COURT OF APPEALS
DECISION
DATED AND FILED

October 26, 2022

Sheila T. Reiff
Clerk of Court of Appeals

Appeal No. 2020AP1052 **Cir. Ct. No. 2016CV1096**

STATE OF WISCONSIN **IN COURT OF APPEALS**
DISTRICT II

EDWARD A. VANDERVENTER, JR. AND SUSAN J. VANDERVENTER,

PLAINTIFFS-RESPONDENTS,

V.

HYUNDAI MOTOR AMERICA AND HYUNDAI MOTOR COMPANY,

DEFENDANTS-APPELLANTS,

KAYLA M. SCHWARTZ AND COMMON GROUND HEALTHCARE COOPERATIVE,

DEFENDANTS.

APPEAL from a judgment of the circuit court for Racine County: EUGENE A. GASIORKIEWICZ, Judge. *Affirmed*.

Before Gundrum, P.J., Neubauer and Gill, JJ.

¶1 NEUBAUER, J. Hyundai Motor America and Hyundai Motor Company (together, "Hyundai") appeal from a judgment entered on a jury verdict finding them liable for personal injuries sustained by Edward A. Vanderventer, Jr. when the Hyundai Elantra he was driving was hit by another vehicle. The jury found Hyundai liable under theories of strict liability (design defect) and negligence and awarded more than $38 million in damages to Edward and his wife, Susan J. Vanderventer.[1] We affirm.

¶2 Hyundai raises four issues on appeal. First, it argues that the trial court erred in allowing the Vanderventers to introduce testimony from two expert witnesses regarding a defect in the design of the Elantra's driver's seat and the causal link between that defect and the spinal fracture Edward sustained in the crash. Second, Hyundai contends that the court wrongly admitted evidence of certain recalls involving Hyundai vehicles to rebut the presumption of nondefectiveness codified in WIS. STAT. § 895.047(3)(b) (2019-20).[2] Third, Hyundai contends that the court erred in admitting evidence of a different driver's seat design for the Elantra under § 895.047(4) and Wisconsin's evidentiary rule governing subsequent remedial measures, WIS. STAT. § 904.07. Finally, Hyundai argues that one of the Vanderventers' experts was improperly allowed to present opinions that were not disclosed during discovery.

¶3 After careful review of the record and the parties' arguments, we see no basis to disturb the jury's verdict. The issues raised by Hyundai concern

[1] Because Edward and Susan share the same last name, we will refer to them by their first names unless otherwise noted.

[2] All references to the Wisconsin Statutes are to the 2019-20 version unless otherwise noted.

evidentiary matters that were committed to the trial court's discretion. Our role as an appellate court is simply to ensure that its rulings did not constitute an erroneous exercise of that discretion. Here, we conclude that the court's rulings were grounded in the application of the correct legal standards to the relevant facts and were decisions that a reasonable judge could reach. Accordingly, we affirm.

BACKGROUND

¶4 On July 31, 2015, Edward, Susan, and two others were riding in the Vanderventers' 2013 Hyundai Elantra when it was struck from behind by a vehicle driven by Kayla M. Schwartz. Susan escaped with minor injuries, but Edward, who was driving, sustained a fracture of the T6 vertebra in his spine, resulting in paraplegia.

¶5 The Vanderventers commenced this action against Hyundai, Schwartz, and others asserting claims of negligence and strict liability against Hyundai premised on an alleged defect in the Elantra's driver's seat. In particular, the Vanderventers alleged that Edward suffered "enhanced injuries" in the crash—that is, injuries "over and above those he would have sustained had his driver's seat not failed."

¶6 The Vanderventers settled their claim against Schwartz and her insurer before trial pursuant to ***Pierringer v. Hoger***, 21 Wis. 2d 182, 124 N.W.2d 106 (1963).[3] The case went to trial in January 2020 and lasted eighteen days. The

[3] A settlement agreement and release drafted pursuant to ***Pierringer v. Hoger***, 21 Wis. 2d 182, 124 N.W.2d 106 (1963) "impute[s] to the settling plaintiff whatever liability in contribution the settling defendant may have to nonsettling defendants" and "bar[s] subsequent contribution actions the nonsettling defendants might assert against the settling defendants." ***Fleming v. Thresherman's Mut. Ins. Co.***, 131 Wis. 2d 123, 131, 388 N.W.2d 908 (1986).

parties presented testimony from twenty-six witnesses and introduced hundreds of documents, photographs, and other items into evidence.

¶7 The Vanderventers' theory of defect focused on the headrest and the upright portion, or "seat back," of the driver's seat. Inside the seat back is a metal frame, which includes a horizontal crossbar at the top. Attached to this crossbar are two cylindrical tubes into which metal prongs connected to the headrest are inserted. In a rear impact, the seat serves as the primary source of protection for the driver and is supposed to act like a "catcher's mitt," providing "uniform support" to the driver's body as the driver's spine extends, or straightens, while pressing into the seat. An object that protrudes into the seat back can disrupt the uniform support and act as a "fulcrum"[4] around which the spine can bend.

¶8 In brief, the Vanderventers argued at trial that the rear impact to the Elantra caused Edward's head and body to press against the headrest and seat back. This caused the horizontal crossbar at the top of the metal frame, which was made of hollow tube, to bend and buckle, allowing the two vertically-oriented tubes and the headrest prongs inside them to rotate forward towards Edward's back. The prongs formed a fulcrum at the T6 level of Edward's spine, which together with the ribs forms a rigid cage around the body's internal organs. The fulcrum stopped Edward's spine at the T6 level as the rest of his spine continued to move backward, causing the spine to fracture.

¶9 Hyundai disputed the Vanderventers' theory. It argued that Edward's enhanced injuries were attributable to: (1) Schwartz's negligent failure

[4] A fulcrum is "the support about which a lever turns." *Fulcrum*, WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY (unabr. 1993).

to stop her car in time to avoid the collision and (2) Edward's "severe" case of diffuse idiopathic skeletal hyperostosis, or DISH, a degenerative spinal condition which caused his spine to become more "brittle, rigid, … inflexible," and susceptible to fracture. A Hyundai expert explained that in a rear-impact collision, a healthy spine, which is normally curved, avoids serious injury by straightening in response to the forces from the collision. Hyundai presented evidence that the DISH in Edward's spine created calcifications that acted like "cement across the vertebrae," making his spine rigid and unable to straighten without fracturing during the accident. Hyundai's accident reconstruction expert testified that the vehicle's electronic data recorder indicated the "crash pulse" of the collision lasted only 160 milliseconds, about half as long as the blink of an eye. Given the extremely short duration of the collision, Hyundai argued that Edward's spine fractured before his head pressed against the headrest and before the metal frame inside the seat back deformed.

¶10 The jury returned a verdict finding Hyundai liable to the Vanderventers. On the strict liability claim, the jury found that the driver's seat was defective and unreasonably dangerous due to its design and that its defective condition was a cause of Edward's injuries. As to the negligence claim, the jury found that Hyundai had negligently designed or tested the driver's seat and that its negligence caused Edward's injuries. The jury apportioned eighty-four percent of the total fault for Edward's injuries to Hyundai, sixteen percent to Schwartz, and awarded damages to Edward and Susan totaling $38,164,263.34.[5]

[5] Following application of the ***Pierringer*** release, the taxation of costs, and the addition of interest, the circuit court entered judgment in favor of the Vanderventers in the amount of $32,788,515.44.

¶11 The following sections discuss the testimony and evidence at issue in this appeal.

I. The Vanderventers' Expert Testimony

¶12 The Vanderventers sought to establish the defective condition of the driver's seat and its causal link to Edward's injuries principally through the testimony of two expert witnesses, Dr. Kenneth Saczalski and Dr. Shekar Kurpad.

A. Dr. Kenneth Saczalski

¶13 Saczalski is a consulting engineer who has postgraduate degrees in applied mechanics, aerospace sciences, and engineering mechanics. He has conducted research in the areas of "structural crashworthiness, biomechanics, engineering mechanics and system engineering and design."[6] Saczalski served on the National Motor Vehicle Safety Advisory Council starting in 1974, has held multiple teaching positions in the field of mechanical engineering, and has authored articles concerning motor vehicle crashworthiness and the forces and injuries involved in car accidents.

¶14 Saczalski testified that he was retained to conduct "a biomechanical assessment of the potential mechanisms of injury that occurred to Mr. Vanderventer." Saczalski relied on a variety of materials in forming his opinions, including the following:

(1) Discovery responses from Hyundai;

[6] Saczalski described biomechanics as "applying engineering principles and mechanics to solving problems and dealing with human tissue and [body] parts."

(2) A police report and photographs concerning the accident;

(3) Data from the Elantra's electronic data recorder regarding "what the change in speed of the vehicle was in the crash over what amount of time … and … the amount of force";

(4) Photographs from the "de-trimming" of the driver's seat and from "sled tests"[7] that Hyundai ran;

(5) Design drawings for three Elantra seats discussed during the trial: (a) the "HD" seat that Hyundai used from 2006-2010; (b) the "MD/UD" (UD) seat that Hyundai used from 2011-2016 and that was present in the Vanderventers' Elantra; and (c) the "AD" seat that Hyundai began using in 2017.

(6) An engineering change order related to the headrest for the UD seat;

(7) Information about recalls of Hyundai vehicles;

(8) Relevant Federal Motor Vehicle Safety Standards;

(9) Hyundai's seat specifications and test data;

(10) Saczalski's "finite element analysis" of the strength of the hollow crossbar tube;

(11) Diary entries from a Hyundai engineer involved in the design of the UD seat;

(12) Several exemplar seats manufactured by Hyundai and other vehicle manufacturers, including the three seats used at various times in the Elantra;

(13) The frame, fabric, and foam from the front passenger seat of the Vanderventers' Elantra; and

(14) The frame and fabric from the driver's seat of the Vanderventers' Elantra.

[7] A Hyundai witness described a "sled" test as a type of test in which a seat is mounted to a platform, or sled, and crashed to produce "the same impact, same shock as you would get in a crash test." Sled tests are run without other components of a vehicle included on the sled, such as doors, so that "you can clearly see what's happening to the seat and how the seat is deforming."

Saczalski also participated in a "de-trim" and inspection of the driver's seat with a Hyundai expert, during which the cover and foam padding were removed from the interior metal frame.

¶15 Saczalski testified about the "forensic analysis approach" that led to his opinion about the headrest prongs serving as a fulcrum. At the de-trimming inspection, Saczalski observed that the horizontal crossbar at the top of the seat frame was bent backward in the center "so that it conforms with the center of the spine or the body loading i[n] to the seat where you have the most weight." He explained that the bending of the crossbar allowed the tubes into which the headrest prongs are inserted to become "rotated relative to each other." Once the seat cover and padding were removed, Saczalski saw that the "prongs were pointed in the direction and about the location" of Edward's spinal injury. At trial, he used a photograph of the de-trimmed driver's seat positioned next to the Elantra's front passenger seat to show the headrest prongs on the driver's seat rotated forward, towards the back of the occupant, more than the prongs in the passenger seat.

