padmanaban would testify are relevant to this case.

i) *Rollover Injury Rate Opinions*

Based on state accident data, Ms. Padmanaban opined that (1) the serious and severe injury rates for belted drivers in rollover accidents in GMC Savana vans are low, (2) the GMC Savana's rates in such accidents are comparable to the serious and severe injury rates for other vans, and (3) there is no relationship between vehicle roof strength-to-weight ratio and the likelihood of serious injury or fatality.

Ms. Padmanaban testified the data show there are 275,000 rollover crashes each year; 65% of fatalities in rollovers were unbelted occupants, 50% involved alcohol impairment, 66% occurred at night, and 72% occurred on high-speed (55+ mph) roads. Of these variables, only the last potentially applies to the accident in this case, as plaintiff was wearing a seatbelt, no alcohol was involved, and the accident occurred at approximately 7:45 a.m. Further, although plaintiff's vehicle was exiting an interstate highway, the accident occurred at a trip speed of only 20 to 30 mph.

Ms. Padmanaban testified that there are different types of rollovers with different injury rates, and opined that "rollovers are complex events and [] one single parameter such as roof strength-to-weight ratio does not influence the likelihood of fatality/serious injury. Factors such as rural/urban, age, and rollover type contribute significantly to injury likelihood to belted occupants

in SVA [single vehicle accident] rollovers." Padamanaban Report of July 18, 2014 at 12 (Doc. 67-5). Ms. Padmanaban testified that speed is correlated to the severity of a rollover event, but the NHTSA data she relied on for her opinions does not address trip speed separately and instead uses the speed limit on the highway or roads where the rollover occurred. As stated above, in the instant case, plaintiff was exiting an interstate highway, but was traveling at non-highway speed when the accident occurred.

Ms. Padmanaban testified she used state accident data to identify 1,300 rollovers involving a GMC Savana van, from which she derived her opinions concerning the likelihood of serious injury in the Savana, and how it compared to peer vans. Of the 1,300 rollovers, only 46 involved injuries categorized as MAIS© 3 to 6 (serious, severe, critical or maximum).[6] Nine of the accidents resulted in fatalities. Ms. Padmanaban found 60 rollovers involving a belted driver in a Volvo XC-90. Three were MAIS© 3-6 injuries. She found 1000 rollovers involving a belted driver in a Subaru Forester, 31 of which were MAIS© 3-6 injuries.

Ms. Padmanaban cannot offer any further information about these rollovers. Because the police-reported state accident data does not include such information, Ms. Padmanaban could not provide the number of quarter turns involved in the rollover for any of the vehicles; could not say whether the driver was injured before, during or after the rollover, state how many of the rollovers, if any, resulted in a spinal cord injury, provide the trip speed at the time of rollover, state if the vehicles' roofs actually touched the ground, state whether there was any vehicle roof deformation,

[6]"The Abbreviated Injury Scale (AIS©) is an anatomically based, consensus derived, global severity scoring system that classifies each injury by body region according to its relative importance on a 6-point ordinal scale (1=minor and 6=maximal)." Assoc. for the Advancement of Automotive Medicine, http://www.aaam.org/about-ais.html (last accessed Nov. 2, 2015). "MAIS©" stands for Maximum Abbreviated Injury Scale.

state the direction the vehicle rolled, state whether the driver was injured because of contact with the roof, or state if it was a single-vehicle or multi-vehicle accident, although Ms. Padmanaban testified that multi-vehicle rollover accidents are more severe. Further, the state accident data included rollovers where the vehicle hit a fixed object and its momentum was arrested as a result (i.e., "arrested rollovers").

Ms. Padmanaban opines that the GMC Savana's rollover performance was comparable to that of other similar vehicles, but as described above the data on which she relies is too generalized to permit her to know how the Savana itself or comparable vehicles perform in accidents like those in which plaintiff was injured. From the generalized state accident data, Ms. Padmanaban cannot know if any of the drivers sustained a cervical spinal injury in a comparable vehicle, much less whether the injury occurred under comparable circumstances. General observations about thousands of dissimilar rollover accidents will not be helpful to the jury in this case, as such opinions are not connected to the facts. The fact that the highway safety community and NHTSA use this type of general accident data for research into motor vehicle safety issues and to inform highway safety decisionmaking cannot support the admission of Ms. Padmanaban's opinions in the context of this case, as the data does not permit her to control for relevant variables.

