

Defense Team
Members

By Eric L. Probst

Accident reconstructionists and biomechanical experts can help develop liability and damages strategies, which can be used to advise in-house counsel and risk management departments on whether to litigate or to pursue early case resolution.

The Accident Reconstruction and Biomechanical Expert

The number of experts used in some personal injury matters can be staggering. Even routine, soft-tissue injury cases sometimes involve multiple liability and medical experts. Often counsel will go overboard, hiring expert

witnesses when a simpler approach would suffice. However, in commercial motor carrier collision cases, using accident reconstruction and biomechanical experts is indispensable to an effective defense strategy, especially in serious injury and wrongful death cases. It is hard to imagine a trucking company involved in these types of personal injury cases not having an accident reconstructionist as a member of a rapid response team, which investigates the crash scene and collects evidence to describe and recreate how a collision occurred. Likewise, it is not uncommon for a trucking company to retain a biomechanical engineer to understand how an impact caused the injuries sustained to begin to develop a working defense theory to a potential claim against one of its drivers, even if someone has not filed a suit.

However, defense counsel would be shortsighted to use these experts only on a rapid response team or during a pre-suit

investigation. These experts bring more value to a case than merely collision analysis or identifying the liability of each party. They can assist with assessing case value, devising a defense theory, determining how a collision occurred, and attacking a plaintiff's experts at depositions to set up *Daubert* and summary judgment motions. This article addresses briefly the roles that these experts can play, and then focuses on how they can assist defense counsel with the ultimate goals of excluding plaintiff's experts from testifying at trial, or better yet, obtaining summary judgment.

The Role of an Accident Reconstructionist

Accident reconstructionists are critical members of every trucking company and law firm's rapid response team. These experts, who are often engineers or former law enforcement officers, are responsible for collecting, cataloguing, and analyz-



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ing vehicle crash scene data to describe the events that led to an impact between your client's commercial vehicle and other vehicles, pedestrians, or stationary objects involved in a collision. Arriving on the scene quickly to collect evidence before it disappears or is destroyed is crucial to determining how an accident occurred and who may be at fault. With law enforcement and emergency responders preoccupied with clearing a scene and treating injured motorists, an immediate response is imperative to document the evidence of a crash, especially in adverse weather conditions. In fact, depending on the size of your state, it may make sense to have two to three accident reconstructionists on the team to expedite travel to the scene and to minimize travel costs associated with subsequent trips to inspect the vehicles involved in a crash, which never occur on the day of a crash. More importantly, your accident reconstructionists can help you to begin developing a defense strategy immediately to the eventual lawsuit that will result. Once the data is collected and evaluated, your experts can reconstruct or recreate how a collision occurred.

However, an accident reconstructionist and his or her team can serve a function beyond just gathering scene evidence. While the first hours are the most critical to preserving collision-scene evidence successfully, an accident reconstruction team can also provide a valuable service to your client by gaining access to information only in possession of the investigating police department. The accident reconstructionists that we typically use often have assistants on staff who are former law enforcement personnel, many of whom served as fatal crash investigators. Beyond visiting a scene to help with evidence collection and surveying the vehicles involved in a crash, these rapid response team members can gain access to evidence that attorneys have to wait weeks or months to obtain. For example, a former-police officer turned-accident reconstructionist assistant will have a much easier time convincing the investigating police officers to relay information about a crash before official reports are completed than we, the lawyers for a trucking company involved in a collision, can. Such an assistant can sometimes obtain the names of fact witnesses or the locations of towed

vehicles or get a handle on the type of paperwork that you need to complete to obtain formal reports. In one case that we handle currently, when our accident reconstructionist's assistant, who is a former-New York City Police Department fatal crash scene investigator, spoke with the officers who responded to the scene of a pedestrian fatality, we learned that the decedent was unresponsive within seconds of impact, thus allowing us to evaluate, well in advance of taking depositions and receiving the medical and autopsy records, the potential value of the decedent's family's claims.