¶16 Saczalski testified about the rotation of the headrest prongs towards Edward's back in terms of "elastic" and "plastic" deformation. Elastic deformation refers to the temporary deformation of an object when a force is applied to it. When the force is released, elastic deformation reverses, allowing the object to return to its original shape. Plastic deformation, in contrast, is permanent change to an object that does not reverse itself when a force applied to the object is released. Based in part on a "constant volume strength test" of a headrest conducted by Hyundai, Saczalski testified that the accident caused permanent "plastic" rotation of the headrest prongs twenty degrees forward towards Edward's back from their "design position." On top of this permanent

rotation, Saczalski testified that the prongs likely experienced additional "elastic" rotation forward of approximately thirteen to fifteen degrees during the accident, for a total maximum rotation of thirty-five degrees. He also testified that the rotation of the prongs compressed and left marks on the foam inside of the seat.[8]

¶17 Saczalski identified the hollow horizontal crossbar tube as the defect, or "weak link," in the design of the seat that allowed the headrest prongs to rotate forward:

> Well, the hollow tube, the cross member, across the top of the seat back is the only attachment point for the prongs that are the adjustable prongs for the headrest. And the hollow tube, in order to adjust the headrest has another metal hollow tube perpendicular to it that's pointed basically vertically. So the hollow tube is horizontal, the guide tube is vertical.
>
> What you have is essentially … two structures like a stick in one way and a stick in the other way, and you're going to put a dob of glue on those two sticks, and you're going to want to be able to hold that vertical stick secure from rotating or twisting. So what they've done here is they've attached the vertical tube with a weld on the side on one side and on the other. It's a small way—a very weak, poor design to try and take a safety device that's going to have to support the weight of the head in an inertial loading and keep it from allowing the lower portion of that stick to pivot into the spine as that person is loading back. So it's a weak design, weak, hollow tube design.

He explained that the hollow tube:

> [I]s basically the reason why we have this rotation that we see greater on the seat of Mr. Vanderventer than we do on [the passenger seat]. It's a weak link and it contributes to creating the fulcrum beneath that protrudes into the spinal area of Mr. Vanderventer. And that intrusion makes it a defective and unreasonably dangerous design.

[8] An expert called by Hyundai agreed that marks were present in the foam.

From "a biomechanical standpoint," Saczalski explained that the hollow tube "was responsible for creating the fulcrum that ultimately caused [Edward]'s paralysis."

¶18 Saczalski contrasted the "weaker tube" in the UD seat design present in the Vanderventers' 2013 Elantra with the "more robust" predecessor design, the HD. He testified that the frame of the HD's "verticals and the cross member are much more substantially built" than in the UD. He also explained that the HD design included an "active head restraint" as well as padding on the seat back that "spreads the load of the back" across a mechanism that results in the head restraint pivoting forward, staying closer to the driver's head. In addition, he testified that crash testing of an HD seat arranged by the Vanderventers' counsel and conducted in Quebec using a test dummy that weighed as much as Edward did not show intrusion of the headrest prongs "into the occupiable area" of the seat. Saczalski explained that the differences in the HD design made it "much more robust and sturdy, so it's a better head restraint system, a better seat back system and a more robust structure," enabling it to provide better protection to the head and back in a rear impact.

¶19 Finally, Saczalski testified that the rotation of the headrest tubes allowed the headrest to separate from the seat and fall into the back seat of the vehicle. He used the de-trimmed seat and headrest to show the jury how, as the crossbar deformed, the rotation of the tubes eventually disengaged the locking mechanism inside one of the tubes that kept the headrest in place, allowing it to "pop out." He contrasted the lone locking mechanism on the UD seat with the successor AD design, which included locking mechanisms in both tubes.

¶20 Hyundai cross-examined Saczalski extensively regarding his qualifications and the methodology underlying his opinions. Saczalski

acknowledged that he had never written about the danger of headrest prong intrusion in a moderate speed collision and that he had never seen or heard of an occupant "receiving a thoracic spinal fracture in a rear-end crash as a result of posts … of the head restraint." He acknowledged the importance of testing as a means of confirming theories and admitted he likes "to do side by side [testing] of an alternate design with a seat that has a potential problem." But he ran no such comparative tests of the HD and UD seats to confirm his opinions in this case, or to determine how far forward the headrest prongs would have moved in the accident.[9] As to the test conducted in Quebec, which Saczalski did not personally attend, he acknowledged that the test did not involve a UD seat like the one in the Vanderventers' vehicle. Notwithstanding the lack of testing of a UD seat, Saczalski explained that his conclusions could be supported by examining the physical evidence and applying his understanding of "the mechanics of the body inertia as the vehicle is getting shoved forward and the body goes back."

¶21 Saczalski also admitted that he had never researched DISH or written about the protection of vehicle occupants with brittle spines. He also acknowledged that he had not known the maximum amount of intrusion of the headrest prongs at the time of his deposition.

[9] Saczalski explained that it is "quite common" for a seat involved in an accident to be moved from its position at the moment of impact "to get the rear seat passengers out and so on," and thus he could not have "run a test to recreate the forces that were seen" in the accident because he "wouldn't know the exact position if [Edward] was leaning a little bit one way or the other or if he was leaning a little more forward."

B. Dr. Shekar Kurpad

¶22 Kurpad is a board-certified neurosurgeon and chairman of the department of neurosurgery at the Medical College of Wisconsin. Since 2009, Kurpad has served as the Medical Director of the Spinal Cord Injury Center at Froedtert Hospital in Milwaukee. He also directs a "sled lab" at Froedtert that conducts research into spinal cord injuries that results in "findings … [that] are cardinal, foundational, and key to interpreting the mechanism of injury and how injuries are derived in all [types] of spine fractures." In addition to performing up to ten surgeries per week over the past two decades, Kurpad has conducted research on "the causation as well as the biology and the repair of the spinal cord." He has also authored papers "explain[ing] how certain forces cause spinal trauma and related injuries" in automobile accidents.

¶23 Kurpad evaluated and performed surgery on Edward after the accident. In addition to his surgical observations and experience, Kurpad viewed the driver's seat, reviewed Edward's medical records and scans, and relied on Saczalski's opinion that the rotation of the headrest prongs created a fulcrum against Edward's back.

¶24 Kurpad offered two primary opinions at trial. First, he opined that the headrest prongs caused Edward's spinal injury. Kurpad based this opinion on several considerations. He described the spine and rib cage as "by definition somewhat rigid by intent and by design, by nature's design, in order to protect the internal organs." With regard to his surgical observations, Kurpad described Edward's spinal fracture as:

> a very rare and unusual fracture, and … there were things about the fracture, especially when we were doing the stabilization portion of the operation, that struck me as odd,

> and that essentially, in my opinion, would be something that could be sustained by some sort of blow from the back from the posterior direction.

Based on his observations, Kurpad believed that Edward's back had been subjected to a "focal," or localized, force during the crash because he had multiple injuries at the T6 level. After describing the basic anatomy of the spine, Kurpad used a computed tomography (CT) scan of Edward's spine to trace a "fracture line starting … at the lower-most portion of the sixth vertebral body and going up in [an] oblique fashion, and then across the T5, T6 disk space." He then used a magnetic resonance imaging (MRI) scan to show the point at which Edward's spinal cord was severed. Kurpad also pointed out a dark area on the MRI behind the spinal column that he believed to be clotted blood from the veins located behind the spinal cord, which also indicated to him that the fracture developed from behind.[10]

¶25 Kurpad also testified that Edward's injuries—the vertebral fracture, blood clot, lung injury, and rib fractures—occurred "in the same horizontal plane." He stated that the fracture "traversed through the two strongest portions of the T6 vertebral body," rather than starting "in stronger bone and go[ing] to weaker bone," as is typical. Kurpad also testified that he reviewed an article authored by one of Hyundai's experts regarding spinal injuries caused by contact with fulcrums, which he said had a "similar" or "almost … the exact same" appearance as Edward's spinal fracture. Based upon his observations, Kurpad stated that the

[10] Kurpad acknowledged that he is not board certified in neuroradiology but testified that he "routinely" interprets CT scans and MRI scans when he performs surgical procedures without a board-certified radiologist present, which "is approved by the American Board of Medical Specialties because [he is] a board[-]certified neurosurgeon."

prongs "acted as a fulcrum, and … steadied the spine and the cage at the T6, T7 and below while everything above it moved backward."

¶26 Kurpad concluded his direct examination by testifying to the following conclusion regarding Edward's spinal fracture:

> I think that the deformed guides provided a fulcrum, and I think that provided an impact to Mr. Vanderventer's back. I think that impact didn't have to be a very large one, but it was enough to break his spine at T5 and T6. I also think the anatomy of how the bone—the spine was broken and where the blood clot was suggests a mechanism of injury that originates in the back and then travels toward the front of the spine. So I think putting all that together, I think that fulcrum was key in generating the anatomy of the injury that we see in Mr. Vanderventer.

¶27 Kurpad's second opinion was that Edward's "mild to moderate type of DISH" did not cause his paralysis.[11] Here again, Kurpad's opinion rested in substantial part on his surgical observations. Kurpad acknowledged that the spine of a person with DISH can be "more susceptible to fracture in unusual locations and brittle in those areas" but explained that persons "with moderate DISH … still have some flexibility" in their spine, and thus DISH should not cause their spine to fracture. When Kurpad operated on Edward's spine, he observed that it retained some flexibility because he was able to bring it back into alignment at the level where the fracture occurred. He also discounted DISH as a causal factor because Edward's spine fractured in only one place despite the presence of ossifications caused by DISH in other areas of his spine.[12]

[11] Kurpad acknowledged on cross-examination that Edward's DISH was "severe" in the cervical portion of his spine, "more severe than [in] the thoracic spine."

[12] In contrast to the fracture at the T6 level, Kurpad observed a "DISH-type injury at the either C4, C5 or either C3, C4 level that did not cause a paralyzing injury."

¶28 On cross-examination, Kurpad confirmed that he did not study biomechanics in college and has not conducted research into "rear impact traumatic injuries" but stated that he had "general knowledge" of biomechanics "as evidenced by the fact that [he] direct[s] the lab in [his] department that has to do with biomechanics" and provides his "opinion as a surgeon [to] those that consider themselves experts in biomechanics so that they may do their research." He testified that his opinions in this case were based upon: (1) his professional experience and surgical treatment of Edward's injury; (2) review of records provided by the Vanderventers' counsel; and (3) a conversation with Saczalski regarding Saczalski's "theory of the case." Kurpad confirmed that he did not have any opinions regarding how the headrest was positioned, how much pressure was exerted on Edward's spine, or how far the headrest prongs pushed into his back.

¶29 With respect to his causation opinion, Kurpad testified that he was left with "a knowledge gap" after the surgery about what caused Edward's injury, and that he was subsequently asked whether Saczalski's theory about the headrest prongs acting as a fulcrum made sense and would explain what he had seen. Kurpad did not undertake any testing or other biomechanical analysis to determine what caused Edward's injuries; his opinion was "founded on what [he] saw." He did not take any pictures or measurements to determine that the headrest prongs could reach the T6 vertebra in Edward's spine. He did not test the foam in the driver's seat or know about its density or other properties. He also acknowledged that he did not know "anything about the occupant kinematics in this crash" or what caused the headrest prongs to move forward. And he confirmed that he did not observe "holes or marks or any sort of bruising" on Edward's back or bruising in the tissue between the skin and the location of the fracture. Finally, Kurpad

also confirmed he had never seen a similar spinal fracture "because of a fulcrum created by headrest posts."

C. The Trial Court Denies Hyundai's Motions to Exclude Saczalski's and Kurpad's Opinions.

¶30 Before the case went to trial, Hyundai filed motions in limine seeking to exclude Saczalski's and Kurpad's opinions. Specifically, Hyundai argued that Saczalski lacked medical expertise and thus could not opine as to the cause of Edward's spinal injury and that Kurpad could not "render biomechanical causation opinions based on engineering principles that are unmoored from his particular medical expertise."

