Federal Court Confidence: Successfully Litigating Personal Injury Cases

Part 3: Motion Practice in Federal Court

Materials By:
Andrew Smiley

New York State
ACADEMY
OF TRIAL LAWYERS

LIVE STREAMED
JUNE 5, 2025
1PM VIA ZOOM

JOIN THE ACADEMY FOR FREE CLE

Academy members now get FREE access to all live AND on-demand CLE courses!

- The Academy presents CLE webinars providing CLE credits in all categories, including Diversity, Inclusion and Elimination of Bias.
- All of our courses are video recorded and made available to view on-demand on our website.

Interested in joining? Contact us for more information

518-364-4044 info@trialacademy.org

New York State ACADEMY OF TRIAL LAWYERS

THE MENTOR ESQ Handbook Series

THE PATH TO TRIAL SUCCESS

All Proceeds Are Donated to Support Our Shared Causes

The Water Project
TheWaterProject.org

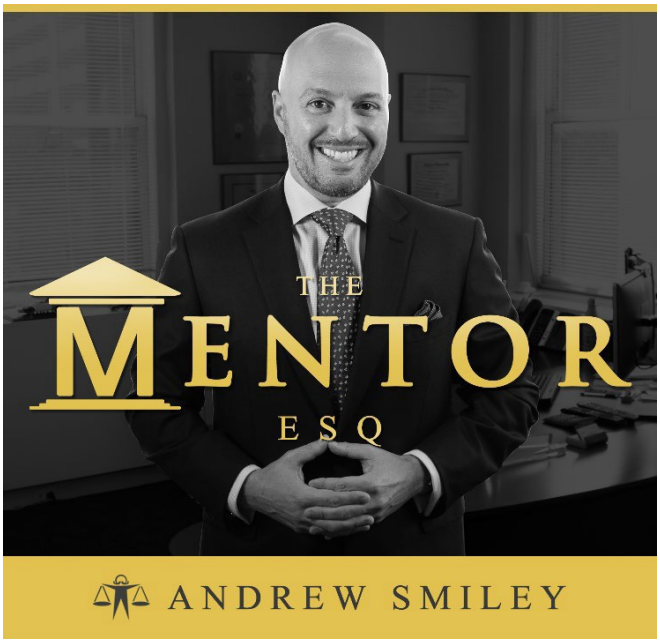
Friends of Michael

JUST HANDS Racing FOUNDATION

available at amazon

"Game-changing trial strategies — clear, practical, and straight from a top litigator."

– LN Fox | Amazon Review



Andrew J. Smiley, Esq.
Smiley & Smiley, LLP
28 Liberty Street, NYC 10005
212.986.2022
asmiley@smileylaw.com
www.smileylaw.com
www.thementoresq.com

CURRICULUM VITAE

Education:

·Brooklyn Law School - Juris Doctorate 1996

Moot Court Honor Society - Vice President/Executive Board (Chair of Trial Division)
Moot Court Honor Society - Competitor - National Appellate Trademark Competition
Moot Court Honor Society – Coach, National Trial Team – Regional Champions
CALI Excellence for the Future Award - Advanced Legal Research
Judge Edward and Doris A. Thompson Award for Excellence in Trial Advocacy

·Tulane University, New Orleans, LA - Bachelor of Arts (Honors, Psychology) 1993

Professional:
· *Smiley & Smiley, LLP*
Managing Partner & Senior Trial Attorney, January 2001 - present
Associate, June 1996 - December 2000
Law Clerk, September 1993 - June 1996
Major verdicts and settlements in plaintiffs' personal injury, medical malpractice and wrongful death litigation

· *Adjunct Clinical Instructor of Law - Brooklyn Law School*, Trial Advocacy Program (1998-2004)

· *The Mentor Esq. Podcast – A Podcast for Lawyers*

- Founder & Host (2019 – Present)

· *New York "Super Lawyer"*
2010, 2011,2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025

Bar Admissions:
- The United States Supreme Court
- New York State Courts
- United States Eastern District, Southern District & Northern District of New York
- United States District Court of Vermont

Organizations/Affiliations:

·New York State Academy of Trial Lawyers
-President (May 2017 – May 2018)
-President-Elect – (April 2016- May 2017)
-Vice President – 1st Dept. (July 2013-May 2016)
-Executive Committee (May 2019 – present)
- Board of Directors (2013- present)
- Judicial Screening Committee (2013- present)
- Master CLE Instructor (2020 – present)
- CLE Instructor (2013 – present)

·New York City Trial Lawyers Alliance
-Chairman of Board of Governors (July 2017 – July 2019)
-President (July 2015 – July 2017)
-Vice President (June 2013 – July 2015)
-Treasurer (June 2011 – June 2013)
-Secretary (June 2009- June 2011)
-Board of Directors (2000-present)

- Judicial Screening Committee, Kings County Democratic Party (2013)
- New York State Bar Association
- Brooklyn Bar Association
  Medical Malpractice Committee
  Supreme Courts Committee
- American Bar Association
- The American Association for Justice

- Brooklyn Law School Alumni Association
- National Order of Barristers
- Lime Rock Drivers Club
- Porsche Club of America (Connecticut Valley Region)
- Porsche Sim Racing League
- Sports Car Driving Association (SCDA)
- Just Hands Racing Foundation – Board of Directors & Legal Counsel

Authored Books

Smiley, Andrew J. *How to Successfully Litigate a Personal Injury Case – A Practical Guide,* 2022, The Mentor Esq. Handbook Series – Amazon Best Seller in Personal Injury Law

Smiley, Andrew J. *Successful Trial Skills – A Practical Guide to Jury Selection, Opening Statements, Direct & Cross Examinations and Closing Arguments*, 2024, The Mentor Esq. Handbook Series – Amazon #1 New Release in Trial Practice

Continuing Legal Education (CLE) Presentations:

(81) *Federal Court Confidence: Successfully Litigating Personal Injury Cases – Part 2: Depositions in Federal Court,* New York State Academy of Trial Lawyers, May 1, 2025

(80) *Federal Court Confidence: Successfully Litigating Personal Injury Cases – Part 1: Overview of the Federal Court Process,* New York State Academy of Trial Lawyers, April 3, 2025

(79) *Who's on the Hook?- Part 4: Litigation and Insurance Issues in SUM Cases,* New York State Academy of Trial Lawyers, January 8, 2025

(78) *Who's on the Hook?- Part 3: Litigation and Insurance Issues in Premise Liability Cases,* New York State Academy of Trial Lawyers, December 4, 2024

(77) *Who's on the Hook?- Part 2: Litigation and Insurance Issues in Construction Accident Cases,* New York State Academy of Trial Lawyers, November 6, 2024

(76) *Who's on the Hook?- Part 1: Litigation and Insurance Issues in Ride-Share and Rental Car Accident Cases,* New York State Academy of Trial Lawyers, October 2, 2024

(75) *Introducing Evidence and Impeaching Witnesses*, Office of The New York State Attorney General – Legal Education and Professional Development, September 26, 2024

(74) *Walking the Line: Settlement Negotiation Skills & Ethics,* New York State Academy of Trial Lawyers, July 9, 2024

(73) *Novel Negligence Cases – Part 2: How to Successfully Litigate Dram Shop Cases*, New York State Academy of Trial Lawyers, June 5, 2024

Continuing Legal Education (CLE) Presentations Continued:

(72) *Working with Experts*, Office of The New York State Attorney General – Legal Education and Professional Development, April 2, 2024

(71) *Novel Negligence Cases – Part 3: How to Successfully Litigate Ski Accident Cases*, New York State Academy of Trial Lawyers, March 6, 2024

(70) *Novel Negligence Cases – Part 1: How to Successfully Litigate Personal Trainer and Gym Negligence Cases*, New York State Academy of Trial Lawyers, January 3, 2024

(69) *Litigation Back to Basics – Part 3: Introducing Evidence and Impeaching Witnesses*, New York State Academy of Trial Lawyers, December 6, 2023

(68) *Litigation Back to Basics – Part 2: Working With Experts*, New York State Academy of Trial Lawyers, November 1, 2023

(67) *Construction Site Injury Litigation: Pursuing or Defending Claims Against Site Owners, Contractors, and Other Third Parties,* Strafford CLE/BarBri, October 17, 2023

(66) *Litigation Back to Basics – Part 1: Preparing and Conducting Depositions*, New York State Academy of Trial Lawyers, October 4, 2023

(65) *Depositions*, Office of The New York State Attorney General – Legal Education and Professional Development, September 28, 2023

(64) *How to Litigate a Medical Malpractice Case – Part 6: The Trial*, New York State Academy of Trial Lawyers, June 7, 2023

(63) *How to Litigate a Medical Malpractice Case – Part 5: Pre-Trial Preparation*, New York State Academy of Trial Lawyers, May 3, 2023

(62) *How to Litigate a Medical Malpractice Case – Part 4: Discovery & Depositions*, New York State Academy of Trial Lawyers, April 4, 2023

(61) *How to Litigate a Medical Malpractice Case – Part 3: Commencing the Action*, New York State Academy of Trial Lawyers, February 28, 2023

(60) *How to Litigate a Medical Malpractice Case – Part 2: Expert Selection*, New York State Academy of Trial Lawyers, February 1, 2023

(59) *How to Litigate a Medical Malpractice Case – Part 1: The Initial Screening*, New York State Academy of Trial Lawyers, January 4, 2023

(58) *How to Litigate a Construction Accident Case – Part 4:* Motion Practice, New York State Academy of Trial Lawyers, December 7, 2022

(57) *Preparing for Depositions: Best Practices for Asking and Answering Questions,* Office of The New York State Attorney General, 2022 Legislature Program, December 6, 2022

Continuing Legal Education (CLE) Presentations Continued:

(56) *How to Litigate a Construction Accident Case – Part 3: Depositions*, New York State Academy of Trial Lawyers, November 2, 2022

(55) *How to Litigate a Construction Accident Case – Part 2: Commencing The Action*, New York State Academy of Trial Lawyers, October 3, 2022

(54) *Trial Series: Part 2 - Opening Statement Webinar,* Queens County Bar Association, September 22, 2022

(53) *How to Litigate a Construction Accident Case – Part 1: An Overview of New York Labor Law,* New York State Academy of Trial Lawyers, September 7, 2022

(52) *How to Litigate a Catastrophic Automobile Accident Case – Part 6: The Trial,* New York State Academy of Trial Lawyers, July 6, 2022

(51) *How to Litigate a Catastrophic Automobile Accident Case – Part 5: Mediation and Settlement,* New York State Academy of Trial Lawyers, June 2, 2022

(50) *How to Litigate a Catastrophic Automobile Accident Case – Part 4: Expert Depositions,* New York State Academy of Trial Lawyers, May 4, 2022

(49) *How to Litigate a Catastrophic Automobile Accident Case – Part 3: Liability and Damages Experts,* New York State Academy of Trial Lawyers, April 6, 2022

(48) *How to Litigate a Catastrophic Automobile Accident Case – Part 2: Commencing the Action,* New York State Academy of Trial Lawyers, March 2, 2022

(47) *How to Litigate a Catastrophic Automobile Accident Case – Part 1: The Investigation,* New York State Academy of Trial Lawyers, February 4, 2022

(46) *Anatomy of a Trial, a Trial Skills Series – Part 5: Summations,* New York State Academy of Trial Lawyers, January 5, 2022

(45) *Anatomy of a Trial, a Trial Skills Series – Part 4: Cross-Examination,* New York State Academy of Trial Lawyers, December 1, 2021

(44) *Anatomy of a Trial, a Trial Skills Series – Part 3: Direct Examination,* New York State Academy of Trial Lawyers, November 3, 2021