Technology, specifically "black boxes," ECMs, EDRs, lane-changing devices, dash cams, and other devices, contain valuable data about a crash that must be preserved. Your accident reconstructionist should be the person to coordinate preserving and downloading the electronic devices contained in your client's vehicle. Your accident reconstructionist should have expert knowledge on automobile electronic data recorders found in automobiles, that is, how to preserve them and download the data, the type of data that they contain, and depending on the make and model of the vehicle, whether the vehicle contains any other technology that might have recorded the events leading to a crash such as lane-changing technology, accident avoidance technology, or air-bag deployment, among others. Further, your expert should be able to point out anything that will adversely affect downloading the data or establishing a chain of custody. For example, sometimes, moving a tractor before downloading its data may alter the data.

An accident reconstructionist should not be forgotten after the evidence is collected or ignored until it is time to serve an expert report. Pre-suit evaluation of a case for resolution or defense is what distinguishes commercial transportation collision cases, especially catastrophic injury cases, from other personal injury matters. An accident reconstructionist can help here, too. A detailed and thorough analysis of the pre-crash behavior of the drivers, the paths of the vehicles, their speed, and the drivers' perception and reaction times will assist you when evaluating the potential liability hurdles that your client will face if suit is filed. Your expert can run through different crash-scene scenarios, including

slowing down the speed of the vehicles and pedestrians to determine whether a collision could have been avoided, who had the best and last opportunity to avoid a crash, what obstacles might have impeded the drivers' abilities to avoid a crash, and other site conditions that might have influenced the events. An accident reconstructionist can help you mold your defense strategy.

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determine how to deal with your driver, and educate your client on whether a case is defensible at the outset.

The Role of a Biomechanical Expert

Biomechanical engineers can help you understand how the forces associated with a collision affected the body of a victim and resulted in the sustained injuries. Biomechanical experts are mechanical engineers with expertise, experience, and a course of study in anatomy and physiology, medicine, and the interplay of different human body systems. Biomechanical experts study the complex interaction between outside forces on the human body and its systems and the nature, type, and characteristic injuries associated with the forces. In motor vehicle collision cases, these experts examine radiology images, radiographs, medical records, coroners' reports, autopsy reports and photographs, collision scene photographs and measurements, surveys of the vehicles, and any simulation or animation prepared by an defense accident reconstructionist of the vehicles involved in a crash. Armed with this information, they determine what forces were applied to the vehicles and the bodies to evaluate whether the resulting injuries are consistent with the type and direction of forces applied.

These experts can assist defense counsel during the earliest stages in a case

to formulate both liability and damages strategies, and, when appropriate, with pre-suit settlement strategies. A biomechanical expert can shed light on the directional path of a pedestrian moments before an impact based on the nature of the injuries and the focal nature of the impact. This information often can help you determine, early on, whether to devise a comparative

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negligence defense. In catastrophic cases, a biomechanical engineer's analysis and opinion on how injuries occurred is invaluable. Similar to an accident reconstructionist, a biomechanical engineer can help the defense of a case in so many different ways.

Deposition Preparation

Your accident reconstruction and biomechanical experts can also help you prepare to depose plaintiffs, fact witnesses, and especially, plaintiff's experts. Given the sometimes sketchy qualifications and methodology used by experts in these fields, it is worthwhile to consult with your experts to develop a strategy to attack a plaintiff's experts' credentials and investigation of a collision to set up your *Daubert* challenge and summary judgment motion.

Preparation is imperative when deposing any witness, especially an expert witness. Before preparing for a deposition and committing yourself to an outline, establish the goals that you want to achieve from the deposition, a wish list, or as one of my partners calls it, a "Christmas list," of admissions or answers to questions that you want or need to have before you finish the deposition. Your accident reconstructionist and biomechanical engineer will have their own wish lists of informa-

tion that they would like to have for their investigations, opinions, and reports. Ask them what they need from a deposition as you prepare your list. On this list can be topics such as qualifications; CV; experience investigating motor carrier—automobile collision cases; causation; re-creation, simulation, or animation of the collision sequence; Plaintiff's role in collision; Factors contributing to collision; Factors that did not contribute; and other issues relevant to your case. For biomechanical or human factors experts, you also might want to include topics specific to this discipline, such as point of impact; crush Injuries; trauma, and other topics. Once your list is complete, call your experts to discuss strategies to meet these goals.

