

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

VINCENT J. and BEVERLY PAOLINE : CIVIL ACTION  
v. :  
KILGO TRUCKING, INC., et al. : NO. 00-956

**MEMORANDUM AND ORDER**

THOMAS J. RUETER  
United States Magistrate Judge

April 30, 2002

Presently before the court is a motion for summary judgment (“Motion”) filed by defendant Lufkin Industries, Inc., individually and d/b/a Lukfin Trailers (“defendant” or “Lufkin”) (Document No. 20). The Motion was referred to the undersigned for decision by the Honorable J. Curtis Joyner. By stipulation approved by Judge Joyner on March 19, 2002, Lufkin<sup>1</sup> and the plaintiffs agreed that the undersigned may decide the Motion without a hearing, that such decision will be binding upon the parties, and that neither party will seek reconsideration nor file an appeal. (Document No. 32.) For the reasons stated below, the Motion is **GRANTED**.

Plaintiff Vincent Paoline suffered injuries when the car he was driving collided with the rear of a parked tractor trailer manufactured by Lufkin. In the present litigation, he and his wife raise a crashworthiness claim. The law is clear that

[t]o establish a cause of action on a theory of crashworthiness, a plaintiff must show: (1) the design of the product was defective; (2) an alternative, safer design that was practical existed; (3) what injuries, if any, the plaintiff would have

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<sup>1</sup> Pursuant to various agreements, the other named defendants need not be party to the stipulation.

received had the alternative design been used; and (4) the defective design caused or exacerbated specific injuries.

Oddi v. Ford Motor Co., 234 F.3d 136, 143 (3d Cir. 2000) (footnote omitted); Rapp v. Singh, 152 F. Supp. 2d 694, 698 (E.D. Pa. 2001) (quoting Oddi). Lufkin argues that plaintiff's proposed experts cannot offer any "admissible, reliable answers" to the following three questions: (1) How strong was the guard?; (2) How strong should the guard have been?; and (3) What would have happened to Mr. Paoline if a different design, one approved by plaintiffs' experts, had been used?. (Def.'s Reply Br. at 1.) Consequently, Lufkin contends that plaintiffs have failed to make a prima facie case because their proposed expert testimony fails to satisfy the standards set forth in Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579 (1993).

The Third Circuit Court of Appeals, considering Daubert, concluded that eight factors are relevant in assessing the admissibility of expert scientific<sup>2</sup> evidence:

(1) whether a method consists of a testable hypothesis; (2) whether the method has been subjected to peer review; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the technique's operation; (5) whether the method is generally accepted; (6) the relationship of the technique to methods which have been established as reliable; (7) the qualifications of the expert witness testifying based on the methodology; and (8) the non-judicial uses to which the method has been put.

Oddi, 234 F.3d at 145 (quoting In re Paoli R.R. Yard PCB Litig., 35 F.3d 717, 742 n.8 (3d Cir. 1994)). See also Rapp, 152 F. Supp. 2d at 699 (same). A proponent of expert testimony need not prove to the court that the expert opinions are correct, but must demonstrate by a preponderance of the evidence that they are reliable, which is to say that the "particular opinion is

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<sup>2</sup> The parties do not dispute that the expert evidence at issue is "scientific" as opposed to "technical."

based on valid reasoning and reliable methodology.” Oddi, 234 F.3d at 146 (quoting Kannankeril v. Terminix Int’l, Inc., 128 F.3d 802, 806 (3d Cir. 1997)).

This court will focus on the third issue raised by Lufkin, that is, the plaintiffs have not offered admissible evidence through expert testimony to prove what injuries Mr. Paoline would have suffered if a different design of rear bumper guard had been used. Plaintiffs concede that Steven C. Batterman, Ph.D. will be the only expert to testify with respect to biomechanics. (Def.’s Reply Br. at 16; Pls.’ Reply Br. to Def.’s Reply Br. at 14-15.) Dr. Batterman, therefore, will be the only expert to testify regarding causation and plaintiff’s injuries. As stated above, in order to succeed on a crashworthiness claim, Dr. Batterman would have to be able to testify as to what injuries, if any, Mr. Paoline would have received had the alternative design been used. In relevant part, Dr. Batterman’s testimony from his deposition is as follows:

Q. Have you undertaken any calculations or any type of analysis as to what would have happened with any of these [proposed alternative] guards if Mr. Paoline struck it with a Cavalier going 25 miles an hour?

A. Well, my opinion, the underride would have been prevented, meaning his vehicle would not have gone underneath the trailer as far as it did.