(43) *Anatomy of a Trial, a Trial Skills Series – Part 2: Opening Statements,* New York State Academy of Trial Lawyers, October 6, 2021

(42) *Anatomy of a Trial, a Trial Skills Series – Part 1: Jury Selection,* New York State Academy of Trial Lawyers, September 10, 2021

(41) *How to Successfully Litigate a Personal Injury Case Series - Part 7: It's a Wrap!,* New York State Academy of Trial Lawyers, July 7, 2021

Continuing Legal Education (CLE) Presentations Continued:

(40) *How to Successfully Litigate a Personal Injury Case Series - Part 6: The Trial,* New York State Academy of Trial Lawyers, June 2, 2021

(39) *How to Successfully Litigate a Personal Injury Case Series - Part 5:Pre-Trial Disclosures and Gearing up for Trial,* New York State Academy of Trial Lawyers, May 5, 2021

(38) *How to Successfully Litigate a Personal Injury Case Series - Part 4: Depositions,* New York State Academy of Trial Lawyers, April 7, 2021

(37) *How to Successfully Litigate a Personal Injury Case Series - Part 3: Your Adversary, the Preliminary Conference and Initial Discovery,* New York State Academy of Trial Lawyers, March 3, 2021

(36) *How to Successfully Litigate a Personal Injury Case Series - Part 2: Early Settlement, Jurisdiction, Venue & Commencing The Lawsuit,* New York State Academy of Trial Lawyers, February 3, 2021

(35) *How to Successfully Litigate a Personal Injury Case Series - Part 1: Getting the Case, Investigation and Ready to File,* New York State Academy of Trial Lawyers, January 6, 2021

(34) *Brick by Brick: Building a Personal Injury Practice,* New York State Academy of Trial Lawyers, December 10, 2020

(33) *Working with Experts to Build Your Case,* New York State Academy of Trial Lawyers, October 8, 2020

(32) *Fitness Industry Liability: Gyms, Trainers and Waivers*, The Mentor Esq. Podcast, September 8, 2020

(31) *Let's Make a Federal Case Out of It: Litigating Personal Injury Cases in Federal Court,* New York State Academy of Trial Lawyers, June 9, 2020

(30) *Crisis Management - The Corona Virus Pandemic,* The Mentor Esq. Podcast, April 9, 2020

(29) *Do You Have a Federal Tort Claims Act Case in Your Office,* New York State Academy of Trial Lawyers, December 10, 2019

(28) *Auto and Truck Claims, Accidents and Litigation 2019 – Evaluating Damages and Use of Experts*, New York State Bar Association, September 9, 2019

(27) *Thoughts and Strategies in the Ever-Evolving Product Liability Litigation – The Plaintiff's Perspective*, The Defense Association of New York, March 12, 2019

(26) *Trial Techniques: Lessons on Dealing with Millennial Jurors; Summations; Requests to Charge and Post-Trial Motions*, The Defense Association of New York, January 31, 2019

(25) *Trial Techniques: Interactive Lessons from the Plaintiff and Defense Perspectives*, The Defense Association of New York, September 17, 2018

Continuing Legal Education (CLE) Presentations Continued:

(24) *Punitive Damages – What to Plead, What to Prove: Medical Malpractice*, New York State Academy of Trial Lawyers, June 8, 2017 & June 21, 2017

(23) Presenter on Evidence, *2016 Annual Update, Precedents & Statutes for Personal Injury Litigators*, New York State Academy of Trial Lawyers, September 30, 2016

(22) *Medical Malpractice in New York: A View from All Sides: The Bench, The Bar and OCA,* New York State Bar Association, October 11, 2015

(21) *Effectively Using Experts in Personal Injury Cases,* Lawline, October 8, 2015

(20) *Killer Cross Examination Strategies,* Clear Law Institute, April 21, 2015

(19) *Powerful Opening Statements,* Clear Law Institute, January 13, 2015

(18) *The Dram Shop Law: New York Liquor Liability,* Lawline.com, November 20, 2014

(17) *Killer Cross Examination Strategies,* Lawline.com, November 20, 2014

(16) *Trial Techniques: Tricks of the Trade Update,* Lawline.com, October 14, 2014

(15) *Personal Trainer Negligence Update,* Lawline.com, October 14, 2014

(14) *Trial Techniques – Part 2: Cross- Examination & Closing Arguments*, Brooklyn Bar Association, May 15, 2014

(13) *Trial Techniques – Part 1: Jury Selection, Opening Statements & Direct Examination*, Brooklyn Bar Association, May 7, 2014

(12) *Health, Fitness & Adventure Sports Liability*, New York State Bar Association, August 1, 2013

(11) *Direct Exams: How To Make Your Witnesses Shine*, New York State Academy of Trial Lawyers, May 6, 2013

(10) *Opening Statements: A Recipe for Success*, Lawline.com, August 7, 2012

(9)*"You Had Me at Hello": Delivering an Effective and Powerful Opening Statement*, New York State Academy of Trial Lawyers, April 1, 2012

(8) *Preparing the Construction Accident Case*, New York County Lawyers Association, March 26, 2012

(7) *The Nuts and Bolts of a Trial*, New York State Academy of Trial Lawyers, October 24, 2011

(6) *Personal Trainer Negligence*, Lawline.com, March 22, 2011

Continuing Legal Education (CLE) Presentations Continued:

(5) *Trial Effectively Using Experts in Personal Injury Cases*, Lawline.com, May 4, 2011
Techniques: The Tricks of the Trade, Lawline.com, February 16, 2011

(4) *Practice Makes Perfect: Learn to Practice Like a Pro*, Lawline.com, January 18, 2011

(3) *Jury Selection 101, New York State Academy of Trial Lawyers*, December 14, 2010

(2) *Practical Guidelines for Getting Items into Evidence*, Lawline.com, March, 2010

(1) *Winning Your Case: Trial Skills that Count*, Lawline.com, August 21, 2009

Television Appearances
Fox News Channel
-The O'Reilly Factor
-What's Happening Now with Martha McCallum
- America's News Room
- Fox & Friends
-Fox Business Channel
-Neil Cavuto
-Money with Melissa Francis
CNN -Anderson Cooper 360
ET – Entertainment Tonight
Bloomberg TV
Headline News
Tru TV
Court TV
The Morning Show with Mike and Juliet

Interests, Hobbies:

High-Performance Driving Events, Lime Rock Drivers Club, Porsche Enthusiast, Sim Racing, Tennis, Lego, Cooking, Yoga

UNITED STATES DISTRICT COURT
DISTRICT OF VERMONT

----------x

RICHARD GRAJEDA,

2:20-cv-00165

(Reiss, J.)

Plaintiff,

-against-

VAIL RESORTS INC., VAIL RESORTS MANAGEMENT COMPANY, and OKEMO LIMITED LIABILITY COMPANY d/b/a OKEMO MOUNTAIN RESORT,

Defendants.

----------x

PLAINTIFF'S MEMORANDUM OF LAW IN SUPPORT OF HIS MOTION *IN LIMINE* TO EXCLUDE DEFENSE EXPERT BIOMECHANICAL ENGINEER, IRVING SCHER, FROM TESTIFYING AT TRIAL

Andrew J. Smiley, Esq.
SMILEY & SMILEY, LLP
122 East 42nd Street - 39th Floor
New York, New York 10168
(212)-986-2022
asmiley@smileylaw.com

Attorneys for Plaintiff
RICHARD GRAJEDA

TABLE OF CONTENTS

TABLE OF AUTHORITIES

CASES Page

United States Supreme Court

First Circuit Court of Appeals

Second Circuit Court of Appeals

Third Circuit Court of Appeals

Ninth Circuit Court of Appeals

Federal District Courts

STATUTES

PRELIMINARY STATEMENT

The defendants' biomechanical engineer expert witness, Irving Scher (hereinafter "Scher"), intends to testify that the plaintiff, Richard Grajeda (hereinafter "Ric"), could not have slid under padding in front of the snowmaking pole; that Ric's catastrophic injuries which rendered him paraplegic were actually sustained when he struck properly installed padding; and that Ric did not sustain his injuries as a result of hitting a steel snowmaking pole. Scher's opinions are not based on the actual facts of this case or upon any peer-reviewed methodology. To support his opinions, Scher did not do any real-world testing of the padding involved nor did he perform an in-person inspection of the ski trail, snow conditions, or snowmaking equipment involved in Ric's accident of December 19, 2019. Instead, two (2) years after the accident, Scher created a computer simulation model in an attempt to re-create Ric's accident to determine the injuries Ric would have sustained upon striking the padding. The computer model was created by Scher solely for this case, has not been peer-reviewed or validated to show that it can accurately predict real-life injuries, has no known error rate, and is not based upon any accepted scientific methodology.

Furthermore, the data which Scher inputted into his computer model was speculative since he entered values for Ric's speed, body orientation, point of impact and angle of impact, all of which he acknowledges are unknown. Scher concedes that there are no peer-reviewed studies in existence which have evaluated the forces required upon the thoracic spine to cause a spinal cord injury like the one Ric sustained, yet he attempts to opine, through his computer model, with speculative data, that Ric's injuries were caused by striking protective padding which is designed to mitigate such injuries. Additionally, plaintiff's rebuttal expert, Dr. J.Q. Campbell, conducted real-world crash testing to test the accuracy of Scher's computer model. The real-world crash testing by Dr. Campbell showed Scher's model failed to accurately predict the forces generated during an impact with the padding involved in this case.

If permitted to testify by this Court, Scher would be the first biomechanical engineer in the world to opine to within a reasonable degree of scientific certainty, based upon a computer model, as to the forces required to cause a spinal cord injury in the thoracic spine. Scher's assumptions about the forces required to cause a spinal fracture of the thoracic spine are not based on any generally accepted scientific studies. Scher fails to cite to any peer-reviewed scientific literature which supports his claim that a skier can be paralyzed from striking padding which is properly installed in front of a snowmaking station. Instead, Scher created 71 different computer simulations with different input values that he tweaked to obtain results he sought, failed to maintain and provide the input data used for the 71 simulations, and then failed to maintain and provide the output data generated from the simulations. Scher has already been precluded in a ski accident case by a United States District Judge for attempting to do the exact same thing he is doing in this case:

> "Scher created a computer simulation using the computer program MADYMO. Scher ran several simulations in MADYMO, using different estimates for Scott's speed and the conditions on the ski slope. He tweaked the variables in the simulation until he was able to create a simulation that could result in injuries similar to Scott's injuries. Then based on that simulation, he opined on Scott's body movements as he fell, and the forces that Scott experienced when he hit the ground."
>
> "Scher's simulation, and the opinions based on it, are inadmissible because they are based on guesswork rather than the facts of Scott's accident."

(*Rogers v. K2,* 348 F. Supp. 3d 892 *; 2018 U.S. Dist. LEXIS 217233, Ex. O).

Scher also inappropriately opines on Ric's anatomy, the injuries Ric sustained, and specific causation of Ric's injuries. Scher is not a medical doctor and has no medical training. He is not qualified to opine on medical issues and causation. Scher has been previously precluded by a United States District Judge for attempting to opine on medical causes of an injury: "*Dr. Scher is attempting*

to opine about the medical cause of a spinal condition, a question for which he lacks the requisite medical knowledge and experience" (*Estate of Leng v. City of Issaquah,* 2020 U.S. Dist. LEXIS 237720, (W.D. Wash. 2020).