During this call, if you do not have it already, have your experts provide you with their view of a crash so that you intimately understand how the crash happened. The attorney taking the deposition must understand the time, speed, and distance factors involved in a case; the perception and reaction times of your driver and the plaintiff; and any site conditions, such as trees or roadway surface, that may have influenced the drivers, among other issues. The deposing attorney should discuss the collision sequence with the defense experts and engage in a dialogue that reinforces their mutual understanding of the crash dynamics and establishes the defense strategy of the case. Next, the dialogue should focus on the methodology used by a plaintiff's expert to understand the expert's recreation of how an accident occurred. Before walking into the deposition conference room, the deposing attorney has to be able to "talk the talk" of a plaintiff's accident reconstructionist, or to speak in the same vernacular as the plaintiff's accident reconstructionist, to depose the reconstructionist effectively.

One of the first and most critical topics from a *Daubert* perspective is whether a plaintiff's accident reconstructionist is qualified to testify. In some cases, accident reconstructionists will opine on issues in a case that are unrelated to the dynamics of a crash. It is not uncommon for a former police officer who served as a member of a county or state crash investigation unit to opine both about how and why a crash happened and that a driver and a company

violated the Federal Motor Carrier Safety Regulations (FMCSR) when serving as a paid consulting witness. If this happens, it is worthwhile at least to consult with a regulations expert to understand whether the plaintiff's accident reconstructionist has the experience, qualifications, and expertise to render an opinion on logbook violations. Merely reading the regulations and declaring a violation is not enough for a witness to opine that a violation occurred that proximately caused a crash, though many plaintiff accident reconstructionists try to do this. Nor does past experience conducting roadside checks of trucks at weigh stations qualify a former state trooper as an expert on the FMCSR. Further, you can use your accident reconstructionist to develop questions that challenge a plaintiff's expert's conclusions that an hour of service violation caused a driver to become fatigued or distracted, which led to a crash. Any good accident reconstructionist can tell you that certain physical evidence found at a crash scene will indicate that a wreck was caused by a distracted driver. With this information, you can challenge a plaintiff's expert's conclusions when the evidence does not exist.

If a plaintiff's expert has limited his or her opinions to areas that meet the expert's qualifications and experience, your accident reconstructionist's role is to explain to you the gaps in the expert's investigation and subsequent recreation that you might use to argue to a court that the expert's opinion fails under *Daubert*. For example, in a case that we handled, our accident reconstructionist explained that the plaintiff's expert failed to calculate the distance from the point of impact at which our driver first should have perceived the plaintiff's vehicle. Additionally, our expert advised us that our driver's reaction time was consistent with generally accepted reaction times, which the plaintiff's expert did not account for. With this information, we deposed the plaintiff's expert at length on his investigation and the missing calculations, measurements, or recordings of the time factors involved in the crash. These admissions formed the heart of our *Daubert* challenge.

This area of deposition preparation is crucial for several reasons. First, once a deposing attorney understands a plain-

tiff's expert's report, methodology, and the gaps in the methodology, the more effective the deposition will be. The attorney will be able to expose shortcomings in the expert's analysis and the investigation's deficiencies and use them to place the expert on the defensive during the deposition, which will help the attorney force the expert to back off some of his or her rendered opinions to induce the expert to agree with some of the defense's points. Once an expert starts agreeing with you on some points, the expert often will concede other points as well. Further, with an eye towards the *Daubert* motion, understanding the gaps with the assistance of your experts will allow you to box a plaintiff's expert into concessions—whether stated or not—that his or her conclusions are subjective beliefs about what happened and why, and not based on scientific methods in the field of accident reconstruction or biomechanics. See *Johnson v. Arkema, Inc.*, 685 F.3d 452 (5th Cir. 2012) (expert cannot testify to subjective beliefs). Or with summary judgment as your goal, you can use your expert to understand and then subsequently question a plaintiff's expert on the fact that his or her opinions fall short of establishing causation.