Q. Can you be more specific? What would have happened with any of these guards to his vehicle? Have you undertaken any analysis to give me some precise measurements or precise calculations as to what would have happened to his vehicle if it had contacted any of these guards?

A. No, I haven’t undertaken that at this stage.

Q. Can you tell me if any of these guards would have been too rigid for this collision in terms of Mr. Paoline’s deceleration at that speed?

A. They’re all capable of yielding, of absorbing some energy. The energy-absorbing guards, which are known to be energy-absorbing guards like the Quinton-Hazell and the Hope Safe-T bumper, certainly would not have been too rigid. The Insurance Institute for Highway Safety guard and the TTI guards would have

decelerated his vehicle faster than others. There would have been obvious front-end crush to his vehicle. But there wouldn't have been any invasion, . . . , with any of those guards. So he would not have impacted [sic] hard, unyielding structure with his face and head, which he did, in my opinion, in this case.

Q. Other than simply telling me that, have you done any analysis or calculations that I can look at so you can show me why it is what you're saying what you're saying?

A. Well, the reports that I have for you have all that done. That's all in the reports. You know, I'm not Lufkin Industries, I'm Steve Batterman. I don't have zillions of dollars to spend on building something and running a test, nor do you have to do it when the tests are out there.

Q. Can you tell me . . . if you made a determination as to what injuries Mr. Paoline would have suffered had he contacted any one of the five guards that you mentioned?

A. Do you mean had his vehicle contacted the guards?

Q. Correct.

A. Well, in my opinion, there would have been a substantial reduction in the probability, if not a complete mitigation, in the probability of his total brain injury and his zygomatic fractures.

Q. Could he still had [sic] the zygomatic fractures –

A. Could he have? I would say certainly he could have, but don't forget his head and face would have been impacting an energy-absorbing windshield with nothing behind it.

Q. So he still would have hit the windshield?

A. Oh, I think so.

Q. Could he have sustained the closed-head injury as a result of hitting the windshield?

A. Could he? Is it possible? Certainly it's possible. Is it probable knowing that he sustained the TBI by impacting hard structure? I'd say it is not probable. There was a substantial risk – minimization of risk of the injuries he sustained in this accident if his vehicle had impacted a properly designed guard.

- Q. Would he still with one of these properly designed guards have struck the windshield at or about 25 miles an hour?
- A. Yes.
- Q. Have you undertaken any studies in connection with this case to determine what happens if someone of his size and stature strikes a windshield at 25 miles per hour?
- A. You can be injured. I have plenty of cases of people striking windshields at 25 miles an hour that sustained facial lacerations. Sometimes they sustained neck injuries. I don't know of a single case that I have been involved in where anybody has sustained a total brain injury. I can't recall about facial fractures. But the probability of that is substantially increased by hitting rigid material like the back of a trailer like he did in this case.
- Q. Could you point to any body of literature other than the cases you have worked on, but a body of literature that can be consulted – that you consulted for this case that would talk about head injuries from striking a windshield at about 25 miles per hour?
- A. There's an enormous body of literature. I did not consult any specifically for the purposes of this case. But there are tens of thousands of pages in the Strapp . . . Car Crash Conferences; in the SAE literature in general. The sources are enormous. There are treatises on that. There is the Handbook of Human Tolerance . . .
- Q. What portion of his head would strike the windshield with your proposed alternative designed bumper?
- A. I think his face would.
- Q. What part of his face would strike it?
- A. The frontal part of his face. And don't forget he's going to be stopped in part because before he strikes the windshield, in my opinion, his upper torso is going to strike the energy-absorbing steering column and that's going to slow him down and absorb some of the energy of the impact. Plus again we're talking about an unrestrained occupant, is that correct?
- Q. I'm assuming you're going to use the same facts that you've been assuming all along, that he was unrestrained.

- A. Well, I'm assuming he's unrestrained, that's correct. And I'm saying that his upper torso, his abdominal area, et cetera, strikes the steering wheel, slows him down a bit, and his head and face strike the windshield. And it may be with a delta-v of less than 25 miles an hour.
- Q. Can you point to me where on this little drawing that I made where you would expect his face to strike the windshield?
- A. I can't because that depends very much on his actions on whether he throws his hands up in front of his face, whether he turns his head and neck. But all things being equal if he holds onto the steering wheel, I think it's going to be a frontal striking of his face. I'm just going to say frontal. You drew a very nice Halloween-type picture. And I would say frontal facial contact with the windshield.
- . . .
- Q. Just put a big X. Just anywhere on the front of his face, anywhere?
- A. I'm just saying frontal contact. I can't tell you. It depends too much on what he's done, what he will do in anticipation of the accident. But, in general, I expect him to strike it full frontal contact. He may strike it with the top of his forehead first and his head and neck then go up into the windshield into what we call a rake angle to the windshield. But I would say I can't omit full frontal contact.
- Q. What kind of injuries would he suffer if he struck with his top of his forehead first and then did that same motion that you just described going somewhere along the lines of something less than 25 miles per hour?
- A. I think he can have facial lacerations. I think he can have flexion injuries, or flexion/extension injuries in general in his cervical column.
- Q. Could he become a paraplegic as a result of that? In other words, could he fracture a vertebrae and render himself a paraplegic?
- A. Can you? Yes. I have never yet been involved in a case where somebody has fractured a vertebrae that way. But can you? Sure, it's possible.