The medical evidence in this case clearly establishes that Ric was paralyzed as a result of the injuries sustained when he collided with a steel snowmaking pole. The defense has failed to offer any evidence from a qualified medical professional to support Scher's opinion that "*Mr. Grajeda's injuries are more consistent* (sic) *contacting the Gilman TS-2 padding system.*" (Ex. A, p. 39 (2)). As will be set forth in greater detail herein, Scher has been precluded in numerous other jurisdictions for his attempts to opine about causes of an injury, as he is doing here, especially where there is no medical testimony to support his opinions. Scher's opinions in this case are based upon speculation, lack proper scientific foundation and methodology, and exceed his area of expertise. For these reasons, and for the reasons set forth further herein, Scher's testimony should be excluded in its entirety pursuant to Fed. R. Evid. 702.

STATEMENT OF FACTS

On December 19, 2019, Richard Grajeda ("Ric"), then 21 years-old, was skiing at Okemo Mountain Resort located in Ludlow, Vermont. Ric was a beginner skier and was skiing on a beginner trail known as "Open Slope" located within a slow-skiing zone by the base of the mountain. As he was skiing down the Open Slope trail nearing the base lodge, he fell on ice, slid, and crashed into an improperly padded and exposed steel snowmaking pole of a HDK snowmaking gun which was located in the middle of the trail. The snowmaking gun was purportedly padded by what is known as a "Gilman Tower Shield". The bottom of the padding was not flush with the snow surface, thereby leaving a gap which enabled Ric's body to slide under the padding and strike the bare and exposed steel snowmaking pole. Deposition testimony reveals that when the crash occurred, the Gilman

Tower Shield came loose and fell on top of Ric. As a result of the impact with the steel pole, Ric was instantly rendered paraplegic.

Elizabeth Gilman, the President of Gilman Corporation, manufacturer of the Gilman Tower Shield, testified on two occasions. She explained the energy absorbing properties of the shield, including its two foam cylinders inside a blue blanket, which are designed to decompress and absorb forces in the event of a crash. She further stated that a skier has never been seriously injured from colliding with a properly installed Gilman Tower Shield - a protective "shield" which makes it impossible for a skier to contact a pole it is shielding.

The Evidence Clearly Establishes That Ric Slid Into The Steel Snowmaking Pole

Statements given by Ric and his friend/witness David Villani to ski patrol contemporaneously with the happening of the accident state that he "slid into a pole" and was "wrapped around a pipe" (Ex. D. pp. 29 and 45-46). David Villani prepared a statement on December 23, 2019 which included the following:

> "I did not see the initial impact of the crash as I was on the right side section and Ric was on the left side section of the trail. When I reached Ric, he was laying facedown next to a snowmaking device (**essentially a metal pole) with his side still touching the pole**. I made sure that Ric stayed in the same position until the ski patrol arrived to provide assistance. I spoke with two bystanders who saw the crash occur and rushed to help Ric. They told me that they saw Ric fall and then slide with speed towards the snowmaking pole. **They stated that Ric slid underneath the foam protection of the pole and hit into the metal pole itself on the ground**. The bystanders then rushed to help rip off the foam, which at that point appeared to be pinning Ric down. At this point Kyle and I reached Ric and ski patrol was alerted of the accident." (See, Ex. E, "Villani witness statement" **emphasis added**).

Ric testified at his deposition about the impact: "*I slid down on my stomach, legs down facing up the mountain. As I was sliding, I felt a dip in the snow, and then I went under something, and I slammed into a metal pole or a steel pole*." (Ex. F, p. 267). Ric's friend/witness Kyle Cotter, arrived on the scene prior to ski patrol and observed Ric **"***making a T with his body against the pole***"** (Ex. G, p.63:6).

The first Okemo/Vail ski patroller to arrive on the scene was Mike Morabito. Mr. Morabito testified that Ric was found **"***face down up against the snow making stand"* which is a metal "*pipe*" of three to four inches in diameter**.** Mr. Morabito suspected that Ric had sustained a spinal injury based upon Ric's position against the post *("He was up against the post-and his body was-- like I said before a little angulated that way, he was definitely not straight"*) (Ex. H, pp.29:21-30:9). Okemo/Vail ski patroller and lead accident investigator, Chelsey Manley, also testified that when she arrived upon the scene she observed Ric "*laying directly next to and up against the snow making pipe*." (Ex. I, pp.54:2-55:6).

The only witness the defense has put forward to support a claim that Ric struck a properly installed padding system, and not the steel pole, is Ray Kennedy. Mr. Kennedy, Okemo's chief of snowmaking, came forward two days after Ric's accident and gave a statement that Ric "skied right into the tower gun pad. It fell over right onto him." (Ex D, p.48). However, when pressed at his deposition, Mr. Kennedy confessed that, at the time of Ric's accident, he was inside a building at the base of the mountain, approximately 500-550 feet downhill, on a cell phone, looking through a window and he could not see whether Ric impacted the pad or pole. (Ex. J, pp.34:17-39:16, pp. 54:15-55:4).

Additionally, the medical records establish that Ric was injured when he struck a pole. Ludlow Ambulance was first on the scene and received Ric from ski patrol at the base of Okemo Mountain. The Ludlow Ambulance report states:

> "The patient was brought to our awaiting stretcher by Ski Patrol via toboggan. I received report from ski patrol that the patient had struck a pole, and was complaining of chest and hip pain, and unable to feel his legs*."*
>
> ***
>
> "He does not recall any additional impacts, however bystanders state he then slid underneath the padding on the pole." (Ex. K, p.2).

Ric was transported to Dartmouth-Hitchcock Medical Center and the records from his admission are replete with entries stating "*Description of events leading up to injury includes patient was helmeted skier at Okemo Mountain. He went over an icy patch and ran into a pole, hitting his back and head*." (Ex. L). Ric was evaluated by plaintiff's disclosed medical expert, Dr. Jeffrey Perry, who is Board Certified in Rehabilitation Medicine. Dr. Perry opines that:

> "It is my opinion to a reasonable degree of medical certainty, that Ric's sliding into a snow making pole at Okemo Mountain on December 19, 2019 was the competent producing cause of rendering him an ASIA C T9 paraplegic." (Ex. M).

The defendants have failed to offer any medical evidence, or any testimony from a qualified physician, to dispute that Ric was paralyzed from striking a steel snowmaking pole, or to offer an opinion that Ric's injuries are more consistent with striking a Gilman Tower Shield pad. The only medical expert disclosed by the defense, Dr. Lynne Nicholson, did not offer any opinions on causation. Instead, the defense relies solely upon Scher, an engineer with no medical training or expertise, to opine that Ric's injuries were not caused by striking a steel snowmaking pole, but that "*Mr. Grajeda's injuries are more consistent contacting the Gilman TS-2 padding system.*" (Ex. A p. 39).

ARGUMENT
SCHER'S OPINIONS ARE INADMISSIBLE PURSUANT TO FEDERAL RULE OF EVIDENCE 702

The admissibility of proposed expert testimony requires the application of Fed. R. Evid. 702, which provides:

> 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 opinion or otherwise if (1) the testimony is based on sufficient facts or data; (2) the testimony is the product of reliable principles and methods; and (3) the witness has applied the principles and methods reliably to the facts of the case.

The decision of whether to admit expert testimony lies within the district court's discretion. *McCullock v. H.B. Fuller Co.*, 61 F.3d 1038, 1042 (2d Cir. 1995). While the proponent of expert testimony has the burden of establishing by a preponderance of the evidence that the admissibility requirements of Fed. R. Evid. 702 have been met, the trial court is the ultimate "gatekeeper" of expert evidence and must "ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable." *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). The reliability assessment focuses on whether the reasoning or methodology underlying the expert testimony is scientifically valid. *Id*. at 589-92. To be reliable, expert testimony, and the scientific evidence on which it is based, must have "a traceable, analytical basis in objective fact." *Bragdon v. Abbott*, 524 U.S. 624, 653 (1998); *see also*, *Labarge v. Joslyn Clark*, No. 03-CV-169S, 2006 U.S. Dist. Lexis 69025 (W.D.N.Y. Sept. 26, 2006).

A proposed expert's testimony must be grounded in the methods and procedures of science, and must be more than unsupported speculation or subjective belief. *Daubert*, 509 U.S. at 590. An expert's conclusory allegations "absent a statement of the facts upon which they are based, are as insignificant as the conclusory allegations of a party, his attorney, or any other witness." *Prohaska v. Safamor*, S.N.C., 138 F. Supp. 2d 422, 437 (W.D.N.Y. 2001). In assessing the reliability of an expert's methodology, the court should also consider whether the expert's opinion emanates from his own independent research or whether it was developed expressly for the purpose of litigation. *Washburn v. Merck & Co., Inc.*, 213 F.3d 627, No. 99-9121, 2000 WL 528649, at *2 (2d Cir. May 1, 2000). To warrant admissibility, it is critical that an expert's analysis be reliable at every step. *Id*. at 267. As the Third Circuit has explained, the *Daubert* "requirement that the expert testify to scientific knowledge—conclusions supported by good grounds for each step in the analysis—means that any step that renders the analysis unreliable under the *Daubert* factors renders the expert's testimony inadmissible." *In re Paoli R.R. Yard PCB*

Litig., 35 F.3d 717, 745 (3d Cir. 1994); *see also Heller v. Shaw Indus., Inc.*, 167 F.3d 146, 155 (3d Cir. 1999) ("The reliability analysis applies to all aspects of an expert's testimony: the methodology, the facts underlying the expert's opinion, the link between the facts and the conclusion, et alia."); *Amorgianos v. National R.R. Passenger Corp.*, 303 F.3d 256, 266 (2d Cir. 2002).

As will be demonstrated herein, each step in Scher's analysis is unreliable. He utilizes a computer model that he created solely for this litigation which has never been validated to show that it can accurately predict injuries sustained by a skier who strikes a Gilman Tower Shield. Scher inputs data into his model which he knows to be either speculative or contrary to the known facts specific to Ric's accident. Scher then improperly draws conclusions from the output data of his model that are not based upon generally accepted science. Scher expects us to take his word as to what the output data from his model revealed, since he did not save the raw output data from the 71 computer simulations he ran. Instead, all that was provided was a "summary" of data he created which cannot be tested or confirmed (Scher's summary is annexed hereto as Ex. "N").

As the Second Circuit clarified in *Amorgianos*:

> "In deciding whether a step in an expert's analysis is unreliable, the district court should undertake a rigorous examination of the facts on which the expert relies, the method by which the expert draws an opinion from those facts, and how the expert applies the facts and methods to the case at hand."

When an expert opinion is based on data, a methodology, or studies that are simply inadequate to support the conclusions reached, *Daubert* and Fed. R. Evid. 702 mandate the exclusion of that unreliable opinion testimony. *Id*. Here, Scher's testimony must be excluded because his opinions are speculative, not based on the facts in the record, and not the product of sound scientific methodology accepted within the scientific community.

Additionally, as set forth in greater detail *infra*, Scher opines on medical issues and opines

on causation of Ric's injuries for which he lacks the appropriate qualifications. Courts in this Circuit do not permit biomechanical engineers to testify regarding specific injury causation, or the specific cause of a particular injury, unless the expert has medical training. Scher has no medical training and must be precluded from offering opinions on whether Ric's injuries were caused by an impact with the Gilman Tower Shield as opposed to his colliding with a steel snowmaking pole.

