# Best's Insurance Law Podcast

## The Surprising Impact of Low-Impact Auto Claims - Episode #178

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Qualified Member in *Best's Insurance Professional Resources* since: 2013

**John Czuba:** Welcome to "Best's Insurance Law Podcast," the broadcast about timely and important legal issues affecting the insurance industry. I'm John Czuba, Managing Editor of *Best's Insurance Professional Resources.*

We're pleased to have with us today, Dr. Ernest Chiodo. Dr. Chiodo earned an MD from Wayne State University School of Medicine, a JD from Wayne State University, a Master of Public Health from Harvard University School of Public Health, a Master of Science in Biomedical Engineering from Wayne State University.

A Master of Science in Threat Response Management from the University of Chicago, a Master of Science in Occupational and Environmental Health Sciences with specialization in Industrial Toxicology from Wayne State University.

A Master of Business Administration from a concentration in Economics from the University of Chicago, and a Master of Science in Evidence-Based Health Care from the University of Oxford in the United Kingdom.

Dr. Chiodo is also board-certified in the medical specialties of internal medicine, occupational medicine, and public health in general preventative medicine. Dr. Chiodo, thank you so much for joining us today.

**Dr. Ernest Chiodo:** Thank you, sir.

**John:** Today, Dr. Chiodo, we'll be discussing the analysis of low-impact speed motor vehicle accidents and the impact on claims. For our first question today, Dr. Chiodo, which exerts greater force on a body -- a low-speed motor vehicle accident or the act of entering a motor vehicle?

**Dr. Chiodo:** The act of entering a motor vehicle. Now you have to remember, the person that is involved in a low-speed collision is not hit by another motor vehicle that motor vehicle that they're in is hit by another motor vehicle, and there's either acceleration or deceleration. Those forces are called G-forces. They're really a measure of acceleration or deceleration.

Say a motor vehicle rear-end collision that was a 5-mile-per-hour motor vehicle collision, the G-forces would be at most 2.3 Gs. In, say, a 10-mile-per-hour collision, the G-forces would be about 4.7 Gs.

The question is, what does that mean, Dr. Chiodo? 2.3 Gs is 2.3 times a force of gravity on Earth. The next question is, what does that mean? You have to make a comparison. If somebody plops down into a seat, the G-forces horizontally along the top of the seat are about 5.5 Gs.

The G-force is up and down vertically over 8.5 Gs. The vector, the combination of the horizontal and vertical vector, is over 10 Gs. You have to remember, most motor vehicles are designed where the most convenient way to get in the motor vehicle is to plop down into the seat.

An individual that is involved in, say, a 5 or 10-mile-per-hour rear-end collision has G-force is on their body much less than the G-forces of getting into the motor vehicle before they got into the car before they were involved in the accident.

By the way, sideswipe collisions, there's very minimal G-forces because the vehicles slide past each other's. There's essentially no delta-v. In a sideswiped collision, even if there's major property damage to the side of the vehicle, the G-forces are at most 0.5 Gs compared to getting over 10 Gs getting into the motor vehicle. That's important to know.

The reason why that's important to know is that many times, plaintiffs will claim that they had the collision either caused or aggravated their condition. If the individual didn't complain about getting hurt getting into the motor vehicle, they're not suing General Motors, Ford, Chrysler, Toyota, then why did they get hurt with a much lesser force of the collision? I'm now ready for your next question, sir.

**John:** Dr. Chiodo, can low-speed, rear-ender sideswipe motor vehicle accidents cause spinal disc herniations?

**Dr. Chiodo:** No, actually not. That's an urban myth. It's like the television program, "MythBusters." No, it sounds like it happens. It's been five zillion lawsuits about this. Virtually, every jurisdiction in every area of the United States has had many, many, many claims of ruptured lumbar discs or cervical discs due to low-speed motor vehicle collisions, but that's an urban myth.

We know based upon human studies, cadaver studies, that you simply do not get a disc herniation from a single-loading event that is from an accident, unless you have massive bony injuries of the spine. That is if you shatter your spine, you will blow a cervical or lumbar disc. If you do not shatter your spine, you're not going to rupture a lumbar or cervical disc.