(Batterman Dep. at 137-145.)

In forming his conclusions, Dr. Batterman admits that he did not test any of the components of the rear guard or the rear sub-assembly on the Lufkin trailer (Batterman Dep. at 15, 30). Dr. Batterman stated that he has reviewed crash tests for Chevrolet Cavaliers (Mr.

Paoline was driving a 1986 Cavalier at the time of the accident), but did not review them specifically for this case, and did not specify whether he reviewed crash tests for a 1986 Cavalier. Id. at 41. Dr. Batterman did not have the opportunity to inspect either the vehicle or the trailer immediately after the accident. Id. at 41-43. Mr. Paoline's Cavalier was left at the accident site, and subsequently disappeared. Dr. Batterman testified that he would have liked to inspect both the vehicle and the trailer immediately after the accident to obtain some of the following information: overall crush measurements as far as the impact concerned the axle and the trailer wheels, id. at 43; witness marks on the trailer to see where the Cavalier impacted the trailer, id., at 44; location of hair, teeth marks, and body tissue on both the trailer and inside the Cavalier, id.; deformation of the steering wheel, id. at 46; the distance the hood of the vehicle was peeled back, id.; the seating position in the vehicle, id. at 46-47; and the energy absorbing elements of the steering column and the deformity, if any, of the slip bolts holding the steering column, id. at 127. Dr. Batterman further stated that, if the Cavalier had been available to him, he "would have done as thorough a forensic investigation as I could to see if I could find any head strikes, body strikes, in general, in various parts of the vehicle." Id. at 46. Dr. Batterman testified that his investigation into the cause of Mr. Paoline's injuries was affected by not having the Cavalier to inspect. Id. at 45.

Dr. Batterman did inspect the trailer approximately three to four years after the accident, and long after the trailer had been repaired. At the inspection, Dr. Batterman did no testing of the trailer other than to take measurements. He did not take any samples of steel from the trailer, id. at 61, nor did he do any speed tests at the scene, id. Dr. Batterman performed no tests or calculations to determine what it would take to bend or deform the gussets or slide rail on

the trailer, id. at 81, whether the macadam was the same as at the time of the accident, id., the strength of the trailer bumper at the time of the accident, id. at 82, how much energy the bumper absorbed during the accident, id., or what it would take to deform the steering wheel as revealed in post-accident photographs, id. at 127. Dr. Batterman performed no drag tests on the road, nor did he perform any G-analysis. Id. at 81. Dr. Batterman testified that he relied upon testing performed by the Insurance Institute for Highway Safety to determine the speed of the Cavalier at the time of the accident, but admitted that those tests involved two different vehicles, neither of which was a Cavalier, one of which was heavier than the Cavalier, and the other Dr. Batterman didn't "believe" was heavier. Id. at 85-86. The Insurance Institute tests were performed using a Freuhauf trailer with a bumper that was not identical to the Lufkin bumper at issue in this litigation, and with a trailer that was not attached to a tractor as in the instant case. Id. at 86. Importantly, the Insurance Institute tests involved crash test dummies in a belted position. Id. at 86-87. Relying upon these tests, Dr. Batterman concluded that with a properly designed guard, these were "survivable" accidents. Id. at 87. However, Dr. Batterman relied upon no tests involving unbelted dummies in reaching his conclusions.<sup>3</sup> Id. at 88, 125.