¶31 At a hearing on the motions, the trial court made an extended record of the legal standards governing the admissibility of expert testimony. The court traced the evolution of Wisconsin law on this topic, highlighted by the enactment of 2011 Wisconsin Act 2 in January 2011, which incorporated into Wisconsin law the standards set forth in Federal Rule of Evidence 702 and the United States Supreme Court's decision in ***Daubert v. Merrell Dow Pharmaceuticals, Inc.***, 509 U.S. 579 (1993). The court recognized that its role as a "gatekeeper" was "to ensure that an expert's opinion is based on a reliable foundation and is relevant to the material issues in the case." As to the issue of reliability, the court stated that it must "focus on the principles and methodology the expert relies upon, not on the conclusions generated." Notwithstanding the "heightened diligence" required under the ***Daubert*** framework, the court also noted the continued importance of the "adversarial process" in addressing expert testimony, explaining that "[s]haky but admissible evidence" should not be excluded but instead "attacked by cross[-]examination, contrary evidence, and the attention to the burden of proof." Finally, the court cited our supreme court's decision in ***State v. Jones***, 2018 WI

44, 381 Wis. 2d 284, 911 N.W.2d 97, where the court identified certain findings trial courts must make as to relevance, qualifications, and reliability before admitting expert testimony. ***Id.***, ¶29.

¶32 The trial court ruled that Saczalski could opine on the issue of causation because he possessed the necessary biomechanical expertise. In support of its decision, the court cited several decisions by federal courts which had allowed persons with expertise in engineering to testify about the causal link between a plaintiff's injuries and a defective vehicle component "from a biomechanical standpoint."[13] The court also ruled that Kurpad's causation opinion was admissible given his "extensive knowledge in spinal cord injuries," surgical observations, and experience in "dealing with mechanics of injury." The court found no problems with Kurpad's methodology and noted that Hyundai could raise its criticisms in cross-examination.

¶33 Hyundai moved to strike Saczalski's and Kurpad's opinions again during trial. Hyundai argued that Kurpad did not have the necessary expertise or methodology to testify that the foam padding inside the seat back was not sufficient to prevent Edward's spinal fracture. The trial court disagreed:

> Clearly, looking at ***Daubert***, especially [***State v. Jones***], the latest pronouncement, whether the individual has scientific and/or has special knowledge that would assist, he clearly does, whether he is an expert qualified in skill, training and education, he clearly does.

[13] Because WIS. STAT. § 907.02(1) "mirrors" Federal Rule of Evidence 702, Wisconsin courts can "rely on federal cases and the Federal Rules of Evidence Advisory Committee Notes to Rule 702 'for guidance and assistance.'" ***State v. Hogan***, 2021 WI App 24, ¶18, 397 Wis. 2d 171, 959 N.W.2d 658 (quoting ***Seifert v. Balink***, 2017 WI 2, ¶¶51, 55, 372 Wis. 2d 525, 888 N.W.2d 816).

> He's a respected neurosurgeon who deals with spinal cord injuries. My notes reflect that he is also a doctor/scientist as well with respect to researching causation injuries with respect to spinal cord injuries. That's part of his charge at Froedtert and the multiple funding money that he has received over the years.
>
> Whether the testimony is based on sufficient facts or data, what he has is a hypothetical of one and a half to two inches of foam. I think foam is foam. It's subject to cross-examination regarding the density of that foam. Whether the testimony is a product of reliable principles and methods. I think from a scientific standpoint, he clearly can say the effect foam can have on a human form, especially [since] we've established that the plaintiff is a 275-pound individual compressing the foam. Then I'm not sure [if] you're saying fit or whether you're saying it's outside of his canon of knowledge. Does he apply principles and methods reliable to the facts of the case[?] The fact of the case is was it a frontal—or was it an anterior or was it a posterior fulcrum effect of that nature.
>
> I'm going to allow the testimony regarding the foam to stand in this matter, and his opinion based on his experience regarding the fulcrum effect of that.

¶34 With respect to Saczalski, Hyundai argued that his opinions were not the product of reliable methodology because, among other things: (1) they were "based only on his observation that the UD seat design is weak and not robust and beefy;" (2) he had not tested the UD seat, and the Quebec test involving the HD seat did not "show anything about the UD seat"; (3) another test on which Saczalski relied featured the headrest in the highest possible position, which conflicted with his testimony that the headrest "was either all the way down or one [notch] from down" at the time of the accident; and (4) Saczalski had not explained his finite element analysis to the jury.

¶35 The trial court denied Hyundai's motion. The court again cited the requirements for admissibility under WIS. STAT. § 907.02 as set forth in ***Jones***, 381 Wis. 2d 284, ¶29, and found that Saczalski's testimony satisfied each

requirement. First, the court found that Saczalski possessed specialized knowledge and was qualified by training and education "regarding the primary issues of fulcrum, physics, and biomechanical effects in this matter." Next, the court stated that his testimony was based upon sufficient facts. Although Saczalski had not explained his finite element analysis to the jury, the court noted that the analysis had been admitted into evidence without objection and that Wisconsin law does not require experts to "divulge the totality of the underpinnings of their study that they reviewed." Turning to the issue of reliability, the court noted that Hyundai "did a very admirable job" in highlighting differences between the testing Saczalski relied on and the circumstances of the accident. In the court's view, however, those differences did not mean that Saczalski's opinions were not "based on the scientific or facts of the case" but instead were relevant to the weight the jury should give them. The court contrasted Saczalski's testimony with "unsupported speculation, which is what ***Daubert*** intended to keep out under the guise of expert opinion" and again noted the importance of "the adversarial process" in exposing "shaky but admissible" expert testimony.

¶36 Hyundai renewed its objections to the experts' testimony in its postverdict motions. It argued that Kurpad's opinion that the headrest prongs caused Edward's injury was "not the product of reliable principles and methodology." With respect to Saczalski, Hyundai acknowledged that he was qualified to offer *general* causation opinions—that is, testimony about "how a hypothetical person's body will respond" to forces in an accident—but that he strayed outside his area of expertise when he opined as to the *specific* medical cause of Edward's injury. Hyundai argued that Saczalski's opinions were not reliable because he had "never conducted any substantive testing of the UD seat."

Hyundai also contended that Saczalski's opinions regarding the "amount of elastic deformation and the ejection of the head restraint" were not disclosed before trial and thus should not have been admitted. The trial court denied Hyundai's motions, reaffirming its prior conclusions that each expert's opinions met the requirements for admissibility under WIS. STAT. § 907.02.

II. Evidence of Product Recalls

¶37 Over the Vanderventers' objection, the trial court allowed Hyundai to introduce evidence that the 2013 Elantra complied with several Federal Motor Vehicle Safety Standards (FMVSS), in order to trigger a presumption of nondefectiveness codified in Wisconsin's product liability statute. *See* WIS. STAT. § 895.047(3)(b) ("Evidence that the product, at the time of sale, complied in material respects with relevant standards, conditions, or specifications adopted or approved by a federal or state law or agency shall create a rebuttable presumption that the product is not defective."). The Vanderventers sought to present evidence about recalls of other, nonseat components in Hyundai vehicles to rebut this presumption. Hyundai filed a motion in limine to exclude this evidence, arguing that it was irrelevant and would be unfairly prejudicial. The Vanderventers acknowledged that the recalls were not admissible "for the purpose of proving that this particular seat was defective" but argued they should be admitted "for the limited purpose of showing that, despite compliance with FMVSS, a vehicle or component can be defective, and also, that [Hyundai] knew that."

¶38 The trial court denied Hyundai's motion, deeming its view of the relevance of the recall evidence "way too narrow in scope." It ruled that because Hyundai wished to avail itself of the statutory presumption, the Vanderventers could introduce evidence of the recalls to show Hyundai's "general knowledge

base that … these are minimum standards, that you can't rely on those minimum standards to be a safety threshold for all aspects of the car." The court clarified that its ruling permitted the introduction of recalls related to violations of safety standards that occurred before the accident. During trial, the court re-affirmed the contours of its ruling:

> So there are two provisions. One is does it violate the federal motor safety standard, and two, it has to predate the 2013 Elantra. So Kia, as I understand it, is part of Hyundai, is it not? I think we established that long ago. I think we established maybe a year and a half ago that Kia parts were actually in the seat that was de-trimmed. So the only limitations are the limitations I previously stated. It has to be a violation of the Federal Motor Safety Act, and two, it has to predate. It can be any vehicle that's produced by Hyundai, Kia or Genesis.

¶39 During their case-in-chief, the Vanderventers asked the trial court to take judicial notice of documentation relating to approximately sixty recalls involving Hyundai vehicles. After hearing argument from the parties, the court ruled that it would take judicial notice of certain information in the documents but stated that "there's a vast difference between taking judicial notice of the documents or what will go to the jury or what will be allowed to be mentioned to the jury." The following day, the Vanderventers submitted a new batch of recall documents, which increased the number of recalls at issue to eighty-five. Later that day, the court stated in front of the jury that it was taking judicial notice of National Highway Traffic Safety Administration [NHTSA] "documentation establishing 85 recalls on Hyundai cars up until the date of Mr. Vanderventer's accident." The recalls documented in the NHTSA materials implicate a wide variety of vehicle components, including brake lines, seat belts, air bags, door handles and instrument panels. None of the recalls pertains to the UD seat specifically.

¶40 Hyundai subsequently presented evidence during its case-in-chief that the 2013 Elantra's driver's seat and headrest complied with three FMVSS: (1) FMVSS 202, which imposes design, strength, and testing requirements for head restraints; (2) FMVSS 207, which imposes certain strength, design, and installation standards for seats in passenger vehicles; and (3) FMVSS 201, which imposes requirements for seats and other interior vehicle components that are aimed at protecting occupants when they impact those components. One of Hyundai's experts described FMVSS as "quite stringent" and "difficult … and challenging to meet." Hyundai argued in closing that its adherence to these standards required the jury to "presume that our seat in this case is not defective."

¶41 The Vanderventers questioned multiple witnesses about the recalls. They referred to the recalls in questioning a safety engineer about the possibility that large numbers of vehicles on the road at any given time have safety issues that would prompt recalls.[14] They also questioned a Hyundai witness about whether the recalls showed that "simply passing those federal minimum standards doesn't mean the car is safe." Hyundai does not direct us to any testimony from a witness about the details of any specific recall. Nor does it identify any point during the trial at which the contents of the NHTSA documents were published to the jury. Moreover, a Hyundai witness informed the jury that none of the recalls pertained to the strength of the UD seat. In addition, the Vanderventers referred to the recalls only in the aggregate when discussing the FMVSS and the statutory presumption in their closing argument:

[14] The apparent purpose of this questioning was to place into context Saczalski's testimony that he had, in his career, found defects in "30 or 40 or 50 different cars."

> Okay, and we saw there's 85 recalls that have been entered into evidence in this case. From 1986 to the time of the accident, 86 different recalls that Hyundai has conducted. 86 recalls that affected over 8.4 million cars. 8.4 million cars on the roadway carrying moms and dads and kids and grandmas and grandpas and aunts and uncles, 8.4 million cars that had defects, safety defects. Safety defects that affect those FMVSS standards that we talk about.
>
> ....
>
> Federal Motor Vehicle Safety Standards. We heard something talked about that in opening. You were told that there were rigorous standards....
>
> And remember when I asked Dr. Viano about these rigorous standards. 207 is the one that talks about seat strength. I said Dr. Viano, isn't it true that a lawn chair can pass the 207 test. He said, yeah, that's true. I said, isn't it true that a cardboard box can pass the 207 standard. He said, yeah, that's true. It can. Ladies and Gentlemen, those are minimum standards. They're not rigorous standards. A lawn chair can pass them. A cardboard box can pass them. And what did we hear in this trial, 85 recalls affecting 8.4 million cars out on the road. Every one of those recalled cars passed the FMVSS standards.
>
> So there's a jury instruction that the Court will read about a rebuttable presumption about … if this seat passed FMVSS or federal standards as a rebutt[able] presumption that makes it not defective, well, that rebuttable presumption has been rebutted. It's been rebutted by this defect. It's been rebutted by the 85 recalls and 8.4 million cars on the road that needed to be recalled. That rebuttable presumption is easily rebutted.