The Eighth Circuit has instructed that "when an expert 'fail[s] to take into account a plethora of specific facts' his or her testimony is properly excluded." David E. Watson, P.C. v. United States, 668 F.3d 1008, 1014 (8th Cir. 2012) (quoting Nebraska Plastics, 408 F.3d at 417); see also Concord Boat Corp. v. Brunswick Corp., 207 F.3d 1039, 1056 (8th Cir. 2000) ("Even a theory that might meet certain Daubert factors, such as peer review and publication, testing, known or potential error rate, and general acceptance, should not be admitted if it does not apply to the specific facts of the case.").

The Court finds that the data from which Ms. Padmanaban draws her opinions are too generalized and too inadequately controlled to permit meaningful comparisons of injury rates between the GMC Savana and its peers in rollover accidents. Therefore, the statistical opinions she would offer lack an adequate foundation and do not fit the facts of this case. As a result, her offer will not tend to prove or disprove anything about the safety of the subject vehicle in the context of plaintiff's complaint, and instead risk misleading or confusing the jury where its job is to evaluate the crashworthiness of the vehicle. Where there is not an adequate foundation for statistical probabilities, such evidence can become "an item of prejudicial overweight." Marx & Co., Inc. v. Diners' Club Inc., 550 F.2d 505, 511 (2d Cir. 1977). The excluded opinions are Padmanaban opinions no. 3 and 4, *supra*.

ii) *Roof Strength-to-Weight Ratio Opinions*

Plaintiff seeks to exclude Ms. Padmanaban's opinions on roof strength based on state accident data: (1) "there is no relationship between roof SWR [strength-to-weight ratio] and likelihood of fatality or serious injury for belted or unbelted occupants in rollovers," (Padmanaban opinion no. 8, *supra*); and (2) "[w]hen important confounding factors are accounted for (belt use, ejection, alcohol, rural/urban, driver age), roof SWR is not a statistically significant predictor of likelihood of fatality or serious injury in single-vehicle rollovers." (Padmanaban opinion no. 9, *supra*.)

Plaintiff also seeks to exclude Ms. Padmanaban's opinions on roof strength based on NASS/CDS data: (1) for light trucks, the serious injury rates for belted drivers in rollover crashes are comparable for vehicles with a roof SWR greater than or equal to 4.0 and for vehicles with a roof SWR less than 4.0 (Padmanaban opinion no. 6, *supra*); and (2) there is no relationship between roof strength to weight ratio and roof deformation at position (Padmanaban opinion no. 10, *supra*).

As discussed above, *supra* at 24, it is impossible for Ms. Padmanaban to control for key relevant variables when using state accident data in forming her statistical opinions.[7] As a result, Ms. Padmanaban's opinions related to roof strength that are based on state accident data (opinion nos. 8, 9) will be excluded because they lack an adequate foundation and are not sufficiently tied to the facts of the case.[8]

Ms. Padmanaban's opinion no. 6 is that: "NASS/CDS data shows that for light trucks, the serious injury rates for belted drivers in rollover crashes are comparable for vehicles with a roof SWR greater than or equal to 4.0 [and] for vehicles with a roof SWR less than 4.0." Plaintiff asserts that the size of the NASS/CDS data set supporting this opinion – 25 vehicles with roof SWR greater than 4.0 that Ms. Padmanaban extrapolated to 4,243 vehicles, but involving only four serious injuries – is too small to be adequate.

An expert must start her analysis with sufficient facts and data to make the subsequent conclusions reliable predictions regarding the case at hand. Tyler v. University of Ark. Bd. of Trs., 628 F.3d 980, 990 (8th Cir. 2011) (sample of only six applicants too small to infer discrimination); see generally Harper v. Trans World Airlines, Inc., 525 F.2d 409, 412 (8th Cir. 1975) ("statistical

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[7]Specifically, Ms. Padmanaban cannot provide the number of quarter turns involved in the rollover for any of the vehicles; cannot say whether the driver was injured before, during or after the rollover; cannot say how many of the rollovers, if any, resulted in a spinal cord injury; cannot provide the trip speed at the time of rollover; cannot say if the vehicles' roofs actually touched the ground; cannot say whether there was any vehicle roof deformation; cannot say the direction the vehicle rolled; cannot say whether the driver was injured because of contact with the roof; cannot say if it was a single-vehicle or multi-vehicle accident; and included rollovers where the vehicle hit a fixed object and its momentum was arrested.