Why is that? The bones of the vertebra of the spinal column, the vertebra, are hard and brittle like a teacup. If you take a hammer and you hit a teacup, it shatters. The annulus fibrosis of the disc is soft and flexible like a rubber band. You hit a rubber band with a hammer, it doesn't shatter.

The evidence-based medicine does not support the claim that if somebody gets involved in a low-speed motor vehicle collision is going to have a disc herniation from the forces of the collision unless they shattered their spine.

**John:** If the motor vehicle accident did not cause a disc herniation, what's the likely cause?

**Dr. Chiodo:** The likely cause? That's always very important, because if it didn't cause it, then why does this person have a ruptured or lumbar disc. The main reason to have a ruptured lumbar or cervical disc is because of degenerative changes, either degenerative changes due to aging or degenerative changes due to occupation.

As one gets older, their disc become more degenerated and more likely to just spontaneously rupture. Same thing with occupations. Is somebody has a heavy labor, it's very likely to get a disc herniation from degenerative changes from being a heavy labor.

It's not just heavy labor. Somebody that does a lot of computer work is very likely to get a ruptured cervical disc due to their occupation. Surgeons very often get ruptured cervical discs. Secretaries do. That is the alternative explanation.

Now it's very important because what type of medical doctor is the type of doctor that would sort out whether or not a work activity caused somebody to have a disease like a ruptured disc. Their specialty is called occupational medicine. It's not called neurosurgery. It's not called orthopedic surgery.

There's a reason why there's a specially called occupational medicine. That is the type of doctor that would be able to say whether or not the activity of the work more likely than not cause somebody to have a ruptured disc.

How does this play in from an advocacy standpoint? Yours truly, I just happen to be among other things board-certified in occupational medicine. If I go along and I opine that, "No, it wasn't the motor vehicle accident, because here, I calculated the forces.

"The G-forces are much less in the accident than they're getting into the motor vehicle and the most likely cause of plaintiff's ruptured lumbar disc or cervical disc was their occupation," then the orthopedic surgeon or the neurosurgeon retained by plaintiff or likely the treating orthopedic surgeon, neurosurgeon will say, "No, I disagree with Dr. Chiodo. No, the occupation did not cause that."

Then the nice, easy, clean cross-examination impeachment goes like this, "Well, Dr. Jones, is there a specialty called occupational medicine?" Dr. Jones will say, "Well, yes." The defense attorney can then say, "Well, occupational medicine, isn't that the specialty that figures out what happens due to work? What work activities can cause particular diseases?"

Dr. Jones will say, "Yes." The next question, "You disagree with Dr. Chiodo? You don't think the work caused plaintiffs problem?" He'll say, "No." "Doctor, are you board-certified in occupational medicine?" "No." "Well, Dr. Chiodo was." That's where these alternative explanations are important. Again, most common cause is age and/or occupation.

**John:** Dr. Chiodo, what logical fallacy is the basis of plaintiff's medical causation testimony?

**Dr. Chiodo:** Every time I've ever heard it, and I'm sure that your listeners will say that, the logic behind the plaintiff's medical doctor is always the following. Plaintiff was fine before the accident. Then there was an accident. Now plaintiff is not fine. Therefore, the reason why plaintiff is not fine is the accident. That is A came before Z. Therefore A is the cause of Z. That is it.

There's always been a logic. I'd never heard any logics coming from the treating orthopedic surgeon, the neurosurgeon, or retain expert that's always plaintiff's logic. It sounds great.

There's only one problem with it. It's a logical fallacy.

In fact, it's such an ancient logical fallacy that even the ancient Romans knew screwed-up logic. That's why there's a Latin term for it. It's called the post hoc ergo propter hoc fallacy. That's Latin for "after this, therefore because of this."

You cannot simply say that A cause Z just because A came before Z because maybe B is the cause, the person's age; or it's C. The person is obese, very common cause for a ruptured lumbar disc; or D, the person's occupation.

A doctor in order to say that A came before Z and therefore A is the cause of Z has to exclude other possible causes. If they did not do that, if they base your opinion solely upon a temporal relationship, that leads to the blunder of the post hoc ergo propter hoc fallacy.

Now, that's very important, because any doctor basing their causal opinion upon a logical fallacy is not given a reliable opinion. It really goes to show that most doctors aren't really trained to figure out causation due to these car accidents.