¶42 The trial court instructed the jury on the operation of the statutory presumption as follows:

> There was evidence received that at the time of sale, the 2013 Hyundai Elantra driver's seat complied in material respects with relevant standards adopted or approved by a federal agency. From this evidence, a rebuttable presumption arises that the 2013 Hyundai Elantra driver's seat was not defective. However, there's also evidence which may be believed by you that the 2013 Hyundai Elantra driver's seat is defective. You must resolve this conflict. Unless you are satisfied by the greater weight of

> the credible evidence to a reasonable certainty that it is more probable than not that the 2013 Hyundai Elantra driver's seat was defective, then you should find that the seat was not defective.
>
> A party relying on a rebuttable presumption bears the burden of proving the basic fact or facts necessary for the presumption to arise. Once the basic facts are found to exist, the presumption imposes on the other party the burden of proving that the nonexistence of the presumed fact is more probable than its existence.
>
> You have heard evidence that Hyundai complied with … FMVSS, 202a and 207 at the time of manufacture of the subject 2013 Hyundai Elantra driver's seat. You are instructed that FMVSS standards are minimum standards that can be exceeded by the manufacturers if they so choose, and compliance with these minimal (sic) standards is not a defense to plaintiffs' negligence claims.

¶43 After the verdict, Hyundai sought a new trial arguing that admission of recall evidence had been unfairly prejudicial and should have been limited to the driver's seat and headrest in the 2013 Elantra. In denying Hyundai's motion, the trial court reiterated its conclusion that recall evidence need not be limited to "the exact same product" to rebut the presumption and that the evidence had not unfairly prejudiced Hyundai or confused the jury.

III. The AD Seat Design

¶44 In his opening statement, counsel for the Vanderventers referred several times to the AD seat design Hyundai began incorporating into its vehicles in 2017. Counsel stated that Hyundai could have adopted the AD design when it stopped using the HD design, describing the AD as "the robust design up on top that wouldn't allow the deformation of this hollow tube on which the … UD relied upon." Counsel also stated that the AD seat "would have prevented [Edward's] paralysis."

¶45 After opening statements, Hyundai filed a motion to exclude evidence regarding the AD design, arguing that it violated Wisconsin's rule on subsequent remedial measures, WIS. STAT. § 904.07, as well as WIS. STAT. § 895.047(4), which provides that "evidence of remedial measures taken subsequent to the sale of the product is not admissible for the purpose of showing a ... defect in the design of the product."

¶46 After hearing argument on the motion, the trial court ruled that evidence of the AD design would be admissible on the negligence claim under the impeachment exception in WIS. STAT. § 904.07. The court also stated that the Vanderventers did not have to wait for Hyundai to present evidence in support of its defense before presenting evidence to impeach it because plaintiffs typically know the defendant's theories of defense well in advance of trial. A few moments later, Hyundai sought clarification of the court's ruling as to whether the Vanderventers could only use the evidence "to impeach Hyundai witnesses" or whether they could introduce the evidence through their expert, Saczalski. The court permitted the Vanderventers to introduce the evidence through Saczalski, agreeing with the Vanderventers that they could preemptively introduce the evidence to impeach Hyundai's "general defense of the case."

¶47 As to the strict liability claim, the court noted that WIS. STAT. § 895.047(4) allows the introduction of subsequent remedial measures "to show a reasonable alternative design that existed at the time when the product was sold." The court construed this language as not requiring that the alternative design be "on the books or on a blueprint" but merely that "the theory relative to that design was in existence."

¶48 During his direct examination, Saczalski testified that the AD design did not contain any "technological breakthrough" such that Hyundai "could not have had that design available" years before the Vanderventers' vehicle was manufactured. He also testified that the AD design was "very similar" to the HD design that Hyundai had incorporated into vehicles that it sold in Canada years before the accident and that the AD design had "the same robust beefy design up top" as the HD design. Saczalski later testified that if Edward had been sitting in an AD seat at the time of the accident, he would not have been paralyzed.

¶49 Hyundai renewed its challenge to admission of evidence regarding the AD design after trial. The trial court again denied the motion, stating that the Vanderventers were entitled to introduce the evidence to impeach Hyundai. The court also noted that Hyundai could have requested a jury instruction explaining the limiting purposes for which this evidence could be considered, but failed to do so.

¶50 We include additional facts relevant to the specific issues raised on appeal as necessary below.

STANDARD OF REVIEW

¶51 The issues raised by Hyundai on appeal concern the admission of testimony and other evidence at trial. As a general matter, we "review a circuit court's decision to admit or exclude evidence under an erroneous exercise of discretion standard." ***Martindale v. Ripp***, 2001 WI 113, ¶28, 246 Wis. 2d 67, 629 N.W.2d 698. The court has broad discretion in making evidentiary rulings, and we will uphold its decisions so long as it examined the relevant facts, applied the correct legal standards, and reached reasonable conclusions. ***Id.*** Where the court

fails to set forth adequate reasons for its decision, we will independently review the record to determine whether it properly exercised its discretion. ***Id.***, ¶29.

¶52 Not all evidentiary errors merit reversal of a judgment or a new trial. ***Westport Ins. Corp. v. Appleton Papers Inc.***, 2010 WI App 86, ¶49, 327 Wis. 2d 120, 787 N.W.2d 894. Wisconsin law permits such relief only if, "after an examination of the entire action or proceeding, it shall appear that the error complained of has affected the substantial rights of the party seeking to reverse or set aside the judgment, or to secure a new trial." WIS. STAT. § 805.18(2). "For an error to affect the substantial rights of a party, there must be a reasonable possibility that the error contributed to the outcome of the action or proceeding at issue." ***Evelyn C.R. v. Tykila S.***, 2001 WI 110, ¶28, 246 Wis. 2d 1, 629 N.W.2d 768. "A reasonable possibility of a different outcome is a possibility sufficient to undermine confidence in the outcome." ***Id.*** "In making this determination, we weigh the effect of the inadmissible evidence against the totality of the credible evidence supporting the verdict." ***Poluk v. J.N. Manson Agency, Inc.***, 2002 WI App 286, ¶32, 258 Wis. 2d 725, 653 N.W.2d 905.

DISCUSSION[15]

I. Admission of Expert Testimony

¶53 Hyundai argues that neither Saczalski nor Kurpad should have been allowed to testify as to the issues of defect and causation and that without their

[15] In addition to the parties' briefs, we have received and reviewed briefs from the following amici curiae: (1) The Chamber of Commerce of the United States of America and Wisconsin Manufacturers and Commerce; (2) the Alliance for Automotive Innovation; and (3) the Product Liability Advisory Council, Inc.

testimony, the Vanderventers did not present sufficient evidence to support the jury's verdict.

¶54 A brief discussion of Wisconsin's law concerning expert testimony will provide helpful context for our analysis. In 2011, the Wisconsin Legislature amended WIS. STAT. § 907.02(1) to mirror Federal Rule of Evidence 702 and incorporate the standards set forth in ***Daubert***. ***Seifert v. Balink***, 2017 WI 2, ¶51, 372 Wis. 2d 525, 888 N.W.2d 816. As amended, § 907.02(1) states as follows:

> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if the testimony is based upon sufficient facts or data, the testimony is the product of reliable principles and methods, and the witness has applied the principles and methods reliably to the facts of the case.

Sec. 907.02(1). As we explained recently, the statute embodies "three threshold requirements" for admitting expert testimony:

> the witness must be *qualified* ("a witness qualified as an expert by knowledge, skill, experience, training, or education"); the witness's testimony must be *relevant* ("[i]f scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue"); and, per the 2011 amendment adopting the ***Daubert*** standard, the witness's testimony must be *reliable* ("if the testimony is based upon sufficient facts or data, the testimony is the product of reliable principles and methods, and the witness has applied the principles and methods reliably to the facts of the case").

State v. Hogan, 2021 WI App 24, ¶19, 397 Wis. 2d 171, 959 N.W.2d 658. The trial court acts as a gatekeeper in ensuring that these requirements are met. ***Jones***, 381 Wis. 2d 284, ¶31. The court's role is "to focus on the principles and

methodology the expert relies upon, not on the conclusion generated." ***State v. Giese***, 2014 WI App 92, ¶18, 356 Wis. 2d 796, 854 N.W.2d 687.

¶55 As noted, Wisconsin's adoption of the federal standard requires courts to determine whether the testimony is reliable. ***Hogan***, 397 Wis. 2d 171, ¶1. But even with reliability in the mix, the standard for admission is "not exceedingly high; the court's 'role [is to ensure] that the courtroom door remains closed to junk science.'" ***Jones***, 381 Wis. 2d 284, ¶33 (alteration in original) (quoting ***Seifert***, 372 Wis. 2d 525, ¶85); *see also* ***Giese***, 356 Wis. 2d 796, ¶19 ("The goal is to prevent the jury from hearing conjecture dressed up in the guise of expert opinion."). "[T]he appropriate means of attacking 'shaky but admissible' … expert testimony is by '[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof.'" ***Seifert***, 372 Wis. 2d 525, ¶86 (third alteration in original) (quoting ***Daubert***, 509 U.S. at 597).

¶56 Moreover, our review of the trial court's decisions regarding the admission of expert testimony remains deferential. ***Hogan***, 397 Wis. 2d 171, ¶26. Even under the standards established in ***Daubert***, a trial court retains "substantial discretion" in performing its gatekeeping function. ***Jones***, 381 Wis. 2d 284, ¶33 (citation omitted). We review de novo whether the court "applied the proper legal standard under WIS. STAT. § 907.02(1)," but once we are satisfied that it did so, we review the court's decision under the more relaxed erroneous exercise of discretion standard. ***Seifert***, 372 Wis. 2d 525, ¶¶89-90. Under this standard, "we will not overturn a circuit court's admission of expert testimony unless the court failed to consider the relevant facts, failed to apply the proper standard, or failed to articulate a reasonable basis for its decision." ***Jones***, 381 Wis. 2d 284, ¶33. This means that "we will search the record for reasons supporting the trial court's

decision, and we will sustain a ruling even where we disagree with it, so long as appropriate discretion was exercised." ***Hogan***, 397 Wis. 2d 171, ¶26.

A. Design Defect/Negligent Design

¶57 Hyundai argues that the trial court erred in admitting Saczalski's opinion concerning the design of the driver's seat. Hyundai focuses its challenge on the reliability of Saczalski's methodology; it does not challenge Saczalski's qualifications or the relevance of his opinion to the Vanderventers' claims. *See* ***Hogan***, 397 Wis. 2d 171, ¶19.

¶58 Seizing upon a purported concession by Saczalski that his theory regarding the rotation of the headrest prongs is "entirely novel," and his admission that he "typically" prefers to run tests to verify his theories, Hyundai argues that testing was of "paramount" importance if Saczalski was to establish a "reliable basis" for his theory. Hyundai argues further that the test run in Quebec with an HD seat does not provide meaningful support for Saczalski's opinions because of multiple differences between the conditions of the test and known facts about the accident. It also contends that other components of Saczalski's analysis—his finite element analysis of the crossbar's strength, observations of the seat frame, Hyundai's "constant-volume strength" test of the headrest, and a "generic skeletal overlay of a spine on an image of the Elantra's driver's seat"—are not sufficient to establish the reliability of his analysis. Finally, Hyundai contends that the trial court did not "identify any indicia of reliability" or carefully analyze the evidence supporting Saczalski's opinions.