Biomechanical experts play the same role. The first question to ask is a simple one: is the expert a qualified biomechanical expert? In many cases, we have found accident reconstructionists wearing two hats in the same case: serving both as an accident reconstructionist and as biomechanical expert though they typically lack the credentials and expertise in the field of biomechanical engineering. Next, with your biomechanical expert's assistance, understand how the injuries occurred and whether what happened caused the injuries sustained. A deposing attorney needs to understand how the component part or parts of a commercial vehicle that contacted a plaintiff's vehicle, or a plaintiff in a pedestrian case, could cause a traumatic brain injury, fractured pelvis, or spinal cord injuries. Your expert can evaluate a plaintiff's biomechanical expert's conclusions and explain to you whether the expert's explanation of the crash dynamics matches the mechanism of injury and the injuries ultimately sustained. This analysis is particularly critical in seatbelt cases.

Your biomechanical expert might be able to develop a working theory that a seatbelt failure, and not the collision, was the substantial contributing factor and proximate cause of a plaintiff's injuries. This point could be important in two respects. First, this analysis and defense theory provide significant cross-examination questions. Second, they potentially allow your client to limit its liability and damages exposure.

These objectives cannot be achieved without your expert teaching you about the mechanics of how a plaintiff's injuries were sustained and how the plaintiff's expert failed to recognize a potential alternative cause of the sustained injuries.

Finally, have your experts prepare questions for you to ask. Your experts are in the best position to draft the questions that they need answered to cross items off their wish lists. Further, they can evaluate a plaintiff's testimony in response to these questions to determine whether the plaintiff's "recollection" of the collision matches the physical evidence gathered at the scene. That they will also prepare questions to ask of the expert witnesses almost goes without saying. It is difficult to imagine deposing a plaintiff's expert with the hope of striking his or her opinions through *Daubert* without having a list of questions from your experts.

The *Daubert* Motion—Your Expert as "Brief Writer"

Federal Rule of Evidence 702 requires plaintiff's experts, among other things, to be qualified, knowledgeable, and have technical expertise in the field on which they offer opinions. Further, it requires an expert actually to reconstruct an accident and measure and calculate vehicle speed, time, and distance to determine how an accident happened and who caused it. An accident reconstructionist who fails to reconstruct an accident should not be permitted to testify because he or she cannot satisfy the admissibility requirements in Federal Rule of Evidence 702. The rule likewise requires biomechanical experts to evaluate various factors associated with the collision—namely, the positions of occupants in the vehicles; the position or the location of pedestrians in relation to the vehicles; restraint systems; vehicle structures and their location in relation to

pedestrians—to determine how the resulting injuries were sustained. When these experts fail to do that, you should file a *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 597 (1993), motion to exclude these experts from testifying.

The *Daubert* motion has to distinguish between methodology arguments and credibility arguments because the former

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are proper for a court, as the gatekeeper, to consider, while the latter are left for a jury to evaluate. *Daubert*, 509 U.S. at 590–91. The objective of the "gatekeeping" requirement is "to make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999). Further, by the time that you prepare a *Daubert* motion, you should have already established through depositions that the experts' opinions are nothing more than subjective beliefs unsupported by facts. *Johnson*, 685 F.3d at 452.

What Happened, Why, and How?

These questions are critical in every case. As the trial lawyer, you must frame them for a jury, and then answer them through your opening, witness testimony, and closing. The same holds true for *Daubert* motions. With crowded dockets and motion calendars in every federal and state courthouse, judges, and their law clerks, do not have

the time to devote countless hours sifting through your brief to understand what happened and that it happened the way that your client says it did. Simplifying the collision to its essentials for a judge or a clerk to understand is essential to succeeding on a *Daubert* or state-equivalent expert challenge. Further, most judges are not familiar with the physics of a motor vehicle collision

With the help of your expert, you must explain to a court that the following gaps exist in a plaintiff's expert's report and opinion, rendering them useless for a jury to consider the liability of the parties under Fed. R. Evid.702.

or how the body reacts to the forces generated by such a collision. Distilling measurements, speed rates, coefficients of friction, skid marks, yaw marks, and other factors so that a court can appreciate why a plaintiff's expert's methodology is flawed and should be excluded is no easy task.