It's just that their area. If it were their area, they wouldn't do something so foolish as commit a logical fallacy that any middle-school kid could go Google and say, "Oh, that doctor, that educated man committed a logical fallacy." Handy thing to know.

**John:** Dr. Chiodo, why is it that plaintiff was injured and almost, never the defendant?

**Dr. Chiodo:** Isn't it interesting? Think about it. Your listeners, I'm sure most of them are going to be defense attorneys, if they stop and think about it.

There's a car accident. Two cars get in an accident. Newton's third law of motion is every action has an equal and opposite reaction. If the vehicles are roughly about the same size, the force on the car that say rear ends, the current front, is essentially the same as a car that gets rear-ended. The forces are the same on the vehicles.

Why is it that plaintiff is always the one that gets hurt and defendant is not hurt? The reason being is neither one of them got hurt. Actually, who is more likely to get hurt in a rear-end accident is the person that did the rear-ending. Why is that? It's because in a motor vehicle accident, you're thrown towards the principal direction of force.

That is, if you rear-end somebody, you are thrown forward against the very narrow restraint of your lap belt and your shoulder belt. Whereas the person that is rear-ended, they're thrown backwards into the broad area of the cushioning of their sheet and their headdress, which is a safety device. Who is more likely to get hurt in a rear-end accident, all things being equal, is the defendant.

By the way, that issue of who's more likely to get hurt in a rear-end collision is something that has been considered very much in other areas other than just motor vehicle accidents.

When I did my biomedical engineering degree at Wayne State in Detroit, which the whole focus is on the vehicular impact biomechanics, I was repeatedly told that in Detroit, the US automobile industry has for many years tried to figure out how they can design cars so that people will be driving with their back towards the direction of travel, looking through a periscope.

If you run into something in that context, you're less likely to get hurt because the force is spread over your back rather than concentrated on a lap belt or in shoulder belt, but you can't get people used to driving backwards, so Detroit has not done that.

However, if you get onto a military transport aircraft, the seats face backwards because if the military plane flies into something that the passengers, the servicemen are more likely to survive because they're thrown into their seat rather than into the narrow restraints of a lap belt. Knowing, there might be somebody on the jury that's been in the military.

Same thing applies for infant seats. When you bring an infant home, the infancy faces backwards because if mom runs into something, the forces spread over the back of the baby. There's very likely going to be a mom or grandma that's on a jury that said, "Yeah, that seems odd." Yes, it is a very important point that if the defendant wasn't hurt, all things being equal, why is plaintiff first?

**John:** Dr. Chiodo, what's the problem with using a biomedical engineer that's not a physician?

**Dr. Chiodo:** First off, number one, there's been a lot of push to use biomedical engineers. I agree with that that the notion is, let's try to quantify how much force was in this accident. If you don't know the force, you can't know if somebody got hurt through the force.

The first thing that your listeners have to remember is biomedical engineering is a very broad field. Most biomedical engineers that study the discipline at most universities learn how to make CAT scan machines, ultrasound machines, and other medical devices. The focus in most places is not on vehicular impact biomechanics.

However, at Wayne State University in Detroit, which is where they did all the original car crash studies...By the way, how they figured out how much force was necessary to fracture somebody's skull, they did that by throwing cadavers down the elevator shaft at Wayne State

University School of Medicine many, many years ago because the idea of how things were back then.

At Wayne State, the focus, at least when I did my biomedical engineering degree was all in vehicular impact biomechanics. First off, not all biomedical engineers really know how to sort that out, but if you do have a biomedical engineer that knows how to sort this out, the fundamental problem is a biomedical engineer is not a physician.

They can't give a medical opinion. They can talk about how much force was involved in the accident. They can talk about what that force typically can cause, but they cannot and in many times are barred from going to the final step and saying, "This accident did or did not cause injury to plaintiff," because that's a medical opinion. You have to be a medical doctor to do that.

That is a problem with using a non-physician biomedical engineer, and then the obvious problem is, if you have a biomedical engineer and a physician, they don't speak the same language. Your physician doesn't know what the heck the forces are. It's just not part of typical medicine. Of course, the biomedical engineer doesn't have the medical background.