¶59 In assessing reliability, the trial court's goal is to ensure that the expert "employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." ***Kumho Tire Co., Ltd.***

v. Carmichael, 526 U.S. 137, 152 (1999). The court is given "considerable leeway" in deciding how to determine whether particular expert testimony is reliable. ***Id.*** Our supreme court has identified a collection of factors found in ***Daubert*** and the advisory committee note to Federal Rule of Evidence 702 that trial courts may use in assessing reliability. *See* ***Seifert***, 372 Wis. 2d 525, ¶¶62-63 (citation omitted).[16] But it has also recognized, given "the broad range of cases in which expert evidence arises," that this analysis is not (and should not be) limited by "hard and fast rules." ***Id.***, ¶64. Thus, a court may consider "some, all, or none" of the factors as appropriate in a particular case. ***Id.***, ¶65; *see also* ***Kumho Tire***, 526 U.S. at 142 ("[T]he law grants a district court the same broad latitude when it decides *how* to determine reliability as it enjoys in respect to its ultimate reliability determination."). "[T]he issue for a *Daubert* methodology challenge is not what it was possible for an expert to do, but rather what it was reasonably necessary for an expert to do in order for his opinions to be reliable." ***Travelers Prop. Cas. Co. v. All-South Subcontractors, Inc.***, No. 17-0041, 2018 WL 1787884, at *7 (S.D. Ala. Apr. 13, 2018).

¶60 Here, we conclude that the trial court did not erroneously exercise its discretion in determining that Saczalski's methodology was reliable. In

[16] Those factors are: "(1) whether the methodology can and has been tested; (2) whether the technique has been subjected to peer review and publication; (3) the known or potential rate of error of the methodology; and (4) whether the technique has been generally accepted in the scientific community"; (5) "[w]hether experts are 'proposing to testify about matters growing naturally and directly out of research they have conducted independent of the litigation, or whether they have developed their opinions expressly for purposes of testifying'"; (6) "[w]hether the expert has unjustifiably extrapolated from an accepted premise to an unfounded conclusion"; (7) "[w]hether the expert has adequately accounted for obvious alternative explanations"; (8) "[w]hether the expert 'is being as careful as he would be in his regular professional work outside his paid litigation consulting'"; and (9) "[w]hether the field of expertise claimed by the expert is known to reach reliable results for the type of opinion the expert would give." ***Seifert***, 372 Wis. 2d 525, ¶¶62-63 (citations omitted).

addressing Hyundai's challenges, the court repeatedly and accurately cited the legal standards that govern the admissibility of expert testimony under WIS. STAT. § 907.02, including those applicable to the issue of reliability. The court's rulings also show that it considered the facts relevant to each specific challenge raised by Hyundai.

¶61 In addition, the trial court "articulate[d] a reasonable basis" for its conclusion that Saczalski's methodology was reliable. ***Jones***, 381 Wis. 2d 284, ¶33. The court cited Saczalski's "mathematical analysis, his experience and training," his "specialized knowledge … regarding the primary issues of fulcrum, physics, and biomechanical effects in this matter," and Hyundai's cross-examination about conclusions he drew from the testing he reviewed. We take from these remarks that the court viewed Saczalski's methodology as being rooted in his professional experience. This experience, together with results from his finite element analysis of the strength of the hollow crossbar tube, the testing of the HD seat, Hyundai's constant volume strength test, and Saczalski's knowledge and examination of the HD and AD seat designs, enabled him to apply principles of engineering, mathematics and biomechanics acquired over decades of study, writing, and work as an engineer to his observations of the physical evidence and his knowledge of the circumstances of the accident.

¶62 Even absent the trial court's comments, our independent review of Saczalski's testimony confirms the reasonableness of the court's determination. *See* ***Martindale,*** 246 Wis. 2d 67, ¶29 ("If the circuit court fails to provide reasoning for its evidentiary decision, this court independently reviews the record to determine whether the circuit court properly exercised its discretion."). Saczalski opined that the driver's seat was defective because the hollow horizontal crossbar to which the tubes for the headrest prongs were welded was not strong

enough to withstand the force exerted by Edward's body against the seat back. This opinion rested in significant part on his observation of the buckling and deformation of the crossbar tube at the de-trimming inspection and his finite data analysis of the strength of the tube. He also opined that the weakness in the horizontal crossbar tube allowed the prongs to rotate forward into Edward's back during the accident as a result of the rearward force exerted on the headrest, a conclusion which he based, among other things, on a comparison of the positions of the headrest prongs in the driver's seat and the passenger seat and his knowledge of "plastic" and "elastic" deformation. Finally, Saczalski opined that when the prongs rotated forward, they formed a fulcrum against Edward's spine. The trial court could rationally conclude that the methodology revealed through Saczalski's testimony, which included the application of scientific and engineering principles to observations from testing and inspection of physical evidence, is sufficiently reliable to pass muster under ***Daubert***.

¶63 Our conclusion finds ample support in case law. We have repeatedly refused to disturb trial court findings that testimony grounded in an expert's "professional experience, education, training, and observations" was sufficiently reliable under ***Daubert***. ***Hogan***, 397 Wis. 2d 171, ¶29; ***State v. Smith***, 2016 WI App 8, ¶7, 366 Wis. 2d 613, 874 N.W.2d 610 (2015) ("Reliability may be based on the expert's own observations from his or her 'extensive and specialized experience.'") (quoting ***Kumho Tire***, 526 U.S. at 156). Though neither ***Hogan*** nor ***Smith*** involved expert testimony from an engineer regarding an alleged product defect, federal courts applying ***Daubert*** have recognized that an engineer's application of relevant scientific principles to the physical evidence remaining after an accident may furnish a reliable basis for an opinion that the product at issue was defective. *See* ***Thomas v. Ford Motor Co.***, No. 17-C-888,

2019 WL 13165552, at *3 (E.D. Wis. Mar. 7, 2019) (holding that engineer's reliance on accident report, examination of vehicle, manufacturer's testing, and "fundamental principles of physics, kinetics, and biomechanics" were sufficient to establish reliability of opinion that seat was defectively designed); ***Correa v. Cruisers, a Div. of KCS Int'l, Inc.***, 298 F.3d 13, 26 (1st Cir. 2002) (holding that district court did not err in finding expert's visual inspection of engine to identify defect to be a reliable methodology under ***Daubert***); ***Klingenberg v. Vulcan Ladder USA, LLC***, No. 15-CV-4012, 2018 WL 1248007, at *7 (N.D. Iowa Mar. 9, 2018) (finding engineer's opinion that ladder was defective reliable where engineer "based his opinion on general engineering principles; his experience; information … about the accident; and examinations of the accident ladder, design specifications for the accident ladder, competitors' ladders, and photos of the accident scene") (footnote omitted); ***Vasques v. Robert Bosch Tool Corp.***, No. H-07-4473, 2009 WL 10694786, at *10 (S.D. Tex. July 13, 2009) (citing ***Correa***, 298 F.3d at 26, and stating that "[c]ourts have held that a visual observation combined with physical inspection is a sufficiently reliable basis for expert testimony about product defects.").

¶64 We find no support in Wisconsin law for Hyundai's proposition that testing is required to establish reliability in an automobile defect case, or more particularly that Saczalski had to test a UD seat to establish a reliable basis for his opinion regarding the rotation of the headrest prongs, even if one accepted

Hyundai's contention that the expert's opinion is "novel."[17] Indeed, the proposition is fundamentally at odds with the flexibility and discretion trial courts have in assessing reliability. *See* ***Seifert***, 372 Wis. 2d 525, ¶¶64-65. To be sure, testing can be important in showing that an expert has employed a reliable methodology, and its absence can indicate that an expert has not brought the same level of intellectual rigor to the courtroom that the expert applies outside of it. But it is another thing entirely to hold that no "novel" expert opinion in an automobile design defect case can ever clear the ***Daubert*** reliability threshold unless the expert subjects it to crash testing.

¶65 Hyundai relies on several cases in which a lack of testing contributed to a finding of unreliability, but they are materially distinguishable. In each case, the expert failed to apply *any* reliable methodology, including testing, to connect their observations of the product at issue to their theory of defect. In ***Bielskis v. Louisville Ladder, Inc.***, 663 F.3d 887 (7th Cir. 2011), for example, the Court of Appeals for the Seventh Circuit affirmed the exclusion of an engineer's opinion regarding why a caster stem which attached a wheel to a mini-scaffold had failed, causing the scaffold to collapse. The expert opined that a threaded metal stud that secured the caster to the scaffold had fractured suddenly as a result of "excess tensile stress brought on by overtightening" the stud to the scaffold leg. ***Id.*** at 892. But unlike the present case, the expert in ***Bielskis*** "used no particular methodology to reach his conclusions" that the fracture was caused by overtightening. ***Id.*** at

[17] We question whether that label is appropriate here given that a drawing made before Hyundai began incorporating the UD seat design into its vehicles by the lead designer for the UD seat appears to show the link between a rearward force applied to a headrest and resulting forward rotation of the headrest prongs inside the seat back. In addition, Hyundai's biomechanical expert agreed that the rearward force and forward rotation of the prongs were simply a matter of "basic physics" and just a "lever."

895. Because no testing, observations or other method connected the fracture to the expert's proffered cause, his opinion did not rest on a reliable foundation.

¶66 Similarly, in ***Gopalratnam v. Hewlett-Packard Co.***, 877 F.3d 771 (7th Cir. 2017), the court concluded that the expert had failed to "bridge the analytical gap" between the "differential appearance" of three battery cells recovered from a house fire and the expert's "contested conclusion that such differential appearance" was the result of an internal failure in one cell with testing or any other reliable basis. ***Id.*** at 784-86; *see also* ***Nease v. Ford Motor Co.***, 848 F.3d 219, 232 (4th Cir. 2017) (affirming exclusion of expert's opinion that failure of pickup truck to decelerate was caused by buildup of particles and contaminants in speed control system where expert "used no 'methodology' for reaching his opinions other than merely observing dirt on the speed control assembly components").

¶67 In contrast to the experts in those cases, Saczalski "bridge[d] the analytical gap" between his observations of the de-trimmed driver's seat and his opinion that the UD seat was defectively designed because the deformation of the crossbar tube allowed the headrest prongs to rotate forward and serve as a fulcrum against Edward's back. *See* ***Gopalratnam***, 877 F.3d at 786. Saczalski did so by, among other things: (1) analyzing the strength of the crossbar tube; (2) reviewing data from the vehicle's data recorder to obtain information about the speed and forces involved in the accident; (3) obtaining information about the location and severity of Edward's spinal injury; (4) reviewing Hyundai's internal testing and other materials which showed the rotation forward of the headrest prongs as force was applied to the headrest; (5) applying established principles of plastic and elastic deformation; and (6) comparing the UD seat to other seats.

¶68 Saczalski's lack of dynamic testing of the UD seat was grist for the mill on cross-examination. But in view of the other steps he took to support his opinion, the trial court did not erroneously exercise its discretion in concluding that the lack of testing did not render his opinion unreliable. *See* ***Clark v. Chrysler Corp.***, 310 F.3d 461, 468-72 (6th Cir. 2002), *vacated on other grounds sub nom.* ***Chrysler Corp. v. Clark***, 540 U.S. 801 (2003) (holding that district court did not err in allowing two experts to testify regarding alleged defects in automobile and stating that one expert's lack of testing "goes to the weight of his testimony and not to its admissibility"); ***Jacobs v. Tricam Indus., Inc.***, 816 F. Supp. 2d 487, 493 (E.D. Mich. 2011) ("testing is not required in every case, particularly where, as here, the expert conducted an examination of the physical evidence").

B. Causation

¶69 Next, Hyundai argues that Kurpad and Saczalski should not have been permitted to opine on the causal link between the UD seat design and Edward's injuries. We address the causation opinions of each expert separately.

1. Kurpad

¶70 Hyundai argues that Kurpad strayed beyond his area of expertise as a medical doctor into offering "scientific" testimony, opining that the headrest prongs formed the fulcrum that caused Edward's spinal injury. In Hyundai's view, the trial court erred by making "a global assessment of the reliability of Kurpad's testimony" instead of focusing separately on "testimony related to his treatment of Mr. Vanderventer" and "testimony relating to the mechanics of how the prongs caused the injury."