After carefully examining the deposition testimony of Dr. Batterman, this court concludes that he cannot offer admissible evidence as to the injuries Mr. Paoline would have suffered if an alternative design had been used. Dr. Batterman is unaware of the various forces that were at work in the accident. While he hypothesizes that Mr. Paoline would have suffered less traumatic injuries, he is unable to point to any tests or studies upon which he bases that

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<sup>3</sup> It appears to be undisputed that Mr. Paoline was not wearing a seat belt at the time of the accident. (Batterman Dep. at 50.)

conclusion. Even with a different guard on the trailer, Dr. Batterman testified that Mr. Paoline's face and head would have struck the windshield. However, Dr. Batterman did not undertake any studies to determine what would happen if someone of Mr. Paoline's size and stature struck a windshield at 25 miles per hour. Id. at 141. He stated that Mr. Paoline "certainly ... could have" suffered zygomatic fractures and "certainly it's possible" that Mr. Paoline would have suffered a closed head injury. Id. at 139-40. While Dr. Batterman testified that he personally has never been involved in a case where such an individual suffered traumatic brain injury, that does not mean that it could not occur. Id. When asked what part of Mr. Paoline's face would have impacted the windshield, Dr. Batterman stated, "I can't tell you." Id. at 144. Dr. Batterman first stated that frontal facial contact would have been made, but then stated that the top of the forehead might have struck the windshield first, followed by the head and neck. Id. Dr. Batterman was unable to state with any certainty what injuries Mr. Paoline would have suffered if his vehicle struck one of the alternative guards, noting that too many variables, such as the driver's actions in anticipation of impact, existed. Id.

As to the rigidity of the proposed guards, Dr. Batterman stated that some of the proposed alternative guards would not have been too rigid upon impact, but admits that others would have been more rigid causing a faster deceleration of the vehicle. Dr. Batterman, however, did not explain whether Mr. Paoline would have suffered deceleration injuries associated with striking an overly rigid guard. Dr. Batterman admitted that there was a trade-off between a rear guard being too rigid and too flimsy, because "you don't want to increase the deceleration of the vehicle to the point where the occupant is exposed to injury-producing threshold levels just due to the fact that the vehicle is decelerating very rapidly." Id. at 171-72.

When asked if he had any analysis or calculations to support his conclusions, Dr. Batterman stated “[t]hat’s all in the reports,” “I don’t have zillions of dollars to spend building something and running a test, nor do you have to do it when the tests are out there.” Id. at 139. While Dr. Batterman alludes to the existence of reports supporting his conclusions, he identifies none. Further, Dr. Batterman referred to what he called “an enormous body of literature” regarding human tolerance, however, he testified that he did not consult it for the purposes of this case. Id. at 141-42.

It is clear to this court that Dr. Batterman’s proposed testimony regarding Mr. Paoline’s hypothetical injuries does not satisfy the requirements of Daubert, as applied by the Third Circuit, and therefore is not admissible. Plaintiffs have not proven by a preponderance of the evidence that Dr. Batterman’s opinion regarding injuries Mr. Paoline would have suffered with an alternative rear guard is “based on valid reasoning and reliable methodology.” Oddi, 234 F.3d at 146 (quoting Kannankeril v. Terminix Int’l, Inc., 128 F.3d 802, 806 (3d Cir. (1997))). As detailed above, Dr. Batterman cannot state with any certainty what would have happened to Mr. Paoline’s car if it had struck one of the proposed alternative guards. (Batterman Dep. at 137-38.) All the above leads this court to the conclusion that Dr. Batterman has failed to prove that he applied: (1) a method consisting of a testable hypothesis (Oddi factor number 1); (2) a method subjected to peer review (Oddi factor number 2); and (3) a generally accepted method (Oddi factor number 5). Moreover, without this information, the known or potential rate of error in Dr. Batterman’s conclusions is limitless (Oddi factor number 3). Without knowing what method or techniques Dr. Batterman applied in order to reach his conclusions, it is impossible to assess “the existence and maintenance of standards controlling the technique’s operation” (Oddi factor

number 4), or the “relationship of the technique to methods which have been established as reliable” (Oddi factor number 6). Without evidence to prove what injuries Mr. Paoline would have suffered if an alternative design was used, plaintiffs cannot succeed on their crashworthiness claim and judgment must be entered in favor of Lufkin.<sup>4</sup>

For the reasons stated above, it is hereby

**ORDERED**

that defendant Lufkin’s motion for summary judgment (Document No. 20) is **GRANTED**.

BY THE COURT:

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THOMAS J. RUETER  
United States Magistrate Judge

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<sup>4</sup> Pursuant to Fed. R. Civ. P. 56(c), summary judgment is proper “if the pleadings, depositions, answers to interrogatories, and admissions on file, together with affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to judgment as a matter of law. The Supreme Court has stated that Fed. R. Civ. P. 56(c) requires “the threshold inquiry of determining whether there is a need for a trial – whether, in other words, there are any genuine factual issues that properly can be resolved only by a finder of fact because they may reasonably be resolved in favor of either party.” Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 250 (1986).