A. SCHER'S COMPUTER SIMULATION MODEL IS NOT BASED UPON INDEPENDENT RESEARCH, HAS NO KNOWN ERROR RATE, HAS NOT BEEN PEER-REVIEWED OR PUBLISHED, AND DOES NOT ACCURATELY PREDICT REAL LIFE INJURIES

Scher created a computer simulation model solely for this litigation using LS-Dyna technology combined with Madymo human body modeling technology. Scher's model is novel and has not been validated or peer-reviewed to confirm it can predict injuries a skier would sustain upon striking a Gilman Tower Shield. The Madymo human computer model used to represent Mr. Grajeda has undergone validation for a variety of uses, but it has not been validated to accurately predict injuries of the thoracic spine, Scher's intended use. (Ex. C, ¶24). Scher did not follow the validation procedures for a computer model set forth in the peer reviewed literature:

> *"*Regardless of the use, confidence in computational simulations is only possible if the investigator has verified the mathematical foundation of the model and validated the results against sound experimental data."… "validation is defined as 'the process of determining the degree to which a model is an accurate representation of the real world from the perspective of the intended uses of the model.*'" Id.*

Validation is important partly because it tells us the error rate of a computer model for a specific use. The results of the computer model are compared to the results of a real-world experimental test. The difference between the results is the error. Scher testified: *"In terms of accuracy or precision, I think we're certainly within a few per cent for any position, velocity, orientation, all of that. I don't think the numerical calculations are going to be many per cent off."* (Ex. B, p.334: 8-12). But his testimony is just speculation and Scher has not performed any tests

to determine the accuracy of the Madymo dummy model to predict the extension forces required to fracture the thoracic spine. *(*Ex. C. at ¶¶28,29).

Scher did not have his computer model tested with real world crash test validation to see if it can accurately predict injuries a person would sustain upon colliding with a Gilman Tower Shield. (Id. at ¶¶30-46). **"**In determining whether a computer simulation is reliable, the court may consider whether the program has been or can be tested, has been subjected to peer review and publication, has a known or potential rate of error and has gained general acceptance in the relevant scientific community." *Valente v. Textron, Inc.*, 931 F. Supp. 2d 409, 420 (E.D.N.Y. 2013) (citing *Daubert*, 509 U.S. at 593, 94). "Even a generally accepted computer simulation program, like PC-Crash, which is 'based on the laws of physics and accepted principles of accident reconstruction,'…is not a reliable methodology in all factual circumstances." *Valente*, 931 F. Supp. 2d at 421. In *Valente*, the Court precluded an expert witness from testifying where the expert based his opinions on a computer model that was not validated to show that it reliably simulated an accident involving a golf-cart rollover and stated "…[I]n order to validate a simulation through real-world testing, an individual must put certain inputs into both the simulation and the real-world system and compare the results to see if 'they are similar enough within some desired degree of accuracy.'" *Id*. at 423; *see also*, *Lascano v. Lee Trucking*, 2007 N.Y. Misc. Lexis 6872 (Sup. Ct. N.Y. Co. 2007) (court precluded expert who "failed to convince this court that it is generally accepted and reliable to use an LS-Dyna simulation test without the follow-up of a real-life crash test validation").

Since Scher never tested or validated his computer model in the real-world, the plaintiff retained a biomechanics expert, Dr. J. Q. Campbell, to oversee actual crash testing of a dummy colliding with a Gilman Tower Shield to determine if Scher's computer model accurately predicted any of the impact forces he claims. The real-world crash testing conducted by the plaintiff shows that

Scher's computer model fails to accurately predict real world impact forces and injuries. (Ex.C, ¶¶4,5,6,7). In terms of injury, in the real-world crash test, the dummy showed no damage or injury when it collided with the Gilman Tower Shield. (*Id*. at ¶7 and Figure 1). The real-world crash testing also confirmed that Scher failed to accurately model the Gilman Tower Shield. In Scher's computer model the padding was soft and completely collapsed upon impact, contrary to the real-world testing, which confirmed Liz Gilman's testimony on how the Tower Shield is designed to compress, but not collapse, and create a relatively flat surface to distribute forces along the front surface of the padding. (*Id*. at ¶23). The real-world crash testing results show that Scher's computer model of the padding failed the validation test. The padding in Scher's computer model compresses too easily allowing the dummy to impact the pole through the padding resulting in higher forces and moments. Dr. Campbell's real-world validation test shows that Scher's padding computer model is unreliable and does not represent the physical Gilman Tower Shield padding. (*Id.* and Figure 8). Other than simply taking Scher's word for it, there is no objective reason to conclude that Scher's computer model can or would reliably recreate Ric's accident and resulting injuries. Indeed, the only real-world testing of an impact with a Gilman Tower Shield, performed by the plaintiff's expert herein, affirmatively shows that Scher's model fails to predict what Scher claims.

Additionally, Scher is unable to provide a known error rate for his modeling. Scher was asked about the error rate of his computer model:

> *Q. Do you know what an error rate refers to?*
>
> *A. You know, I've heard that in the context of court cases, but there's no real engineering definition of that. So no.*
>
> *Q. So, you don't know of any specific error rate associated with your computer modeling in this case?*
>
> *A. So, again, there's no engineering term*

> *of error rate. In terms of accuracy or precision, I think we're certainly within a few per cent for any position, velocity, orientation, all of that. I don't think the numerical calculations are going to be many per cent off.* (Ex. B, pp. 333:21- 334:12).

Scher fails to provide any scientific data in support of his claim, that the error rate of his model is "within a few percent." As explained by Dr. Campbell, there is certainly such a thing as an error rate in biomechanical engineering, particularly when determining the accuracy of a computer model and injury criteria. (Ex.C, ¶¶21,26-27, 29, ¶44-45). The true error rate of Scher's modeling is unknown, and therefore his computer model cannot be validated. No error rates were calculated by Scher. When error rates were estimated by Dr. Campbell, they showed large errors that would make a reliable scientific opinion impossible. (*Id*. at ¶63-3.e.).

Courts have routinely precluded an expert from offering opinions based upon computer modeling when there is no known error rate for the model; *see*, *Valente*, 931 F. Supp. 2d at 425 ("The Court also finds that Seluga's simulation model is not reliable because its error rate is unknown and cannot be determined….in fact Seluga did not even keep a record of the number of times that his simulation actually predicted a rollover"); *Daubert*, 509 U.S. at 594 ("Additionally, in the case of a particular scientific technique, the court ordinarily should consider the known or potential rate of error…and the existence and maintenance of standards controlling the technique's operation…."); *Nook v. Long Island R.R. Co.*, 190 F. Supp. 2d 639 (S.D.N.Y. 2002) (Standards and error rates are impossible to assess based on the information set forth in the Report and there is no information proffered from which the Court could gauge general acceptance of [the expert's] methodology.); *Snyman v. W.A. Baum Co., Inc*., 2008 U.S. Dist. LEXIS 103266 (S.D.N.Y Dec. 22, 2008).

The model Scher created for this case has not been peer-reviewed or published (Ex. B, pp. 280:2 - 283:10). "Another pertinent consideration is whether the theory or technique has been

subjected to peer review and publication." *Daubert*, 509 U.S. at 593. The fact that his model has not been peer reviewed or published highlights the unreliability of his model and his opinions, especially in light of the fact that Scher's proffered testimony is not based on any pre-litigation research he performed independently of this case on spinal cord injuries sustained by skiers colliding with Gilman Tower Shields. Scher was not "… being as careful as he would be in his regular professional work outside his paid litigations consulting… ." Fed. R. Evid. 702 (advisory committee note, 20000 amendment); *see also Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 152 (1999) (an expert's testimony must employ "the same level of intellectual rigor that characterizes an expert in the relevant field."). "If the proffered expert testimony is not based on independent research, the party proffering it must come forward with other objective, verifiable evidence that the testimony is based on 'scientifically valid principles.' One means of showing this is by proof that the research and analysis supporting the proffered conclusions have been subjected to normal scientific scrutiny through peer review and publication." *Daubert v. Merrell Dow Pharmaceuticals*, 43 F.3d 1311, 1317 (9th Cir. 1995). "Establishing that an expert's proffered testimony grows out of pre-litigation research or that the expert's research has been subjected to peer review are the two principal ways the proponent of expert testimony can show that the evidence satisfies the first prong of Rule 702." *Id*. at 1318. Here, Scher's analysis is not based on pre-litigation research nor has his claim that Ric could sustain a spinal cord injury from striking a Gilman Tower Shield been subject to peer review.

B. SCHER IMPROPERLY RELIES UPON SPECULATIVE FACTS AND INACCURATE DATA

Scher concedes that he does not know Ric's speed at the time of impact; the specific angle of impact; the specific orientation of Ric's body at the time of impact; the location of impact; the position of the snow gun; the position of the padding; or the distance Ric slid prior to impact (Ex. B, pp.24-29). Scher does not know the coefficient friction of the snow at the time of impact (*Id.* at p. 34); Ric's weight at the time of impact (*Id.* at p. 51); or what clothing Ric was wearing at the time of impact (*Id*. at p.407). Additionally, Scher acknowledges that the medical records show that Ric's injuries resulted from contact to the mid-thoracic region of his back (*Id*. at p.31), but when confronted with the fact that the Madymo computer dummy model he was using has not been validated for impacts to the back, Scher said he modeled an impact to Ric's side (*Id*. at 41; *See also*, Ex. C, ¶13). Scher also acknowledged that Ric's skis had fallen off before the impact and testified that he did not include skis on the dummy in his model, yet Scher's dummy model was fitted with short skis, each adding nine (9) pounds of weight to the model. (Ex. C, ¶ 15 and Figure 6). Other inaccuracies include Scher's use of a computer dummy model that was 16 pounds less than Ric's weight on the day of the accident (*Id*. at ¶14).

To be admissible under Fed. R. Evid. 702, an expert's opinion must be based upon "sufficient facts or data." *See, e.g.*, *In re Zyprexa Prods. Liab. Litig.*, 688 F. Supp. 2d 130, 145 (E.D.N.Y. 2009) ("An expert opinion based on insufficient facts, unsupported suppositions, or unreliable methodologies is not acceptable."); *See Zerega Ave. Realty Corp. v. Hornbeck Offshore Transp.*, 571 F.3d 206 (2d Cir. 2009); *Amorgianos*, 303 F.3d 256; *Lasek v. Vermont Vapor Inc. and Downing Properties, LLC.*, 196 Vt. 243, 95 A.3d 447, 453 (Vt. 2014) ("The trial court properly excluded the fire investigator's testimony because it was based on speculation."); *Nook*, 190 F. Supp. 2d at 643 ("Because the Report is based on assumptions and speculation, without objective scientific, technical

or factual foundation as to the conditions that may have existed at the time of decedent's death, its probative value is substantially outweighed by its potential for unfair prejudice, confusion of the issues and misleading the jury."); *Gen. Elec. Co. v. Joiner*, 522 U.S. 136 (1997).