[8]The Court also notes that Ms. Padmanaban's opinions concerning roof strength-to-weight ratio appear somewhat contradictory to the statement in her report that "several factors, including crash severity factors, influence injury outcome in rollovers. This demonstrates that rollovers are complex events and that a single parameter (such as roof strength) cannot explain the injury potential for occupants." Padmanaban Report of July 18, 2014 at 7.

evidence derived from an extremely small universe . . . has little predictive value and must be disregarded.").

Ms. Padmanaban testified in her deposition that the sample size was adequate and in the range of the industry standard:

> A. Twenty-five is adequate. As a matter of fact, NHTSA's final rulemaking is based on 31 cases of which only 12 of them they used, out of which only four of them are coded for 90 percent of the sampling weight. So their whole rulemaking benefit model was based on four data points. So if you ask me, 25 is good enough? Twenty-five is good enough for me, yes. To make this kind of comparison.

Padmanaban Dep. 132:6-15. Ms. Padmanaban admits, however, that there is not "a lot of data for vehicles with 4-plus SWR, yet," id. 125:20-21, and that she has "only few data points for 4-plus right now." Id. 128:23-24.

Ms. Padmanaban offers an opinion about serious injury rates for belted drivers in rollover crashes, that serious injury rates are comparable for vehicles with roof SWR greater than or equal to 4.0, and for vehicles with a roof SWR less than 4.0. While the 25-vehicle sample size from which the opinion is derived is not too small for statistical analysis, the fact that only four serious injuries are included in the sample renders the relevant sample size too small to have predictive value with respect to serious injury rates between vehicles with stronger and weaker SWRs. Ms. Padmanaban's opinion no. 6 should therefore be excluded.

Finally, plaintiff argues that Ms. Padmanaban's other SWR opinions based on NASS/CDS data should be excluded because although Ms. Padmanaban could have controlled relevant variables in the NASS data, she did not do so. These opinions are that: (1) there is no relationship between roof strength-to-weight ratio and roof deformation at position (Padmanaban opinion no. 10, *supra*), and (2) five percent of serious injured occupants in rollovers are belted front seat occupants with serious head, face and neck injuries resulting from roof contact where roof deformation is also coded

at the seating position. Even for these, testing shows that the roof contact occurs before there is any significant roof deformation (Padmanaban opinion no. 11, *supra*). Plaintiff states that Ms. Padmanaban did not control for the number of quarter turns in rollovers or for other relevant variables, and therefore "was able to manipulate the data enough to reach the untenable conclusion that weak roofs don't crush more than strong roofs." Pl.'s Mem. Supp. Mot. Exclude Padmanaban at 13 (Doc. 67).

Ms. Padmanaban testified that the accident data she used for comparing injuries in vehicles with roof strength-to-weight ratios greater than 4.0 to injuries in vehicles with roof strength-to-weight ratios less than 4.0 included all numbers of rolls, except for one-quarter turns; was based on posted speed limits but not the trip speed at which the rollover occurred; did not exclude rollovers where the vehicle rolled into an object but its momentum was not arrested, although arrested rollovers were excluded; did not limit to injuries caused by roof contact; did not exclude accidents where the driver was partially or fully ejected from the vehicle; and did not exclude multiple-vehicle rollover accidents, which she testified were more severe than single vehicle rollovers.

Ms. Padmanaban admits in her deposition that she has not controlled for several significant variables, which seems to indicate she is comparing wholly dissimilar accidents. Ms. Padmanaban did not separate crashes based on the number of turns completed during the rollover. Thus, while plaintiff's vehicle is alleged to have turned eight quarter turns at a relatively low speed, Ms. Padmanaban also considered accidents with unlimited full rolls and as few as one quarter turns, accidents occurring at highway speeds, and those involving other vehicles. Ms. Padmanaban testified she could have compared vehicles with stronger and weaker roof ratios that experienced a roll of eight quarter turns a comparable speeds, but she did not do so, and admitted she did not

know if the results would be the same if she had controlled the data for the number of rolls. Padmanaban Dep. 187:15-188:8.