¶71 In assessing Kurpad's opinions, the trial court noted his "extensive knowledge in spinal cord injuries" and the "mechanics of injury" as well as his research on causation of spinal cord injuries. Kurpad's testimony also makes plain his reliance on his surgical observations of Edward's spinal injury and additional information he obtained from CT and MRI scans of Edward's upper torso. Finally, the court noted that Kurpad had "garnered … information on the biomechanics from somebody else" which he used to make "a causation connection," which we understand to refer to Saczalski's identification of the fulcrum.

¶72 We cannot say that the trial court's conclusion that Kurpad's methodology was reliable lacks a rational basis or was made in disregard of the facts or governing law. *See* ***Giese***, 356 Wis. 2d 796, ¶16. In ***Seifert***, 372 Wis. 2d 525, ¶77, our supreme court recognized that reliable testimony from medical experts is often grounded predominantly, if not solely, in the expert's experience in the relevant field. Such evidence "is reliable if the knowledge underlying it 'has a reliable basis in the knowledge and experience of the [relevant] discipline,'" and its exclusion is "rarely justified." ***Id.***, ¶¶81, 85 (alteration in original; citation omitted).[18] Moreover, one expert may rely on facts or analysis provided by another expert, so long as doing so is reasonable in the expert's field. *See* WIS. STAT. § 907.03; ***State ex rel. T.R.S. v. L.F.E.***, 125 Wis. 2d 399, 402, 373 N.W.2d 55 (Ct. App. 1985) ("it is well settled that an expert witness may rely on reports and information provided by others").

[18] We have previously allowed medical experts to offer opinions as to the cause of a patient's injury. *See* ***Martindale v. Ripp***, 2001 WI 113, ¶57, 246 Wis. 2d 67, 629 N.W.2d 698; ***Liles v. Employers Mut. Ins. of Wausau***, 126 Wis. 2d 492, 497-99, 377 N.W.2d 214 (Ct. App. 1985).

¶73 Here, Kurpad's expertise clearly extended into the causation of spinal injuries. He testified that he has years of research experience dedicated to "the causation as well as the biology and the repair of the spinal cord" and has authored papers explaining "how certain forces cause spinal trauma and related injuries." Kurpad's testimony made clear that he drew on his knowledge and experience, along with his surgical observations, review of Edward's medical records, and information from Saczalski about the accident, to opine that the headrest prongs had caused Edward's spinal fracture. The trial court appropriately relied on Kurpad's experience and observations as furnishing a sufficient basis for his opinion.

¶74 Hyundai flags a number of concessions Kurpad made at trial as to information he did not know and steps he did not take in his analysis as evidence "that he did not reliably apply any methodology" to the facts. For example, Hyundai notes that Kurpad did not "analyze the force necessary for the prongs to cause the injury" and did not take any pictures or measurements to verify that the fulcrum created by the headrest prongs would have impacted Edward's spine precisely at the T6 vertebra. We view these criticisms of Kurpad's approach as going to the weight, not the admissibility, of his opinions. Hyundai was free to highlight information Kurpad overlooked or declined to obtain, calculations he did not make, and tests he did not run to diminish the persuasiveness of his opinion. But those criticisms do not show that Kurpad's testimony was merely subjective belief or unsupported speculation "dressed up in the guise of expert opinion." ***Giese***, 356 Wis. 2d 796, ¶19.

2. Saczalski

¶75 Hyundai also challenges the trial court's admission of Saczalski's "specific causation" opinion that the deformation of the crossbar tube and forward rotation of the headrest prongs caused Edward's spinal injury. Citing ***Smelser v. Norfolk Southern Railway Co.***, 105 F.3d 299 (6th Cir. 1997), *abrogated on other grounds by* ***Morales v. American Honda Motor Co.***, 151 F.3d 500, 515 (6th Cir. 1998), Hyundai contends that Saczalski lacked the medical expertise necessary to offer this opinion.

¶76 In ***Smelser***, the district court permitted a plaintiff in a rear-end car accident case to present testimony from a biomechanical engineer that a defective shoulder belt caused the plaintiff's back injury and aggravated his neck injuries. ***Smelser***, 105 F.3d at 301. The court of appeals reversed, holding that the expert's causation opinion should have been excluded because it went "beyond [his] expertise in biomechanics." ***Id.*** at 305. The court stated that the expert, who was not a medical doctor and lacked medical training, was qualified to describe generally the forces generated in the collision and the types of injuries that could result but that "his expertise in biomechanics did not qualify him to testify about the cause of [the plaintiff]'s specific injuries." ***Id.***

¶77 We are not bound by ***Smelser*** and conclude that it does not carry persuasive value here. To begin, the court that decided ***Smelser*** appears to have backed away from the rigid separation the case recognized between the types of opinions that medical experts and biomechanical engineers are qualified to offer. *See* ***Laski v. Bellwood***, No. 99-1063, 2000 WL 712502, at *4 (6th Cir. May 25, 2000) ("Other cases reported since ***Smelser*** have given a decidedly more liberal construction of the rules concerning admission of expert witnesses and their ability

to testify regarding matters which might not fall within their particular specialty.").

¶78 On this point, a case cited by the Vanderventers, ***Pike v. Premier Transportation & Warehousing, Inc.***, No. 13 CV 8835, 2016 WL 6599940 (N.D. Ill. Nov. 8, 2016), provides more persuasive guidance. In ***Pike***, the plaintiff challenged the ability of a biomechanical engineer to opine that the forces exerted on the plaintiff in a car accident were not consistent with causing the plaintiff's reported injuries. ***Id.*** at *2. The district court held that the engineer was qualified to testify "about the mechanics of the accident and whether [the plaintiff]'s injuries were biomechanically consistent with those mechanics." ***Id.*** at *4. A key factor in the court's conclusion was the following description of the roles played by medical doctors and biomechanical engineers, which appears in the Federal Judicial Center's Reference Manual on Scientific Evidence, a treatise relied upon by the trial court and the parties in this case:

> The traditional role of the physician is the diagnosis (identification) of injuries and their treatment, not necessarily a detailed assessment of the physical forces and motions that created injuries during a specific event. The field of biomechanics (alternatively called biomechanical engineering) involves the application of mechanical principles to biological systems, and is well suited to answering questions pertaining to injury mechanics.

CHANNING R. ROBERTSON, ET AL., FED. JUD. CTR., REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 901 (3d ed. 2011). This treatise further acknowledges that "[t]hrough experience, training, and activities in the case, engineers may have the ability to understand the interrelationship between events and thus can provide helpful testimony on whether the asserted damages had a relationship to the asserted misconduct so as to have been 'caused' by it." ***Id.*** at 942.

¶79 Drawing on this distinction, we conclude that the trial court did not erroneously exercise its discretion in admitting Saczalski's opinion. Saczalski was not asked to diagnose the injuries Edward sustained in the accident, but instead to describe the forces exerted by and on his body during the accident and explain, "from a biomechanical standpoint," how those forces could produce the fulcrum impact to his spine. WISCONSIN STAT. § 907.02(1), and its federal counterpart, Federal Rule of Evidence 702, state that an expert witness must be qualified to provide testimony "by knowledge, skill, experience, training or education." Saczalski's expertise as a mechanical engineer, his experience in the fields of biomechanics and motor vehicle safety, and his work in understanding the forces involved in motor vehicle accidents qualified him to testify about how the forces generated by the accident could have resulted in Edward's spinal injury. *See* ***Phillips v. Raymond Corp.*** 364 F. Supp. 2d 730, 739-40 (N.D. Ill. 2005) (finding biomechanical engineer qualified to testify as to "the mechanics" of injury sustained by plaintiff in forklift accident); ***McKeon v. City of Morris***, No. 14 CV 2084, 2016 WL 5373068, at *2 (N.D. Ill. Sept. 26, 2016) (finding biomechanical engineer qualified to "interpret the diagnoses of [plaintiff]'s treating physicians in order to opine on the likely mechanisms of [plaintiff]'s injuries").

II. Admission of Recall Evidence

¶80 The second issue Hyundai presents for review concerns the trial court's admission of evidence of eighty-five recalls involving Hyundai vehicles and components other than the 2013 Elantra's driver's seat. As noted above, the court determined that this evidence was relevant to rebut the presumption that a product is not defective if it complies with certain governmental standards. The presumption is codified in WIS. STAT. § 895.047(3)(b), which states that "[e]vidence that the product, at the time of sale, complied in material respects with

relevant standards, conditions, or specifications adopted or approved by a federal or state law or agency shall create a rebuttable presumption that the product is not defective."

¶81 Hyundai makes two arguments regarding the recall evidence. First, it contends that evidence of recalls concerning other Hyundai vehicles or components is not relevant to rebutting the presumption that the 2013 Elantra's driver's seat is not defective pursuant to WIS. STAT. § 895.047(3)(b). In addition to § 895.047(3)(b), Hyundai relies on WIS. STAT. § 903.01, which provides that once a party who seeks to rely on a presumption proves the "basic facts" necessary to trigger it, the opposing party has "the burden of proving that the nonexistence of the presumed fact is more probable than its existence." Sec. 903.01. Hyundai contends that the "presumed fact" here is that the Elantra's driver seat is not defective, and thus only evidence that that particular part was defective is admissible to rebut the presumption. Second, Hyundai contends that even if the recall evidence was relevant, it was unfairly prejudicial because it encouraged the jury to find Hyundai liable based on "supposed bad corporate conduct."

¶82 Before addressing these arguments on their merits, we must clear away two preliminary matters. First, the Vanderventers contend that Hyundai forfeited its ability to challenge the recall evidence by not requesting a limiting instruction. We disagree. Hyundai challenged the admissibility of this evidence in its motions in limine and the trial court specifically noted during trial that Hyundai's relevance objection had been preserved. Hyundai again raised its objection in its postverdict motions. Nothing more was required to preserve this issue for our review.

¶83 Second, the Vanderventers suggest that we need not review this issue because a decision in Hyundai's favor would not affect the judgment. The jury found Hyundai liable both in strict liability and negligence, but the recall evidence was admitted only with respect to the strict liability claim. *See* WIS. STAT. § 895.047(6) ("This section does not apply to actions based on a claim of negligence or breach of warranty."). Thus, the Vanderventers argue, even if we agree with Hyundai that the evidence was improperly admitted, the judgment would still stand based on the negligence claim.

¶84 The Vanderventers do not develop this argument with citation to any legal authority, and Hyundai does not respond to it at all. Absent any further explanation as to why we should not do so, we will exercise our discretion to consider the merits of Hyundai's argument.

¶85 Because our review is deferential, we are limited to determining whether the trial court applied the proper legal standards to the relevant facts and "reached a conclusion that a reasonable judge could reach." ***Westport Ins. Corp.***, 327 Wis. 2d 120, ¶48 (citation omitted). Though Hyundai argues that the court "erred as a matter of law" in admitting the recall evidence, we do not understand it to argue that the court failed to apply the correct law or that it did not consider any relevant facts. Rather, Hyundai's relevance and prejudice arguments target the reasonableness of the court's ultimate decision to admit the recall evidence.

¶86 In assessing the reasonableness of the trial court's decision, we begin by noting that WIS. STAT. § 895.047(3)(b) is silent regarding what evidence a plaintiff may introduce to rebut the presumption. It neither specifies evidence that is admissible to rebut the presumption nor identifies evidence that may not be admitted for that purpose.

¶87 Hyundai cites two cases that generally discuss the admissibility of evidence to rebut a presumption, but neither provides meaningful guidance in identifying evidence that is or is not admissible when WIS. STAT. § 895.047(3)(b) is invoked. ***State ex rel. Flores v. State***, 183 Wis. 2d 587, 516 N.W.2d 362 (1994), was decided more than fifteen years before § 895.047(3)(b) was enacted and merely observed that the presumption that a piece of mail was received, which arises from evidence that it was mailed, "shifts to the challenging party the burden of presenting credible evidence of non-receipt." ***Flores***, 183 Wis. 2d at 613. The court did not identify any standards or guidelines as to what "credible evidence" to rebut the presumption would be that might be useful to us in this case. The second case cited by Hyundai, ***Kilty v. Weyerhaeuser Co.***, No. 16-CV-515, 2018 WL 2464470 (W.D. Wis. June 1, 2018), applied § 895.047(3)(b) and found that the plaintiffs had presented sufficient evidence from which a jury could find that the product at issue, a respirator, was defective. ***Id.*** at **6-7. Though the evidence deemed sufficient to raise an issue of fact pertained to the specific respirator at issue, the court cited no law and set forth no reasoning from which we could conclude that rebuttal evidence must *always* be confined to the specific product at issue.