Scher must be precluded from testifying because his computer modeling does not "fit" the facts of this case. *Blanchard v. Eli Lilly & Co*., 207 F. Supp. 2d 308 (D. Vt. 2002); *Nook*, 190 F. Supp. 2d 639. "In deciding whether a step in an expert's analysis is unreliable, the district court should undertake a rigorous examination of the facts on which the expert relies." *Amorgianos*, 303 F.3d at 267; *see also Valente*, 931 F. Supp. 2d 409; *Lynn v. Yamaha Golf-Car Co.*, 894 F. Supp.2d 606 (W.D. Pa. 2012) (expert precluded from testifying when his computer modeling was based upon inaccurate data). Scher's model also does not account for the snow conditions or snow surface at the time of the accident. There is no dispute that a divot, or depressed area of snow, existed below the padding and that the snow surface was uneven, yet Scher's model uses a flat smooth surface to represent the snow. The defendants allege that the Gilman Shield padding was properly affixed to the snowmaking pole by its straps at the time of the accident, yet Scher failed to affix the padding to the pole with its straps despite knowing this information:

> *Q.* *Was that model using straps to affix the pad to the pole?*
>
> *A.* *No.*
>
> ***
>
> *Q.* *But in the accident involving Rick, the way that the pad was affixed to the pole was by use of straps; correct?*
>
> *A.* *That's true.* (Ex. B, pp. 304:21-p.305:9)

Scher modeled two conditions: (1) a *"free"* condition, where there was no attachment to the pole at all; and (2) a *"fixed"* condition where the entire back medial edges of the padding were rigidly

attached to the pole. Neither condition in Scher's computer modeling represents the facts of this case. (Ex. C, ¶16). Additionally, despite the undisputed and overwhelming amount of evidence, as set forth *supra*, that Ric was found directly in contact with the base of the steel snowmaking pole and that the Gilman Tower Shield fell off the pole, Scher's model shows Ric coming to rest against the Gilman Tower Shield and the padding does not fall off. The model does not show how Ric could have hit the padding and then come to rest against the steel snowmaking pole. Scher offers complete speculation as to how Ric ended up against the pole:

> *"As he contacts and compresses the cylinder into a more oval shape, or at least one of them starts to wrap around it and create his injuries, that pad is also going to not just compress, but rotate around the pole. As the bottoms hit and the top ones come out, it can then -- if the buckle breaks -- fall on top of him, so he's actually under it at the end of the event. Alternatively, if -- and I remember there was testimony that they had to lift the pad up and over him. Because of the contour of the snow, if he's against part of the pad part – part of the pole at the end, they lift it up and out, he can slide down next to the pole at the very end."*

(Ex. B, pp.261:21-262:12). Scher offers no scientific basis or methodology upon which he can support this speculative opinion, other than claiming "that's just physics." Scher was asked if his computer model supported his theory for how Ric ended up against the pole:

> *Q. Did your modeling show that?*
>
> *A. I didn't run the model to show that. That was not the point of my model.*
>
> *Q. Is there any scientific testing you did that supports your theory that he could hit this padding, the padding performs the way it's supposed to and that he could then end up under the padding against the pole?*
>
> *A. Sure. That's just physics. That's Newton's and Euler's laws. Yeah. That's classic Newton physics. (Id.* at p. 263:2-12)
>
> ***
>
> *Q. So, you don't know what happened to the pad or to the dummy after the point of impact in the simulations you ran; correct?*

> *A. Well, we stopped the simulation at some point. But certainly, the laws of physics are enough to figure out what happens, and we've discussed that earlier.* (*Id.* at p. 322:14-20)

Using the only set of simulation input data provided by Scher, plaintiff's expert, Dr. Campbell, *did* run the simulation to completion and it showed that the computer dummy bounced off the padding and did not get anywhere near the pole. It also shows that the padding did not fall or become dislodged from the impact. (Ex. C, ¶12 and Figure 4). Scher's opinion regarding how the padding could have been in place against the snow surface at the time of impact, and still allow Ric to be against the unpadded pole when witnesses arrived is completely speculative and contradicted by his own computer modeling (*Id*.) Either Scher did not want to run his computer model to see what would happen to Ric and the padding out of fear that it would not support his theory, or he did in fact run the model to completion and, seeing that it did not support his theory or accurately predict what really happened in this accident, Scher chose not to disclose his findings. Either way, there can be no doubt that Scher's computer model fails to accurately reflect the conditions existing at the time of the accident. "A trial judge may exclude expert testimony that is irrelevant – testimony that does not fit with the facts of the case." *Reali v. Mazda Motor of Am., Inc.*, 106 F. Supp. 2d 75, 78 (D.Me. 2000) (citing to *Daubert*, 509 U.S. at 591-93 and *Bogosian v. Merecedes-Benz of No. America, Inc.*, 104 F.3d 472, 479 (1st Cir. 1997) (excluding as irrelevant expert testimony because in performing test the expert "did not, in any way, attempt to replicate the known facts surrounding the injury producing event").

Furthermore, despite uncontradicted evidence that Ric slid under the Gilman padding and into the snowmaking pole, Scher creates his own facts, stating "*Mr. Grajeda could not have slid under the subject Gilman TS-2 padding system and contacted an unpadded portion of the HDK snowmaking*

gun base." (Ex. A, p.20). Scher purportedly bases this opinion upon "photogrammetry"[1] using a single photograph taken hours after Ric's accident and a 3D model from a laser scan of the snowmaking station taken more than a year after Ric's accident on February 5, 2021 (See, Ex. A, Fig. 12, and Ex. B, pp.159:9 - 161:16). The defense admits that it does not know who placed the padding as depicted in the single photo[2] upon which Scher relies and not one witness has identified the padding in the photo as the actual padding, or its orientation, at the time of the accident.

Additionally, the evidence is undisputed that numerous witnesses and ski patrol members were in the vicinity of the snowmaking pole rendering aid to Ric at the accident scene, thus likely disrupting the snow surface surrounding the area. Scher never took photographs or measurements of the snow surface conditions at, around, or below the padding at the time of the accident; and Scher did not take any photographs or measurements from the accident scene upon which he can base his opinions. Scher did not take any such measurements or photographs because he has not been to Okemo since several years *prior* to Ric's accident when he was there previously as an expert for Okemo in the matter of *Brian Kearney v. Okemo et al.* in March 2016. (*Id.* at p. 180)[3]. Scher never inspected the accident scene in person[4]; never took measurements of the snowmaking station involved, depth of the snow, height of the pad from the ground, angle of the snow gun, or position of the padding as it was at the time of Ric's accident; and not one witness has testified that the photo upon which Scher performed his "photogrammetry" depicts the position of the padding, or the surface conditions, as they existed at the time of Ric's accident. Dr. Campbell explains how Scher's photogrammetry analysis is deeply flawed (Ex.C, ¶ 10) and demonstrates how there was more than

[1] Scher does not offer any basis for claiming expertise in photogrammetry, a filed outside of biomechanical engineering. Scher's flawed photogrammetry methodology is addressed by Dr. Campbell (Ex. C, ¶ 10)

[2] *11. The defendants are unable to identify who placed a Gilman Tower Shield on the snowmaking station after its removal by bystanders upon the happening of the plaintiff's accident.* ***RESPONSE: Admit that Defendants are currently unable to identify this individual or individuals.*** Response to Notice to Admit, February 14, 2022

[3] Counsel for plaintiff herein was also counsel for plaintiff in the *Kearney* case.

[4] Scher alleges he conducted a "virtual inspection" which was a facetime with another defense expert, Mark Petrozzi, who was at Okemo. No measurements or photographs were taken by Scher.

sufficient room for Ric to slide under the padding as supported by witness accounts in this case (*Id*. at ¶9 and Figure 2).

Scher must be precluded from testifying that "*Mr. Grajeda could not have slid under the subject Gilman TS-2 padding system and contacted an unpadded portion of the HDK snowmaking gun base*" since the facts and data upon which he bases his opinion are not from the scene of the accident and are not based upon his own inspection and measurements. Scher creates his own facts and theories, unsupported by any evidence, and applies an unreliable methodology to bootstrap his conclusions. This is precisely the type of unscientific and result-oriented expert opinion that Fed. R. Evid. 702 and *Daubert* require district courts to exclude before it can reach and confuse the jury.

C. SCHER'S ASSUMPTIONS ON THE FORCES REQUIRED TO CAUSE A SPINAL CORD INJURY AT THE THORACIC LEVEL ARE NOT SCIENTIFICALLY SUPPORTED

Scher has not published any peer-reviewed articles on using a computer model to determine the forces required to cause the injuries Ric sustained in his accident, including thoracic spinal fractures or thoracic spinal cord injuries. (Ex. B, p.37: 14-18). Scher concedes that no biomechanical engineer has published any peer-reviewed articles on the forces required to cause thoracic spinal fractures or spinal cord injuries like those sustained by Ric:

> *Q.* *Why wouldn't you just use a previous peer-reviewed study that actually already analyzed the required loads or forces to create a thoracic spinal fracture from an extension moment?*
>
> *A.* *If there were one, I would be happy to do that. I couldn't find one.*

(*Id.* at p. 374: 5-11; *see also,* p. 356: 14-20)**.** Since Scher did not have peer-reviewed and accepted methodology to rely upon, he concocted his own formula based upon two different studies that examined injuries to discs in the *lumbar spine* - a completely different structure than the *thoracic* spine. Scher then applied a "factor of risk" from a 50-year-old study of 10 cadavers to the two *lumbar* studies to come up

with a value that he alone believes can accurately predict Ric's paralyzing thoracic spinal injuries**.** Scher was asked if the predictive values he created by combining three unrelated studies were based on any scientifically recognized methodology:

> *Q. Can you tell me any scientific literature that talks about the accuracy of scaling lumbar studies to thoracic spine injuries?*
>
> *A. I don't know specific literature for that, but I can tell you that biomechanical engineering scaling is done regularly. It's accepted in the field. There are lots of articles on it, and it's very common and well accepted.*
>
> *Q. Are you familiar with any peer-reviewed published literature that has scaled an Ebbesen factor to the Adams and Hutton results for purposes of evaluating thoracic spine injuries?*
>
> *A. No. I don't think there's any one article that's done my analysis already. Then I would just refer to that article and not have to do the analysis.*
>
> *Q. So, this is something that you came up with? Looking at two lumbar spine studies and then using the factoring to scale it to a predicative nature of a T9 spinal fracture?*
>
> *MR. AICHER: I'll object to the form. Go ahead.*
>
> *A. I did that for this particular analysis, and this technique is well accepted in the biomechanical engineering community.*
>
> *Q. Can you point to anything to support the statement you just made that applying an Ebbesen factor from a lumbar spine study or lumbar disc study to a study involving lumbar discs in Adams and Hutton to determine predicative injury values for a T9 thoracic spinal fracture?*
>
> *MR. AICHER: I'll object to the form. Go ahead.*
>
> *A. Yeah. So, there's nothing that's going to say this exact analysis already published. That's -- then I wouldn't have to do the analysis. No. There's nothing out there that says exactly that.*

(*Id.* at p.371:9-p.373:4*)*

Scher's opinion as to the forces necessary to replicate Ric's injuries is utter speculation and, as demonstrated herein, not based upon any known science. (Ex.C, ¶¶ 30,31,32). Scher attempts to prove the forces required to cause some of Ric's injuries, specifically an aorta tear and spinal fracture. Yet the studies Scher relies upon do not reference aorta tears or thoracic spinal fractures. (*Id.* at ¶¶33,34, 35). Scher creates his own set of injury values to predict the injuries Ric sustained in his accident, yet his methodology is not based on any known and accepted science and is completely unreliable. (Ex.C, ¶¶ 35 - 44). Scher's opinions are simply *ipse dixit* testimony which must be precluded. *Daubert*, 43 F.3d at 1317; *Kumho*, 526 U.S. at 152; *Joiner*, 522 U.S. at 146.

D. SCHER IS NOT QUALIFIED TO OFFER MEDICAL OPINIONS OR TESTIFY ABOUT INJURY CAUSATION

Scher is not a medical doctor and has no medical training or experience (Ex. B p.40). Yet Scher offers many medical opinions which he is not qualified to make, including: "*Mr. Grajeda's medical records and imaging do not contain evidence of significant direct contact of his back on the HKD snowmaking gun base (solid metal pole); "Mr. Grajeda's injuries are more consistent contacting the Gilman TS-2 padding system*;" "*it is likely he would have sustained additional rib fractures, spinous process fractures, localized ecchymosis, contusions, abrasions, and/or lacerations on his body where he contacted the pole*;" and "*There is no physical evidence found in his diagnosed injuries or imaging (from his medical records) to conclude that Mr. Grajeda contacted an unpadded portion of the HKD snowmaking gun base.*" (Ex. A, pp.28,39 and generally). Scher's report also contains a "Radiology Review" performed by "Dr. Checkoff," who assisted Scher with creating numerous annotated anatomical drawings contained in Scher's report (*Id.* at pp.11,12, 25, 26). Dr. Checkoff is an unknown person who is not a treating physician or a disclosed expert in this case. Scher should not be permitted to testify about a radiology review and medical diagrams provided by an unknown physician, simply because he includes it in his report. Scher has never conducted peer-reviewed research, or published any peer-reviewed

articles, on thoracic spine injuries or on spinal cord injuries. He has never treated a patient for injuries, worked in an emergency room, or examined a patient who collided with a snowmaking station. (Ex. B, pp. 404-405). He is not qualified to testify as to medical causation of injuries specific to Ric and should be precluded from offering any such opinions.