The Court finds that Ms. Padmanaban's SWR opinions no. 10 and 11 are inadmissible because they fail to fit the facts of this case, as the expert inadequately controlled for relevant variables. Therefore, the opinions lack adequate foundation and will not tend to prove or disprove anything about the safety of the subject vehicle in the context of the plaintiff's complaint, and instead risk misleading or confusing the jury where its job is to evaluate the crashworthiness of the vehicle.[9]

The Court rejects GM's argument that Ms. Padmanaban's opinions are properly admitted as rebuttal evidence, for the reasons set forth in plaintiff's Reply, which the Court adopts. (Doc. 78 at 4-7.) The Court also notes GM's Response incorrectly states that an article authored by Dr. Stephen Batzer, plaintiff's engineering expert, titled Rollover Crashworthy Automotive Roofs Design Report, is Dr. Batzer's expert report in this case. GM Mem. Opp. at 3 (Doc. 74). GM's arguments regarding the use of Ms. Padmanaban's opinions for rebuttal repeatedly cite to material contained in the article, but refer to it as Dr. Batzer's expert report. Id. at 4-5. The material GM cites is not present in Dr. Batzer's *actual* expert report, however. This appears to be a deliberate attempt by GM to mislead the Court. Such practice is totally unacceptable and will not be tolerated.

iii) *Seat Belt Opinions*

Ms. Padmanaban's supplemental expert report dated April 28, 2015 contains her opinions that: (1) there is no statistically significant difference between fatality or serious injury rates for belted drivers in vehicles with seat integrated belts versus conventional belts in single vehicle

[9]This is also true of Ms. Padmanaban's opinion no. 6, and is an alternative basis for its exclusion.

accident rollovers. Both seat integrated belts and conventional belts reduce fatalities and injuries in rollovers. (Padmanaban opinion no. 14, *supra*); and (2) the presence of Seat Integrated Restraint Systems is not a statistically significant predictor influencing the odds of fatality or serious injury to belted drivers in rollover crashes (Padmanaban opinion no. 15, *supra*).

Plaintiff seeks to exclude these opinions on the basis that they are not sufficiently connected to the facts of this case because they are based on state accident data, see Padmanaban Report of Apr. 28, 2015 at 2, which does not permit Ms. Padmanaban to control for significant variables, as discussed above. For the reasons discussed above with respect to Ms. Padmanaban's rollover and roof strength-to-weight ratio opinions that are based on state accident data, the Court finds her opinions related to seat belt systems based on state accident data should be excluded because they lack an adequate foundation and are not sufficiently tied to the facts of the case to be useful to the jury. Because the opinions lack foundation and do not fit the facts, they are also not admissible as rebuttal to plaintiff's expert Mr. Sicher's alternative design opinions.

iv) *Irrelevant General Opinions*

Plaintiff seeks to exclude the remainder of Ms. Padmanaban's opinions, nos. 1, 2, 5, 7, 12, 13, 16 and 17, which plaintiff characterizes as general observations about rollover accidents. Plaintiff asserts that these opinions are "irrelevant and unreliable because they are unhinged from the facts." Pl.'s Mem. Supp. Mot. Exclude Padmanaban at 10. Plaintiff also asserts that "[m]isdirecting the jury to general rates of injury, for all kinds of injuries, under widely varying circumstances, is inappropriate because it encourages the jury to ignore the Court's instructions and decide the case based on impermissible factors." Id. at 14. The Court finds these opinions are inadmissible because they are not sufficiently tied to the facts of the case to be useful to the jury.

IV. Conclusion

For the foregoing reasons, GM's Daubert motions to exclude the opinions and testimony of plaintiff's expert witnesses Larry Sicher and Joseph Burton, M.D., should be denied. Plaintiff's Daubert motion to exclude the opinions and testimony of GM's expert witness Jeya Padmanaban should be granted.

Accordingly,

IT IS HEREBY ORDERED that General Motors, LLC's motion to exclude expert testimony of Joseph Burton, M.D. is **DENIED**. [Doc. 69]

IT IS FURTHER ORDERED that General Motors, LLC's motion to exclude expert testimony of Larry Sicher is **DENIED**. [Doc. 70]

IT IS FURTHER ORDERED that plaintiff's motion to exclude expert testimony of Jeya Padmanaban is **GRANTED**. [Doc. 66]

CHARLES A. SHAW
UNITED STATES DISTRICT JUDGE

Dated this 10th day of November, 2015.