When moving to exclude an accident reconstructionist's report and opinion, the fundamental argument that your expert can assist you with is that the plaintiff's accident reconstructionist did not adequately recreate the accident. From this basic premise, your client can prove that the adversary expert's methodology is unreliable. With the help of your expert, you must explain to a court that the following gaps exist in a plaintiff's expert's report and opinion, rendering them useless for a jury to consider the liability of the parties under Fed. R. Evid.702.

First, often, a plaintiff's experts neglect, sometimes purposefully, to calculate the pre-impact speed of the plaintiff's vehicle, assuming that the speed of that vehicle

is not relevant to why and how a collision occurred. Any good accident reconstructionist will calculate the speeds of all vehicles involved in a collision, or the walking speed of a pedestrian, if the case involves a walking scenario, to determine when the vehicles arrived at the point of impact and who arrived first. A defense accident reconstructionist can assist you to craft an argument that this gap in the report is not a credibility issue for a jury to consider, but rather a significant defect in the plaintiff's expert's methodology. Stated another way, both vehicles' speeds are necessary to determine when each vehicle arrived at the impact zone and in which order.

Second, your accident reconstruction expert can help you argue that a plaintiff's expert did not perform any calculations or that his or her calculations are not scientifically based, meaning that the evidence does not support them and physics that explain how the collision occurred. We had a case in which the plaintiff's accident reconstructionist did just that, failed to calculate what the plaintiff's vehicle's speed was when it entered the highway at the top of an on ramp and immediately in front of our driver. Though the case settled soon after we filed our *Daubert* brief, our accident reconstructionist helped us craft an argument that the plaintiff's retired-police officer turned-accident reconstructionist needed to evaluate this critical element of the accident to determine who was at fault but failed to do so.

Third, in many tractor-trailer collision cases, perception and reaction time are critical crash factors that experts consider to determine which driver caused or contributed to a collision. A plaintiff's expert cannot or should not be allowed to avoid calculating your driver's perception and reaction time. To opine that your driver is at fault, an expert must calculate these times to demonstrate to a jury that your driver had more than enough time under the circumstances to observe the plaintiff's vehicle, react to its presence, and avoid the collision. Your accident reconstructionist can help you to persuade a court that a plaintiff's expert's methodology is flawed if he or she does not calculate pre-impact speed, time, and distance elements—the distance of a tractor trailer from the impact site at which point the

driver should have seen the plaintiff's car, the distance that the truck traveled from this point, the plaintiff's pre-impact speed, the distance that the truck traveled from the time that the plaintiff saw your client's vehicle, and the time that it took the plaintiff to travel this distance. Your expert can clarify the specific data that a plaintiff's expert should rely on to establish a causal connection between your driver and a collision and how the plaintiff's expert failed to do that.

Finally, your biomechanical expert can also assist you to argue that a plaintiff's expert is not a biomechanical engineer. This technical field requires an engineer to testify how the application of forces to the human body resulted in the injuries sustained. An accident reconstructionist should not be allowed to masquerade as a biomechanical engineer because the latter must be trained in anatomy, physiology, medicine, body systems, and mechanical engineering. Further, your expert can help you highlight the gaps in the methodology used by a plaintiff's expert.

"Pay No Attention to that Man Behind the Curtain."

This quote, from the pivotal scene in the classic film, *The Wizard of Oz*, when Toto pulls back the curtain to expose the great and powerful "Oz" as an ordinary man operating a smoke-and-mirrors illusion, applies to many accident reconstruction and biomechanical experts. Too many experts will use legerdemain and misdirection to support theories that a driver negligently operated a vehicle and caused an accident. Your experts can reveal irrelevant facts and data used by a plaintiff's expert to help support your argument that the expert's methodology is considered as unreliable under *Daubert* or does not prove causation for summary judgment purposes.