The Second Circuit has ruled that "because a witness qualifies as an expert with respect to certain matters or areas of knowledge, it by no means follows that he or she is qualified to express expert opinions as to other fields." *Nimely v. City of New York*, 414 F.3d 381, 399 n.13 (2d Cir. 2005). In the context of biomechanical engineers, the Southern District of New York has ruled that "biomechanical engineers are not qualified to testify 'as to whether [an] accident caused or contributed to any of plaintiff's injuries,' as this would amount to a medical opinion." *Bennett v. Target Corp*., 2020 U.S. Dist. LEXIS 2281 (E.D.N.Y. 2020), quoting *Rodriguez v. Athenium House Corp.*, No. 11-Civ-5534, 2013 U.S. Dist. LEXIS 32748, 2013 WL 796321 (S.D.N.Y. 2013). Courts have not permitted biomechanical experts to testify regarding specific injury causation, or the specific cause of a particular injury, unless the expert has medical training. *Thomas v. YRC Inc.,* 2018 U.S. Dist. LEXIS 24384 (S.D.N.Y. 2018); *Manlapig v. Jupiter*, 2016 U.S. Dist. LEXIS 31011, 2016 WL 916425 (S.D.N.Y. 2016) (biomechanic can testify to general injury causation, but not the specific cause of the injuries in question because he does not hold a medical degree and has never received any formal medical training); *Morgan v. Girgis*, 2008 U.S. Dist. LEXIS 39780, 2008 WL 2115250 (S.D.N.Y. 2008) (biomechanical expert qualified to testify about the nature and force generated by the accident in question and what effects that force has on the human body, but may not testify as to whether the accident caused the plaintiff's specific injuries because he lacks a medical background);(See also, *Layssard v. United States*, 2007 U.S. Dist. LEXIS 85830, (Louisiana Western District Court, 2007)(**"***Put simply, medical doctors are qualified--indeed, uniquely qualified--to offer opinions as to medical causation; bio-mechanical engineers are not*").

Scher has been appropriately precluded in numerous jurisdictions from offering his opinions on causation of a plaintiff's specific injuries. As referenced, *supra*, a District Court Judge in Washington ruled that "Dr. Scher is attempting to opine about the medical cause of a spinal condition, a question for which he lacks the requisite medical knowledge and experience." *Estate of Leng v. City of Issaquah,* 2020 U.S. Dist. LEXIS 237720, (W.D. Wash. 2020).

In *Cooper v. Thompson*, the Supreme Court of Alaska held that "any testimony about the specific causes of Thompson's injuries would exceed Dr. Scher's biomechanics expertise and amount to a medical diagnosis he was not qualified to make." *Cooper v. Thompson*, 353 P.3d 782 (Alas. 2015).

In *Wallace v. Pineda,* a Nevada court held that:

> "this Court is unwilling to allow Defendants' expert to testify concerning his second and third opinions, which essentially is, biomechanically, the force and other facts DR. SCHER identified from the collision are not consistent with causing certain injuries to Plaintiff WALLACE…To the degree DR. SCHER has published anything on biomechanics, he has not shown any of his work was applicable to Plaintiff WALLACE'S specific injuries."

*(*See, Ex. P, unpublished Order from *Wallace v. Pineda*, District Court, Clark County Nevada (2016).

In Washington State, a Superior Court Judge ruled:

> "Irving Scher's testimony shall be limited such that he shall not be permitted to testify about: (1) the probability that the collision injured the plaintiff, (2) whether Plaintiff sustained any injury in the collision, (3) the nature and extent of Plaintiff's injuries, and (4) any comparison of the crash forces to those experienced in daily living."

Forhan v. Altena, 2012 WL 6727465 (Wash. 2012)(Ex. Q).

Since Scher is not a medical doctor, lacks medical training, and has not conducted research or published on the topic of thoracic spine injuries or the forces required to cause a spinal cord injury, his opinions, statements, and diagrams contained within his report regarding medical evaluation and/or causation of Ric's injuries must be precluded.

CONCLUSION

For all of the above-mentioned reasons, the plaintiff, RICHARD GRAJEDA, respectfully requests that this Court grant his motion to exclude defendants proposed expert witness, Irving Scher, under Fed. R. Evid. 702, because his opinions are not based on the facts in the record; he failed to employ a sound and accepted methodology in reaching his conclusions; and he is not qualified to offer opinions as to the causes of Ric's injuries.

Dated: May 18, 2022
New York, New York

SMILEY & SMILEY, LLP

s/Andrew J. Smiley
Andrew J. Smiley, Esq.
Smiley & Smiley, LLP
122 East 42nd Street
39th Floor
New York, New York 10168
212-986-2022
asmiley@smileylaw.com

UNITED STATES DISTRICT COURT
DISTRICT OF VERMONT

----------x

RICHARD GRAJEDA,

2:20-cv-00165

(Reiss, J.)

Plaintiff,

-against-

VAIL RESORTS INC., VAIL RESORTS MANAGEMENT COMPANY, and OKEMO LIMITED LIABILITY COMPANY d/b/a OKEMO MOUNTAIN RESORT,

Defendants.

----------x

AFFIDAVIT OF COUNSEL

I, Andrew J. Smiley, Esq., of the firm Smiley & Smiley, LLP, hereby depose and say as follows:

1. I have been duly licensed to practice before the U.S. District Court for the District of Vermont since 1999.

2. I am counsel representing the Plaintiff, Richard Grajeda, in connection with this matter.

3. This Affidavit, and the exhibits annexed hereto, are submitted in support of plaintiff's Motion *In Limine* to Exclude Defense Expert Biomechanical Engineer, Irving Scher, from testifying at Trial.

4. Attached as Exhibit "A" is the report of Irving Scher, dated December 15, 2021;

5. Attached as Exhibit "B" is the sworn deposition testimony of Irving Scher, dated April 8, 2022;

6. Attached as Exhibit "C" is the Declaration of J.Q. Campbell, Ph.D., plaintiff's biomechanical engineering expert;

7. Attached as Exhibit "D" is the Okemo Investigation Report;

8. Attached as Exhibit "E" is the witness statement of David Villani;

9. Attached as Exhibit "F" are cited pages from the sworn deposition testimony of Richard Grajeda taken on August 18, 2021;

10. Attached as Exhibit "G" are cited pages from the sworn deposition testimony of Kyle Cotter;

11. Attached as Exhibit "H" are cited pages from the sworn deposition testimony of Mike Morabito;

12. Attached as Exhibit "I" are cited pages from the sworn deposition testimony of Chelsey Manley;

13. Attached as Exhibit "J" are cited pages from the sworn deposition testimony of Ray Kennedy;

14. Attached as Exhibit "K" is the Ludlow Ambulance Report;

15. Attached as Exhibit "L" is an excerpt from Plaintiff's admission to Dartmouth Hitchcock Medical Center;

16. Attached as Exhibit "M" is the report of Dr. Jeffrey Perry, dated November 29, 2021;

17. Attached as Exhibit "N" is a "summary" of results created by Irving Scher;

18. Attached hereto as Exhibit "O" is the case of *Rogers v. K2*, 348 F. Supp. 3d 892 *; 2018 U.S. Dist. LEXIS 217233(W.Dist.Wisc.);

19. Attached hereto as Exhibit "P" is the unpublished Order "RE: Plaintiff's Motion to Exclude Defendants' Expert Irving Scher" in the case of *Wallace v. Pineda,* District Court, Clark County Nevada (2016);

20. Attached hereto as Exhibit "Q" is an order from the case of *Forhan v. Altena,* 2012 WL 6727465 (Wash. 2012);

21. The above is true and accurate to the best of my knowledge.

Dated: May 18, 2022

Affirmed this 18th day of
May, 2022

ANDREW J. SMILEY, ESQ.
SMILEY & SMILEY, LLP
Attorney for Plaintiff

MADLYN I. SOLIVAN
Commissioner of Deeds
City of New York - No. 5-1071
Certificate Filed in New York County
Commission Expires 10/1/23

UNITED STATES DISTRICT COURT
FOR THE
DISTRICT OF VERMONT

RICHARD GRAJEDA, Plaintiff, v. VAIL RESORTS INC., VAIL RESORTS MANAGEMENT COMPANY, and OKEMO LIMITED LIABILITY COMPANY d/b/a/ OKEMO MOUNTAIN RESORT, Defendants.	)	Case No. 2:20-cv-00165

ORDER GRANTING IN PART AND DENYING IN PART PLAINTIFF'S MOTION TO EXCLUDE DEFENDANTS' EXPERT IRVING SCHER, PHD
(Doc. 85)

Plaintiff Richard Grajeda brings this negligence action against Vail Resorts Inc., Vail Resorts Management Company, and Okemo Limited Liability Company (collectively, "Defendants"), seeking damages for injuries he sustained in a collision while skiing at Okemo Mountain Resort ("Okemo"). Pending before the court is Plaintiff's May 18, 2022 motion to exclude Defendants' biomechanical engineering expert Irving Scher, Ph.D., P.E. ("Dr. Scher"). (Doc. 85.) Defendants opposed the motion on July 28, 2022 (Doc. 102), and Plaintiff replied on August 17, 2022. (Doc. 107.) The court held a hearing on the motion on September 27, 2022 and evidentiary hearings on January 13, 2023 and March 10, 2023 at which Dr. Scher testified.

Plaintiff is represented by Andrew J. Smiley, Esq., Guy I. Smiley, Esq., and Matthew D. Anderson, Esq. Defendants are represented by Kristen L. Ferries, Esq., Craig R. May, Esq., Habib Nasrullah, Esq., Joel P. Iannuzzi, Esq., and Thomas P. Aicher, Esq.

I. Factual Background.

On December 19, 2019, Plaintiff fell while downhill skiing with friends at Okemo on "Open Slope," which is a beginner trail. At the time, there were no issues with

visibility, but the weather was cold and the snow conditions were icy. Plaintiff had skied twice before, approximately seven years prior, and considered himself to be a beginner skier.

On his second ski run that morning, Plaintiff rode the B Quad chair lift to a ski trail called "Lower Mountain Road." As he approached the lower section of the ski trail, he encountered a group of ski school students crossing the trail in front of him. Plaintiff saw the group when they were fifteen to twenty feet ahead of him and veered to the left to avoid them. As he did so, he hit an icy patch and fell onto his left hip. His skis came off and he slid down the ski trail on his left side and then on his stomach. Plaintiff's head and shoulders faced uphill as he slid, so that he could not see where he was sliding. He testified in deposition: "As I was sliding, [I] felt a dip in the snow, and then I went under something, and I slammed into a metal pole or a steel pole." (Doc. 89-4 at 31.) He later stated: "The impact was very hard on my back. I could almost feel it reverberating or something." (Doc. 98-12 at 3.)