¶88 Lacking authoritative guidance from the statutory text or case law applying it, we consider the purpose served by the presumption. Unlike some presumptions, WIS. STAT. § 895.047(3)(b) does not shift the burden of proof from one party to another. Whether or not the presumption is triggered, it remains the plaintiff's burden to prove that a product is defective. Instead, the presumption is the legal mechanism for according a product's compliance with "relevant standards, conditions, or specifications adopted or approved by a federal or state law or agency" special weight in the factfinder's ultimate determination whether

the product is defective. Sec. 895.047(3)(b); *see also* ***Martin L. v. Julie R.L.***, 2007 WI App 37, ¶12, 299 Wis. 2d 768, 731 N.W.2d 288 (rebuttable presumption that fit parent's decision regarding grandparent visitation is in child's best interest "is the legal means of giving the parent's decision special weight") (citation omitted). Hyundai leaned into this notion at trial, presenting testimony that the FMVSS were "severe," "quite stringent," "difficult … and challenging to meet," and arguing that meeting the standards required the jury to "presume that our seat in this case is not defective."

¶89 We also ground our analysis in the rules of relevance and unfair prejudice codified in WIS. STAT. §§ 904.01 and 904.03. The test for relevancy is defined broadly as whether evidence has "any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence." Sec. 904.01. A reasonable judge could conclude that the recall evidence clears the "low threshold" created by this statute. ***State v. Richardson***, 210 Wis. 2d 694, 707, 563 N.W.2d 899 (1997).

¶90 Given the broad definition of relevance, we disagree with Hyundai that the analysis is limited by the "presumed fact" under WIS. STAT. § 903.01. Hyundai's invocation of the presumption made the effect of compliance with FMVSS a "fact that is of consequence to the determination" of the Vanderventers' claims. WIS. STAT. § 904.01. The recall evidence tended to show that vehicles which comply with FMVSS could nonetheless have safety-related defects. This, in turn, could support an inference that the 2013 Elantra's satisfaction of those standards was not especially strong evidence that its driver's seat was not defective. While evidence specific to the type of seat in the Vanderventers' vehicle might have been more probative on the issue of defectiveness, we cannot say that the trial court exceeded its discretion in concluding that recalls related to

other Hyundai vehicles and components carried some probative value on this issue.

¶91 Turning to the issue of unfair prejudice, Hyundai cites four instances during the trial in which the Vanderventers referred to the recalls and argues that they diverted the jury's attention away from the driver's seat and on to "supposed bad corporate conduct." WISCONSIN STAT. § 904.03 empowers trial courts to exclude relevant evidence "if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury," among other things. Like the inquiry into relevance, courts have broad discretion to weigh probative value against these countervailing interests. ***Ollhoff v. Peck***, 177 Wis. 2d 719, 726, 503 N.W.2d 323 (Ct. App. 1993).

¶92 Here, the trial court did not act unreasonably in rejecting Hyundai's claims of prejudice. Our conclusion rests on two aspects of the court's treatment of the recall evidence. First, the court made clear that the evidence was only relevant to rebutting Hyundai's reliance on compliance with the FMVSS, and our review of the trial transcript indicates that the parties hewed closely to that limitation. Second, and relatedly, the court succinctly handled admission of the evidence by taking judicial notice of a collection of NHTSA documents relating to the recalls. It did not allow the Vanderventers to delve into the details of each recall in front of the jury, and we have seen no indication that the recall documents were shown to the jury. The Vanderventers referred to the recalls at trial in the aggregate, which minimized any distraction they may have caused and prevented the proceeding from turning into a series of mini-trials about the circumstances underlying each recall. *See* ***State v. Hurley***, 2015 WI 35, ¶89, 361 Wis. 2d 529, 861 N.W.2d 174 (court may "edit the evidence" or "restrict a party's arguments" to "limit the possibility that the jury will convict based on 'improper means'")

(citation omitted).[19] Finally, we note that Hyundai could have, but did not, seek a limiting instruction advising the jury that they were only to consider the recall evidence in determining whether the statutory presumption had been rebutted. WIS. STAT. § 901.06; ***Hurley***, 361 Wis. 2d 529, ¶89 ("Limiting instructions substantially mitigate any unfair prejudicial effect."). For these reasons, we conclude that the court's admission of the recall evidence was not an erroneous exercise of discretion.

III. Admission of AD Seat Design

¶93 Hyundai next challenges the trial court's admission of evidence concerning the AD seat design, which it did not begin incorporating into its vehicles until 2017. Hyundai argues that evidence of the AD design was not admissible under WIS. STAT. § 895.047(4), pertaining to subsequent remedial measures in the specific context of strict product liability claims, or under Wisconsin's evidentiary rule regarding subsequent remedial measures, WIS. STAT. § 904.07, as it pertains to Venderventers' negligence claim.

¶94 We first consider WIS. STAT. § 895.047(4), which states that "evidence of remedial measures taken subsequent to the sale of the product is not admissible for the purpose of showing a … defect in the design of the product" but

[19] In its reply brief, Hyundai challenges the Vanderventers' assertion that the recall evidence was "stringently limited to pre-2013 safety-related recalls" by observing that the Vanderventers included seven letters concerning "post-2013 recalls" in the exhibit of recall materials. Neither side accurately captures the trial court's ruling on this point. The Vanderventers' suggestion that the court limited the recall evidence to "pre-2013 safety-related recalls" is incorrect; the court ruled that recalls that pre-dated *the accident* were admissible. The Vanderventers' accident occurred on July 31, 2015. The seven letters highlighted by Hyundai, each of which was sent by NHTSA to Hyundai, are dated between January 6, 2014 and July 13, 2015, and each letter acknowledges a recall that Hyundai had already informed NHTSA that it intended to undertake. Thus, admission of these letters did not run afoul of the court's ruling.

may be introduced "to show a reasonable alternative design that existed at the time when the product was sold." In applying this language, it is important to keep in mind that the legislature has made the existence of a reasonable alternative design part of the plaintiff's burden of proof when pursuing a strict product liability claim. Specifically, § 895.047(1)(a) states that in order to prove a design defect, a claimant must establish that "the foreseeable risks of harm posed by the product could have been reduced or avoided by the adoption of a reasonable alternative design by the manufacturer and the omission of the alternative design renders the product not reasonably safe."

¶95 The trial court permitted the Vanderventers to introduce evidence concerning the AD seat design based on its determination that WIS. STAT. § 895.047(4) only requires that "the theory relative to th[e alternative] design was in existence." Hyundai disagrees with the court's reading of the statute. Citing a dictionary definition of the word "design," Hyundai argues that a "reasonable alternative design" does not exist until, at a minimum, it is memorialized in a "preliminary sketch or outline showing the main features … to be executed."

¶96 We reject the standard proposed by Hyundai. To prove the existence of a reasonable alternative design, "a plaintiff need not produce an actual prototype of a reasonable design alternative, nor does a plaintiff have to show that the alternative design was ever adopted by a manufacturer or considered for commercial use." ***Murphy v. Columbus McKinnon Corp.***, 2021 WI App 61, ¶52, 399 Wis. 2d 18, 963 N.W.2d 837 (citing RESTATEMENT (THIRD) OF TORTS § 2 cmts. f, d (AM. L. INST. 1998)). "Instead a plaintiff may rely on credible expert testimony that the alternative design could have been practically adopted as of the time of sale." ***Murphy***, 399 Wis. 2d 18, ¶52. In addition, "other products already

available on the market ... may serve as reasonable alternatives to the product in question." ***Id.*** (quoting RESTATEMENT (THIRD) OF TORTS § 2 cmt. f) (alteration in original).

¶97 Under these standards, the trial court's decision to admit evidence of the AD seat design was not an erroneous exercise of discretion. Though Hyundai did not incorporate the AD seat design into its vehicles until 2017, the Vanderventers presented expert testimony that the AD design could have been adopted years earlier. Their expert, Saczalski, identified two salient differences between the UD seat in the Vanderventers' vehicle and the AD seat design: (1) the AD design included a more robust upper metal frame than the hollow tube crossbar in the UD design, and was in this respect "the same" as the HD seat design that Hyundai had used *before* the UD design; and (2) the AD design included mechanisms to lock both headrest prongs into place, rather than just one. Saczalski testified that the AD design did not contain any "technological breakthrough[s]" such that Hyundai "could not have had that design available" as far back as 2008. As to the locking mechanisms, Hyundai's expert agreed that having them on both prongs was "technologically feasible" years before the 2013 Elantra was sold. Hyundai does not offer an explanation as to why the AD design could not, as a practical matter, have been adopted at the time the 2013 Elantra was sold.

¶98 As further support, the Vanderventers point to an internal Hyundai seat design document which depicts a seat frame that contains an upper crossbar similar in appearance to the crossbar included in the AD design. This design document appears to have been generated in connection with an effort by Hyundai that began in 2007 or 2008 to develop "a standard common seat for more efficient development purposes." In addition, de-trimmed exemplars of the HD, UD and

AD seats were displayed to the jury, enabling it to view and contrast the hollow crossbar tube in the UD seat with the unibody designs of the HD and AD seats, both of which included a more substantial upper structure.

¶99 The Vanderventers were statutorily required to show that a reasonable alternative seat design existed when the 2013 Elantra was sold, which they could do through evidence that the design "could have been practically adopted" by that time. ***Murphy***, 399 Wis. 2d 18, ¶52. The Vanderventers presented evidence that the AD design shared material design features with the HD seat that Hyundai used before 2013 and that the addition of the second locking mechanism in the AD design did not make it a "technological breakthrough" compared to its predecessors. A reasonable jurist could conclude that evidence of the AD design was admissible under WIS. STAT. § 895.047(4) because it tended to show that a reasonable alternative to the UD design could have been adopted in 2013 because of the AD design's similarity to the HD design, which Hyundai had used years before 2013.

¶100 Hyundai criticizes the Vanderventers' reliance on Hyundai's 2007 design work and points out that its corporate representative testified that the AD design did not emerge from that project but instead from another, "second-generation common frame," in 2015. We are not persuaded that this shows an erroneous exercise of discretion. The import of the 2007 design work is that it shows that Hyundai considered a unibody seat design with a more robust upper structure years before it began incorporating the hollow crossbar UD design into its vehicles. Even if the AD design did not emerge directly from the 2007 design process, it remained relevant to showing that a reasonable alternative to the UD design was available in 2013.

¶101 We next consider the admissibility of the AD design under WIS. STAT. § 904.07, which states as follows:

> When, after an event, measures are taken which, if taken previously, would have made the event less likely to occur, evidence of the subsequent measures is not admissible to prove negligence or culpable conduct in connection with the event. This section does not require the exclusion of evidence of subsequent measures when offered for another purpose, such as proving ownership, control, or feasibility of precautionary measures, if controverted, or impeachment or proving a violation of [WIS. STAT. §] 101.11.

Sec. 904.07. The trial court ruled during and after trial that the Vanderventers could introduce evidence concerning the AD seat design under the impeachment exception in § 904.07.