Almost every trucking case now contains some allegation of driver fatigue, FMCSR violations, hours of service issues, cell phone use, texting while driving, and other examples of distracted driving. This type of evidence is certainly attractive to a court to justify denying a *Daubert* challenge because the evidence raises potential fact questions that a jury should decide. However, the evidence must be relevant

under Fed. R. Evid. 401 and tend to prove that a driver caused a collision before it should be admitted. For example, your accident reconstructionist can demonstrate, using the physical evidence collected from a crash scene and testimony from eyewitnesses, whether or not a collision was likely caused by a distracted or fatigued driver. With this information, you can argue in your brief that a plaintiff's expert's methodology and conclusions are flawed because alleged past FMCSR violations, even log book deficiencies, are irrelevant to whether your driver carelessly drove his or her vehicle when he or she collided with the plaintiff's vehicle and the evidence does not exist to support that conclusion.

Further, a plaintiff's accident reconstructionist, as the most likely type of expert to opine on fatigue and distracted driving issues, more likely than not will not have the expertise to testify on these topics. Too often we receive an accident reconstruction expert report from a plaintiff that contains everything plus the kitchen sink on why our driver caused the accident. For instance, we once received a 50-page, single-spaced report. Your accident reconstructionist can help you divide a plaintiff's expert's opinions into those that purport to recreate the collision, those that actually do based on the facts gathered during the expert's investigation, and those that are beyond the expert's qualifications, such as opinions on log book violations or that the driver drove distractedly. Similarly, your expert can assist you with investigating the numerous associations and reconstruction societies to which a plaintiff's accident reconstructionist typically belongs to show that his or her membership in these groups or having attended a seminar does not mean that the expert has the qualifications to recreate an accident, opine about log book violations, cell phone use, texting, fatigue, or other distracted driving indicators.

Connecting the Dots

Each state has its own standards for qualifying experts to testify at trial. However, no federal or state court allows an expert to testify based on "possibilities" or "subjective beliefs" on how an accident occurred or how a plaintiff sustained his or her injuries. Defense experts can help you explain

to a court the gaps that exist in a plaintiff's expert's analysis between the facts and data and the plaintiff's expert's conclusions. For example, an accident reconstructionist cannot testify that if your driver had slowed down as he or she approached a crash site, the plaintiff would have been able to merge onto the roadway without incident, or if the driver had slowed down, the plaintiff would have been able to clear the impact zone, unless the plaintiff's expert has calculated vehicle speeds and perception and reaction time, measured sight distances, and photographed sight lines. Your biomechanical expert can help you to argue that the mechanism for injury relied upon by a plaintiff's expert is not based upon facts in the case, or his or her methodology is flawed. Too often, plaintiffs' experts fail to provide any calculations for the speed, the time, and the distance of the motor vehicles involved in collisions other than for the tractor trailer. By using your accident reconstructionist and biomechanical experts, you can attack

an adversary's methodology that fails to connect the dots and persuade a court to strike a plaintiff's expert report.

Conclusion

A defense accident reconstructionist and a defense biomechanical expert are critical members of a defense team for a case involving a truck accident. They are more than report drafters and should play vital roles helping you develop liability and damages strategies by assisting you to understand how a collision occurred and how a plaintiff was injured. With this information, a trucking lawyer can effectively evaluate the defensibility of a case to advise in-house counsel and risk management departments on whether to litigate or to pursue early case resolution. Beyond that, these experts are valuable assistants when deposing a plaintiff's experts so that you can undermine their methodological approaches and conclusions to set up the appropriate motion to strike.



**THE EXPERTS YOU NEED.
THE EXPERIENCE YOU TRUST.**



ACCIDENT RECONSTRUCTION
CRASHWORTHINESS | PREMISES LIABILITY
BIOMECHANICAL INJURY ANALYSIS | FAILURE ANALYSIS

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