Okemo employee Ray Kennedy saw Plaintiff ski toward a snowmaking station, then saw the station's Gilman TS-2 padding "shudder" and fall from an "upright" position to lay horizontally. (Doc. 89-5 at 3-5.) He did not see the actual collision but testified that the padding was on the uphill side of the snowmaking equipment. At the time, he was looking out of a window in a building approximately 500 feet downhill from the snowmaking equipment.

Plaintiff's friend, Kyle Cotter, arrived at the accident scene soon after Plaintiff's collision and observed that Plaintiff "was underneath the pole, underneath the blue foam padding . . . within that little ravine of where that drop-off is" and that he was laying "[o]n his stomach[] . . . [b]asically making a T with his body against the pole." (Doc. 85-8 at 2-3.) At the time Okemo ski patroller Michael Morabito arrived at the scene, Plaintiff "was up against the post. And his body was a little angulated that way, he was definitely not straight." (Doc. 85-9 at 3.)

Ski patroller Mary Mancino responded to the scene with Mr. Morabito and observed that Plaintiff "was up against a snow making station . . . against, like, the

padding in front of the snow making station." (Doc. 104-1 at 3.) In response to questioning, Ms. Mancino testified in her deposition that there was padding on the snowmaking gun when she arrived, and that "[Plaintiff's] body was – I believe – he was on his belly and his left side was to the snow making station. His head was uphill and the padding was kind of over him as if it had been dislodged a little bit[,]" meaning that "[t]he top [of the padding] was slightly out as it he had hit the bottom of the pad and knocked the top out." *Id.* at 3-4.

On December 19, 2019, the day of Plaintiff's collision, Okemo's assistant on-snow services and trail maintenance manager Kyle Kostura recorded that "all blue padding was covering their respective snowmaking infrastructure as of my departure at 0900." (Doc. 89-6 at 2.) Mr. Kostura testified in deposition that he did not specifically recall checking the Gilman TS-2 padding on the snowmaking station prior to Plaintiff's collision but that it "was part of a visual ride through" that he conducted from his snowmobile that morning to confirm that the padding straps were attached to the snowmaking station and that there were no gaps between the padding and the snow. (Doc. 89-7 at 3.)[1] He has never seen a pad that was not touching the snow surface, although he has sometimes needed to dig a buried pad out of the snow.

Plaintiff suffered significant injuries and was rendered a paraplegic. Elizabeth Gilman, President of the corporation that manufactures Gilman TS-2 padding, is unaware of an incident in which a skier was seriously injured when he or she collided with Gilman TS-2 padding. She testified that a Gilman TS-2 pad should prevent a skier from striking the padded pole:

> So if the individual were to hit the blue blanket where the cylinders are it is designed to crumple to decelerate him to stop him from actually ending up hitting the metal object behind it. It is impossible to get through the blanket and those two tower cylinders to get to that object.

(Doc. 98 at 20) (quoting Doc. 96-4 at 68).

---

[1] *See* Doc. 89-7 at 3 ("Q. Did you check on that specific snowmaking gun and padding that morning, December 19, 2020, before the lifts opened? A. It was part of a visual ride through, yes. Q. Do you have an actual recollection of check in on that? A. Not that specific one, no.).

Plaintiff claims Defendants inadequately padded the snowmaking station because the Gilman TS-2 padding did not extend to the base of the station, allowing him to collide with the station's bare metal pole. He also asserts that Defendants negligently placed the snowmaking station in the center of a beginner's trail.

II. Dr. Scher's Qualifications.

Dr. Scher is a Principal and Biomechanical Engineer at Guidance Engineering and Applied Research. He has a Ph.D. and Master of Science in Mechanical Engineering from the University of California, Berkeley, and a Bachelor of Science in Mechanical Engineering from the University of Pennsylvania. He specializes in biomechanical engineering and accident reconstruction and has published extensively in these areas, with a particular focus on snow sport safety.

Dr. Scher has chaired or served on boards and committees for organizations including the International Society for Snowsport Safety, the Safety Equipment Institute, and ASTM International. He served as an Adjunct Associate Professor of Clinical Physical Therapy in the Department of Biokinesiology and Physical Therapy at the University of Southern California from 2004 to 2009 and is currently an Affiliate Associate Professor in the Department of Mechanical Engineering at the University of Washington. Since 2017, he has provided expert testimony in depositions, trials, hearings, and arbitration proceedings in state and federal courts.

Dr. Scher provided several opinions in this case, which he described as "presented with a reasonable degree of mechanical engineering, biomechanical engineering, and scientific probability and are provided on a more probable than not basis." (Doc. 85-2 at 39.) Plaintiff asks the court to exclude Dr. Scher's testimony pursuant to Fed. R. Evid. 702 because his opinions are speculative, lack a proper scientific foundation, do not rely on proper scientific methodologies, and exceed his area of expertise. Plaintiff offers an expert rebuttal opinion by J.Q. Campbell, Ph.D. ("Dr. Campbell"), a biomechanical consultant specializing in biomechanics and accident reconstruction, which criticizes each of Dr. Scher's opinions.

III. Conclusions of Law and Analysis.

The admissibility of expert testimony is governed by Fed. R. Evid. 702:

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case.

Rule 702 obligates the court to serve as a gatekeeper for expert testimony, ensuring "that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand." *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 597 (1993).

Expert testimony that is admissible under Rule 702 may still be excluded if its "probative value is substantially outweighed by the danger of one or more of the following: unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative evidence." Fed. R. Evid. 403. These dangers are particularly pronounced in the context of expert testimony, given the unique weight that a jury may place on such testimony. *See Daubert*, 509 U.S. at 595 ("Expert evidence can be both powerful and quite misleading because of the difficulty in evaluating it. Because of this risk, the judge in weighing possible prejudice against probative force under Rule 403 of the present rules exercises more control over experts than over lay witnesses.") (internal quotation marks omitted).

"Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence." *Id.* at 596; *see also United States v. LaVictor*, 848 F.3d 428, 444 (6th Cir. 2017) (holding that "[a]ny emerging prejudice [from an expert witness's testimony] was addressed during cross-examination").

A. Whether to Consider Dr. Scher's Reply Declaration.

In response to Dr. Campbell's criticisms of his report and Plaintiff's motion in limine to exclude his opinions, Dr. Scher provided a thirty-page reply declaration with

thirty-five pages of attachments ("Dr. Scher's Declaration" or the "Declaration"). Plaintiff does not move to strike Dr. Scher's Declaration in full but argues the Declaration's paragraphs 18, 20, 27, 28, 31, 40, 41, 43, 45, and 46 or its attachments are improper and must be excluded because the Declaration was untimely and not properly disclosed.

"[I]f requested and allowed by the [c]ourt, a reply expert report may follow" a rebuttal report. *Sandata Techs., Inc. v. Infocrossing, Inc.*, 2007 WL 4157163, at *1 (S.D.N.Y. Nov. 16, 2007) (citing Fed. R. Civ. P. 26(a)(2)). Expert rebuttal evidence is allowed if it "is intended solely to contradict or rebut evidence on the same subject matter identified by another party [.]" Fed. R. Civ. P. 26(a)(2)(D)(ii); *see also United States v. Casamento,* 887 F.2d 1141, 1172 (2d Cir. 1989) ("The function of rebuttal evidence is to explain or rebut evidence offered by the other party."); *Suazo v. Ocean Network Express (N. Am.), Inc.*, 2023 WL 2330428, at *11 (S.D.N.Y. Mar. 2, 2023) ("Rebuttal evidence is properly admissible when it will explain, repel, counteract or disprove the evidence of the adverse party.") (internal quotation marks omitted) (quoting *Scott v. Chipotle Mexican Grill, Inc.*, 315 F.R.D. 33, 44 (S.D.N.Y. 2016)). "The scope of a rebuttal is limited to the 'same subject matter' encompassed in the opposing party's expert report, Fed. R. Civ. P. 26(a)(2)(D)(ii), but district courts have been reluctant to narrowly construe the phrase 'same subject matter' beyond its plain language." *Allen v. Dairy Farmers of Am., Inc.*, 2013 WL 211303, at *5 (D. Vt. Jan. 18, 2013) (internal quotation marks omitted).

A rebuttal expert may use new methodologies "for the purpose of rebutting or critiquing the opinions of [the opposing party's] expert witness," *Park W. Radiology v. CareCore Nat'l LLC,* 675 F. Supp. 2d 314, 326 (S.D.N.Y. 2009), but "a rebuttal expert report is not the proper 'place for presenting new arguments, unless presenting those arguments is substantially justified and causes no prejudice.'" *Dairy Farmers of Am.*, 2013 WL 211303, at *5 (alteration adopted) (quoting *STS Software Sys., Ltd. v. Witness Sys., Inc.*, 2008 WL 660325, at *2 (N.D. Ga. Mar. 6, 2008)).

Regardless of whether a party seeks leave to file a reply expert report, Rule 26(e) requires parties to supplement their Rule 26(a) expert disclosures in a timely manner "if

the party learns that in some material respect the disclosure or response is incomplete or incorrect, and if the additional or corrective information has not otherwise been made known to the other parties during the discovery process or in writing" or "as ordered by the court." Fed. R. Civ. P. 26(e)(1)(A)-(B). After the parties exchanged initial expert witness disclosures and reports in this case, the court issued a Fourth Amended Stipulated Discovery Schedule/Order requiring the parties to submit expert rebuttal reports on or before May 15, 2022 and to conduct any depositions of rebuttal experts by June 15, 2022. Because the pending motion to exclude Dr. Scher's opinions relies in part on Dr. Campbell's rebuttal report and deposition testimony, the court allowed Defendants to submit supplemental briefing in response to Dr. Campbell's rebuttal opinion.[2] As Dr. Scher's Declaration was filed with Defendants' response, Plaintiff's argument that it must be excluded on timeliness grounds is unpersuasive.

Dr. Scher's Declaration must nonetheless comply with the standards governing reply expert reports or supplemental disclosures. Like rebuttal reports, "[r]eply expert reports may be appropriate if the rebuttal reports raise new matters not discussed in the initial reports." *Ironshore Ins. Ltd. v. W. Asset Mgmt. Co.*, 2013 WL 2051863, at *2 (S.D.N.Y. May 15, 2013). If allowed by the court, a reply report "should be confined to

---

[2] In response to Plaintiff's objection to Defendants' request for additional time to respond to the motion in exclude Dr. Scher after Dr. Campbell's deposition, the court stated:

> I don't like the idea of having supplemental briefing when it's not necessary. If you had moved to exclude the witness[]'s testimony solely as a matter of law with no reference to your expert witness's opinion, I would agree with you, there's no reason. But you used your expert's opinion to impeach, for lack of a better word, their expert and to show why the court should exclude that opinion. So you injected Dr. Campbell into the argument as to why the engineer should be excluded. Having done that, *I will be hearing supplemental briefing*, and I'm going to allow [Defendants] to respond two weeks after the completion of Dr. [Campbell's] deposition. That will be an all-in response, and you probably will have to order an expedited transcript. But you are, at this point, on notice of what aspects of Dr. [Campbell's] opinion undercut or allegedly undercut your engineer's opinion. So that's how we're going to do it. And, if [P]laintiff requests an opportunity, well, they will have an opportunity to reply, I will allow that as well.

Transcript from May 23, 2022 Motion Hearing, at 54-55 (emphasis supplied).

new matters adduced by the defense and not to repetition of the plaintiff's theory of the case." *Id.* (internal quotation marks omitted). "It is [also] not an opportunity for the correction of any oversights in the plaintiff's case in chief." *Id.* (internal quotation marks omitted) (quoting *Crowley v. Chait,* 322 F. Supp. 2d 530, 551 (D.N.J. 2004)).