¶102 Two Wisconsin cases applying WIS. STAT. § 904.07 guide our evaluation of the trial court's decision. In ***D.L. v. Huebner***, 110 Wis. 2d 581, 329 N.W.2d 890 (1983), our supreme court observed that "the rule of exclusion" in § 904.07 is "narrow" because the statute only identifies one purpose for which subsequent remedial measures evidence cannot be admitted—to "prove 'negligence or culpable conduct.'" ***Huebner***, 110 Wis. 2d at 599-600 (citation omitted). The court instructed lower courts to "carefully exercise their discretion to exclude evidence admissible under the impeachment exception when the evidence 'proves negligence under the guise of impeachment.'" ***Id.*** at 608 (quoting 10 JAMES W. MOORE, ET AL., MOORE'S FEDERAL PRACTICE ¶407.04 (2d ed. 1982)). In the second case, ***Ansani v. Cascade Mountain, Inc.***, 223 Wis. 2d 39, 588 N.W.2d 321 (Ct. App. 1998), we upheld a trial court's decision to allow cross-examination of several witnesses about measures taken to protect a timing box located on a ski course after a skier had crashed into it because "the thrust of the questioning" was to "impeach the credibility of Cascade's witnesses who

testified that the fence was always up, when there was evidence to the contrary," and "not to show that Cascade was negligent." ***Id.*** at 57.

¶103 ***Huebner*** and ***Ansani*** teach that evidence of subsequent remedial measures can be admitted under the impeachment exception when the evidence is presented to impeach specific witness testimony. *See also* ***Estate of Brown v. Physicians Ins. Co. of Wis., Inc.***, No. 2010AP274, unpublished slip op. ¶19 (WI App Feb. 8, 2011) ("Thus, in order for evidence of subsequent remedial measures to be admissible for impeachment purposes, the evidence must contradict a specific fact to which a witness has testified.").[20] The trial court's ruling was consistent with that principle.

¶104 Our review of the record reveals several points which could have been impeached by evidence of the AD design. First, an expert witness called by Hyundai described the UD design as "state of the art," by which he meant that the design's "components and its characteristics use the best practices in the industry to protect occupants, in this case in rear impacts." Hyundai also presented testimony from the lead testing engineer for the Elantra about the process that Hyundai began in 2007 to develop a "standard common seat." The engineer explained that the design process was intended "optimize the standard frame and make the best seat we can." He explained that during the design process, Hyundai developed multiple seat design concepts which were tested to determine if they met Hyundai's requirements. At the end of that testing, Hyundai chose the "most optimized design concept of them all" for manufacture and further testing. He

[20] Though unpublished, ***Estate of Brown v. Physicians Insurance Co. of Wisconsin, Inc.***, No. 2010AP274, unpublished slip op. (WI App Feb. 8, 2011) may be cited for persuasive value. *See* WIS. STAT. RULE 809.23(3)(b).

testified further that the "common frame was developed for common vehicles and that was applied to UD," which he described as "abundantly" safe.

¶105 These superlative descriptions suggested that the UD design could not be improved upon, and the Vanderventers were entitled to impeach this testimony by introducing evidence that Hyundai began using a seat frame design after the Vanderventers' accident that lacked the defective hollow crossbar tube. *See* ***Wood v. Morbark Indus., Inc.***, 70 F.3d 1201, 1208 (11th Cir. 1995) (holding that testimony that chute on wood chipper was of "safest length" possible opened door to impeachment by evidence of design change after accident which lengthened chute).

¶106 Second, Hyundai also showed the jury a slide during its opening statement which indicated that the Insurance Institute of Highway Safety had given the UD and AD seats the same rating of "Good," suggesting that the UD design was as safe as the AD design. The Vanderventers were entitled to introduce evidence to rebut Hyundai's suggestion that the two seats were on par.

¶107 The trial court permitted the Vanderventers to introduce evidence of the AD design to impeach Hyundai's "general defense of the case." We interpret this remark to refer to the defense Hyundai would later present at trial—that the UD design was "state of the art" and had its origins in a design process intended to result in the best seat Hyundai could manufacture. As explained above, it was within the court's discretion to allow the AD design into evidence to impeach that testimony.

¶108 Even if we concluded that the trial court's decision to allow evidence of the AD design was an erroneous exercise of discretion, we would find that error to be harmless. Hyundai argues that the AD seat design evidence "pervaded" the

trial yet directs us only to a handful of references to that design in the Vanderventers' opening and closing statements and Saczalski's testimony that the AD design shared the "same robust beefy design up top" as the HD design that Hyundai incorporated in cars sold in Canada years before it began using the UD design. Hyundai also notes that an exemplar of the AD seat was placed in front of the jury for nearly the entire trial.

¶109 We have carefully reviewed the references to the AD design in the trial record, and they do not undermine our confidence in the jury's verdict. *See* ***State v. Williams***, 2002 WI 58, ¶50, 253 Wis. 2d 99, 644 N.W.2d 919 (discussing harmless error test as focusing on whether error undermines appellate court's confidence in outcome). The overwhelming majority of the evidence and argument related to the liability issues at trial focused on the UD seat in the Vanderventers' vehicle. The jury heard extensive evidence specific to the design of that seat and how the alleged defects in that design combined with the forces generated by the collision to cause Edward's spinal injury. Hyundai also presented considerable evidence about its seat design process and the reasons why the UD's design was not defective. In addition, Hyundai did refer to the AD design in its opening statement and has failed to identify any objection it raised to the presence of the AD seat in the courtroom. Nor did Hyundai seek a limiting instruction delineating the limited purposes for which evidence of the AD design could be considered and cautioning the jury that the evidence could not be considered in determining whether Hyundai was negligent. Finally, we note that the salient difference between the AD design and the UD design—the sturdier and more substantial top portion of the metal frame present in the AD design—was also present in the HD design, which preceded the UD design. Thus, evidence of this design difference between the UD design and its successor was largely

duplicative of evidence of the same difference between the UD design and its predecessor.[21] Together, these considerations lead us to conclude that any error in admitting evidence concerning the AD design did not affect a "substantial right" of Hyundai and was therefore harmless. ***Martindale***, 246 Wis. 2d 67, ¶30 (citing WIS. STAT. § 901.03).

¶110 Because we determine that the trial court's decision to admit evidence of the AD design under the impeachment exception was not an erroneous exercise of discretion, we need not address the Vanderventers' alternative arguments that the evidence could have been admitted under the "feasibility" exception in WIS. STAT. § 904.07 or the "rule of completeness."

IV. Admission of Undisclosed Opinions

¶111 Lastly, Hyundai argues that the trial court erroneously exercised its discretion in allowing Saczalski to offer two opinions at trial that he did not disclose in discovery. Specifically, Hyundai contends that it heard for the first time in the Vanderventers' opening statement that Saczalski would testify about: (1) the maximum amount of "elastic" deformation of the prongs in the Elantra's driver's seat headrest during the accident and (2) how the rotation of the headrest tubes eventually allowed the locking mechanism inside one of the tubes that kept the headrest in place to disengage from a notch on the prong, allowing the headrest to eject into the backseat during the accident.

[21] The Vanderventers also introduced exemplar seats from three other Hyundai models—(1) a 2009 Sonata; (2) a 2007 Azera; and (3) a 2015 Accent—which did not include the hollow crossbar tube design in the UD seat.

¶112 As to the opinion regarding the maximum amount of "elastic" deformation, Saczalski testified at his deposition that there would be some elastic deformation of the headrest prongs beyond the "permanent" deformation observed after the accident, but said that he had not determined "the prongs' maximum intrusion … during the crash sequence." Thus, Hyundai knew that Saczalski would likely testify that the prongs deformed elastically. But Hyundai contends that it was unaware that he would testify as to the precise number of degrees of elastic deformation until it heard that number in the Vanderventers' opening statement. The Vanderventers offer several responses, including that Hyundai did not disclose certain documents that Saczalski needed to calculate the maximum amount of elastic deformation until shortly before his deposition and that Hyundai was aware after Saczalski's deposition that he would be doing additional work on the case.

¶113 As to the opinion about the ejection of the headrest, Hyundai argues that Saczalski did not mention at his deposition his theory that inward rotation of the headrest tubes caused the locking mechanism to slip out of the notch on the headrest prong, which Hyundai contends was "critically important because it explained how he contends the ejection took place."

¶114 Wisconsin's civil discovery statutes do not impose specific disclosure requirements pertaining to expert opinions, but instead empower trial courts to address "the identification and disclosures of expert witnesses" in a scheduling order and allow the parties to discover "facts known and opinions held" by experts through written interrogatory or deposition. WIS. STAT. §§ 802.10(3)(f), 804.01(2)(d). Here, the scheduling orders entered by the court did not require the parties to disclose all opinions an expert might offer at trial, but rather only a "summary of expected testimony."

¶115 Trial courts have discretion to exclude expert testimony that "results in surprise to the opposing counsel … if the surprise would require a continuance causing undue delay or if surprise is coupled with the danger of prejudice and confusion of issues." ***Magyar v. Wisconsin Health Care Liab. Ins. Plan***, 211 Wis. 2d 296, 303, 564 N.W.2d 766 (1997). But exclusion is a drastic remedy that should be granted only if a less severe remedy, such as a continuance, "would result in a long delay." ***Id.*** at 304. Our role is not to independently assess the merits of Hyundai's arguments, but instead to determine whether the trial court applied the proper legal standards to the facts and reached a reasonable decision. ***Id.***

¶116 Hyundai argues that it objected to these two opinions immediately after opening statements, but we have not found any reference to the exact amount of elastic deformation or Saczalski's theory of headrest ejection in the colloquy between counsel and the trial court that followed opening statements.[22] However, Hyundai did challenge these opinions as untimely disclosed in a postverdict motion.

¶117 In denying Hyundai's motion, the trial court cited ***Schmude v. Tricam Industries, Inc.***, 550 F. Supp. 2d 846 (E.D. Wis. 2008), *aff'd,* 556 F.3d 624 (7th Cir. 2009), in which the district court considered surprise, prejudice, and disruption of the trial among other factors in deciding whether purportedly undisclosed expert opinions introduced at trial warranted postverdict relief. ***Id.*** at 853. Applying these factors, the court concluded that Hyundai had not been

[22] Counsel for both sides did refer to the twenty degrees of plastic deformation Saczalski measured, but not the amount of elastic deformation.

surprised by Saczalski's opinions because the "generalized concepts" of his testimony were "well known to the defense" and addressed on cross-examination. The court also noted that Hyundai did not ask for the less drastic remedy of a continuance after the opening statements to afford it an opportunity to prepare for Saczalski's testimony. Finally, the court found that introduction of Saczalski's opinions did not prejudice Hyundai.

¶118 Though ***Schmude*** applied the federal rules governing the disclosure of expert testimony, the factors which guide the analysis of undisclosed expert opinions under federal law mirror those identified in ***Magyar***. Thus, the trial court applied the correct legal standards in addressing Hyundai's motion. Furthermore, we do not see a basis to question the reasonableness of the court's determinations that Hyundai was neither surprised nor prejudiced by Saczalski's testimony about the amount of elastic deformation and his headrest ejection theory. The record shows that Hyundai was aware before trial that Saczalski would be opining on elastic deformation. His specification of an exact number of degrees of elastic deformation was simply a refinement and extension of the opinion he discussed at his deposition. Furthermore, Hyundai has not explained why that number, or Saczalski's discussion of how the headrest tubes rotated to allow the headrest to dislodge, caused prejudice sufficient to overturn the jury's verdict. For these reasons, we conclude that the trial court did not erroneously exercise its discretion in allowing Saczalski to offer these two opinions at trial.

CONCLUSION

¶119 The record in this case makes plain that the litigation and trial of this case were exhaustive. The evidentiary issues raised by Hyundai do not provide sufficient cause to disturb the jury's verdict. The trial court's rulings were grounded in the proper legal standards and were conclusions a reasonable judge could reach. Accordingly, we affirm the judgment.

By the Court.—Judgment affirmed.

Recommended for publication in the official reports.