**John:** What's the problem with using a physician that's not a biomedical engineer?

**Dr. Chiodo:** This is very interesting. I don't know if your listeners picked up on it. I have been a physician for almost 40 years now, but I've been an attorney for almost as long. How did I get into this whole crazy area of vehicular impact biomechanics? Because that's how I started out.

Really, for many years, I was the go-to -- I think I am still the go-to guy -- as far as toxin exposure cases in Michigan, both medically and legally.

In fact, I did enough legal work as an attorney, representing plaintiffs in toxic tort cases that I used to be the chairman of the environmental litigation and administrative practice committee for the State Bar of Michigan, mildly prestigious if you're a lawyer but darn unusual if you're a doctor.

As a result, I got a reputation among lawyers as being very up on Daubert, Daubert rules, and application of Daubert in Michigan, because that comes up very commonly in toxic tort cases. One day, I think it was 2006, I got a phone call from an attorney, defense attorney, that want to pick my brain, and it was about a car accident.

He said, "Doctor, I want to ask to pick your brain legally." I'm the type of guy that I always get professional courtesy to lawyers. If they want to call and pick my brain, it's just gentlemanly to let them do that. He said, "This is the problem I have, Doctor. I'm defending a low-speed automobile accident case.

"I have a very well-qualified neurosurgeon that is applying that based upon the appearance of the vehicles after the accident that there was not enough force to cause the ruptured lumbar disc of plaintiff and plaintiff attorney has brought a motion to exclude my board-certified neurosurgeon because he is not a biomedical engineer."

He deemed it as a Daubert challenge. I don't think it was a Daubert challenge, really a foundational challenge. He asked me what I thought about that. I had never thought about the issue before because everything I was doing was toxin exposure.

I thought about it. I thought that's genius on the part of that plaintiff's attorney, because that board-certified neurosurgeon is eminently qualified to diagnose a ruptured disc. He's eminently qualified to have an opinion about treatment. He may say surgery. I may see medical care. We may disagree in our opinion, but he has the right to evidence his opinion about treatment. He's qualified.

He's eminently qualified to have an opinion about prognosis. How's this person going to do 5, 10 years later?

What the heck is there in the background of a neurosurgeon, an orthopedic surgeon, of a physiatrist, neurologists, any type of medical doctor that would allow them to look at pictures of vehicles after the accident to say there was or was not enough force to cause a ruptured lumbar disc or any other type of injury?

That's an engineering question to figure out what the forces were. I thought to myself, that's not just engineering. That's biomedical engineering, specifically vehicular impact biomechanics. Then I thought to myself, there are more car accidents, and there are toxin exposures. I have to get one of those degrees.

I thought, where can I get one? Wayne State University in Detroit where they did the original car crash studies. The point being is, if you have a doctor, and he can't figure out the forces in the collision, then he really doesn't know whether or not somebody got hurt due to the accident, because he doesn't have the background to quantify the forces.

You have to know something about the force to say whether or not somebody got hurt during force. That is the fundamental problem with both the plaintiff's expert and the defense expert.

Orthopedic surgeons, neurosurgeons, they're experts in doing surgeries. They're not experts in figuring out whether or not somebody got hurt due to a low-speed motor vehicle collision, because they don't have the engineering background to figure out the forces.

**John:** Finally, Dr. Chiodo, what should claims managers or defense attorneys be made aware of?

**Dr. Chiodo:** Claims managers and defense attorneys should be made aware of that Dr. Chiodo happens to be one of the few doctors out there that feels any need to get professional courtesy to lawyers, because I just happened to be one myself. If anybody in your audience -- a claims manager, a defense attorney, or even a plaintiff's attorney -- wants to call and pick my brain, I get professional courtesy. I'll let you go ahead and pick my brain. You're free to do so and no obligation to hire me as an expert.

**John:** Dr. Chiodo, thanks so much for joining us today.

**Dr. Chiodo:** Thank you, sir.

**John:** That was Dr. Ernest Chiodo, expert service provider in *Best's Insurance Professional Resources.* Special thanks to today's producer, Frank Vowinkel. Thank you all for joining us for "Best's Insurance Law Podcast."

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I'm John Czuba, and now this message.

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