Similarly, an expert may not use Rule 26(e) supplementation as a guise for merely reiterating opinions from his or her initial report or adducing previously available information to strengthen those opinions. "It is only if the expert subsequently learns of information that was previously unknown or unavailable, that renders information previously provided in an initial report inaccurate or misleading because it was incomplete, that the duty to supplement arises." *S.W. v. City of New York*, 2011 WL 3038776, at *2 (E.D.N.Y. July 25, 2011) (internal quotation marks omitted) (quoting *Sandata Techs., Inc.*, 2007 WL 4157163, at *3-4).

Paragraph 18 of Dr. Scher's Declaration summarizes how he conducted his qualitative analysis of Plaintiff's injuries. He opines: "[t]hese types of analyses are biomechanical engineering analyses[.]" (Doc. 102-3 at 9, ¶ 18.) Because it does not respond to Dr. Campbell's report or adduce information correcting or completing his initial opinion on this subject, Paragraph 18 is not a proper subject for reply expert testimony or supplementation.

Dr. Campbell's report criticizes Dr. Scher's deposition testimony regarding how Plaintiff could have come to rest next to the snowmaking station's metal pole after striking the padding. Dr. Campbell opined: "Dr. Scher has not shown any calculations regarding 'the laws of physics' he used to reach this opinion and does not appear to have done any." (Doc. 85-4 at 8) (emphasis omitted). Paragraph 20 of the Declaration responds to Dr. Campbell's criticism by observing that during physical crash testing Dr. Campbell conducted as part of his rebuttal report, the test padding "demonstrate[d] the same . . . response that [Dr. Scher] described in [his] deposition[.]" (Doc. 102-3 at 11, ¶ 20.) Because Paragraph 20 focuses on an issue that was not raised in Dr. Scher's initial report and is "intended solely to contradict or rebut evidence on the same subject matter," Fed. R. Civ. P. 26(a)(2)(D)(ii), it constitutes a permissible reply.

Paragraphs 27, 28, and 31 of the Declaration respond to Dr. Campbell's criticism that Dr. Scher did not validate the computer model he created to assess whether Plaintiff's injuries could have resulted from striking the snowmaking station padding. Dr. Scher's initial report stated that he used the MADYMO human body computer model because of "the well-established and validated database of human and anthropomorphic testing device models" and opined that using MADYMO to "determine fall kinematics and vehicle occupant motions and loads in the body is . . . supported by peer-reviewed, scientific publications that document its validity." (Doc. 85-2 at 29.) The report did not address whether or how Dr. Scher validated the MADYMO human body element of his computer model and did not cite any peer reviewed studies in support. Instead, Dr. Scher's opinion was based on the assumption that because the individual components of his model have been validated, the combination of those components has also been effectively validated.

Paragraph 27 of the Declaration cites examples of how the MADYMO human body model has been validated by others, including by its creators and by a team of French biomechanical engineers in a peer-reviewed article on snowboarding backwards falls (the "Wei article"). Dr. Scher was aware of the MADYMO validation work and Wei article prior to his initial expert report but did not cite them specifically. Validation of the MADYMO model is thus information that should and could have been included in Dr. Scher's initial report. It is neither proper supplementation nor proper rebuttal.

In Paragraph 28 of his Declaration, Dr. Scher cites a 2022 thesis produced by a doctoral biomechanical engineering student that relied upon the Wei article's validation of the MADYMO model for assessing torso injuries (the "Dorsemaine thesis"). In addition to being proffered to rebut Dr. Campbell's criticism, the Dorsemaine thesis did not exist when Dr. Scher produced his initial expert report in December 2021. Paragraph 28 thus constitutes both permissible reply expert testimony and supplemental expert testimony under Rule 26(e).

Dr. Campbell opined that Dr. Scher could have validated his model by "trying to replicate [earlier experimental] tests with the M[ADYMO] human dummy model to

determine if the forces produced by the model corresponded to reality." (Doc. 85-4 at 20.) In response to Dr. Campbell's citation to a 2005 paper by Forman et al. supporting this proposition, Dr. Scher states in Paragraph 31 of the Declaration that he performed additional modeling work to replicate Forman et al.'s physical cadaver testing using his computer model, then compared the results to validate his model. This testing, however, ventures beyond "addressing the deficiencies" of Dr. Campbell's testimony regarding the MADYMO validation generally or "explaining why [Dr. Campbell's validation testimony] was defective." *Lidle v. Cirrus Design Corp.*, 2009 WL 4907201, at *5 (S.D.N.Y. Dec. 18, 2009). The Forman et al. research was available well before Dr. Scher's initial expert report. Because "[t]here is no reason that [Dr. Scher] could not have conducted those tests before his initial report was drafted," Paragraph 31 does not qualify as a proper reply or supplemental expert disclosure. *Id.* (observing that "plaintiffs' gamesmanship in this regard is precisely what the Rules were intended to prevent").

Similarly, Dr. Campbell's report critiqued Dr. Scher's modeling of the snowmaking station padding and stated that Dr. Campbell conducted experimental crash tests to validate Dr. Scher's padding model. Paragraph 40 of the Declaration states that in response to Dr. Campbell's rebuttal opinion, Dr. Scher verified the validity of his padding model by using the computer model to replicate a 2009 study of the force generated by a ballistic pendulum contacting a Gilman TS-2 snowmaking station pad. Dr. Scher's response in Paragraph 40 does not address the deficiencies of Dr. Campbell's analysis but attempts to introduce new evidence of new testing he could have conducted prior to his initial expert report. Paragraph 40 therefore also does not constitute an appropriate reply report or supplemental expert disclosure.

Paragraphs 41, 43, 45, and 46 of the Declaration address Dr. Campbell's criticisms of the data and methodology Dr. Scher used to calculate the "Factor of Risk," a ratio using the outputs of the computer model to assess the likelihood of injuries similar to Plaintiff's. These paragraphs of the Declaration respond directly to Dr. Campbell's rebuttal report and seek to contradict or rebut his opinions by pointing out deficiencies in his data and reasoning. This type of point-by-point rebuttal is the proper function of a

reply report: "to contradict, impeach or defuse the impact of the evidence offered by an adverse party." *Peals v. Terre Haute Police Dep't*, 535 F.3d 621, 630 (7th Cir. 2008) (citation omitted). "To the extent that [Dr. Scher] disclose[s] new opinions [or data] that were not included in [his] original reports, [these paragraphs] are clearly responsive to [Dr. Campbell's] report[] and do not cause prejudice or surprise to [Defendants]." *S.W.*, 2011 WL 3038776, at *4; *see also Suazo*, 2023 WL 2330428, at *12 (admitting rebuttal expert testimony that fell "[s]quarely within the scope" of the initial expert report). "[T]he rules do not require an expert to anticipate every argument made by an opposing expert or risk preclusion." *S.W.*, 2011 WL 3038776, at *4. Paragraphs 41, 43, 45, and 46 are thus appropriate reply expert testimony.

In addition to the Wei article, the Declaration's attachments include numerous PDF versions of websites about biomechanical engineering from an array of universities. These attachments are not responsive to Dr. Campbell's rebuttal report, nor do they supplement Dr. Scher's initial report with previously unknown or unavailable information. They are accordingly impermissible as a reply opinion or a supplemental disclosure.

Even when an expert reply or rebuttal report is improper, because preclusion of an expert report may "be a harsh sanction[,]" *Cedar Petrochemicals, Inc. v. Dongbu Hannong Chem. Co.*, 769 F. Supp. 2d 269, 278 (S.D.N.Y. 2011), courts must consider the following factors when determining whether to strike an improper expert report: "(1) the party's explanation for the failure to comply with the discovery order; (2) the importance of the testimony of the precluded witness; (3) the prejudice suffered by the opposing party as a result of having to prepare to meet the new testimony; and (4) the possibility of a continuance." *Softel, Inc. v. Dragon Med. & Sci. Commc'ns, Inc.*, 118 F.3d 955, 961 (2d Cir. 1997) (citing *Outley v. City of New York,* 837 F.2d 587, 590-91 (2d Cir. 1988)). The court allowed Defendants to submit supplemental briefing, and Dr. Scher's opinions are key to their argument that Plaintiff cannot prove the causation element of his negligence claim. Nonetheless, allowing Dr. Scher to bolster his opinions with information and new testing which were previously available to him causes both

prejudice and surprise to Plaintiff. Dr. Scher has been deposed. Plaintiff should not be required to re-depose him to address an impermissible reply or supplementation. As the court has denied Defendants' motion for summary judgment, this case is ready to be set for trial. A continuance at this late stage is not warranted. *See* Fed. R. Civ. P. 1. "Alternative sanctions would not effectuate the intent of the discovery rules, cure the prejudice to [Plaintiff], and allow this litigation to continue apace." *In re Terrorist Attacks on Sept. 11, 2001*, 2023 WL 2366854, at *7 (S.D.N.Y. Mar. 6, 2023). Although the court does not sanction Defendants, striking portions of an extensive Declaration must still be consistent with the Federal Rules. For this reason, the court has nevertheless considered Dr. Scher's improper rebuttal and supplementation and concludes that it does not affect the court's rulings herein.

For the foregoing reasons, in deciding the pending motion to exclude the court will not consider Paragraphs 18, 27, 31, or 40 of Dr. Scher's Declaration, or the Declaration's attachments consisting of websites about biomechanical engineering generally or university biomechanical engineering departments.

B. Whether Dr. Scher's Photogrammetric Analysis and Related Opinion Must Be Excluded.

Dr. Scher used photogrammetry to estimate the distance between the snow surface and the bottom of the padding attached to the snowmaking station with which Plaintiff collided. Comparing the typical chest and shoulder dimensions of a man of Plaintiff's height and weight with the results of his photogrammetric analysis, Dr. Scher opined:

> If the subject Gilman TS-2 padding system was strapped to the subject HKD snowmaking gun base such that it was levitating off the snow (as suggested by [Plaintiff's expert] Mr. [Dick] Penniman), the space under the padding system (to the snow) would have been limited by the geometry of HKD snowmaking gun equipment. This space would not have permitted an individual of Mr. Grajeda's size to move under the padding system and contact significantly the metal base.

(Doc. 85-2 at 39.)

Relying on known measurements of objects in a photograph taken on the day of Plaintiff's collision, including a sign, the snowmaking station, and the padding, Dr. Scher

determined that the padding's position would have been limited by the snowmaking gun's jackscrew, bracket, and hose attachment. He concluded that there were approximately two to three inches between the padding and the snow surface; that the bottom and top of the exposed jackscrew were approximately fifty-nine and seventy-six inches above the snow surface, respectively; and that the hose attachment was sixty-six inches above the snow surface. Based on these measurements, the site inspections conducted at his direction, witness testimony that the padding generally faces uphill, and his experience examining ski area padding, Dr. Scher opined that the padding system could only have moved upward five inches before contacting the jackscrew's top attachment. He did not observe "physical evidence of contact" with the jackscrew on the padding, indicating that the padding was not forced up before or during Plaintiff's accident. (Doc. 85-2 at 19-20.) He confirmed the results of his photogrammetric analysis by creating a virtual model of the padding and snowmaking equipment in a computer graphics program called 3D Studio Max using data from a "laser scan" of the collision site, photographs from the investigation, and the known dimensions of the padding and snowmaking equipment.

Plaintiff contends Dr. Scher is not an expert in photogrammetry and his photogrammetric analysis is unreliable. He further contends that Dr. Scher did not take the photograph on which he relies and did not personally verify its accuracy.

"[P]hotogrammetry [is] the science of measurement from photographs." *Gecker as Tr. for Collins v. Menard, Inc.*, 2019 WL 3778071, at *4 (N.D. Ill. Aug. 12, 2019) (internal quotation marks omitted). As an engineer, Dr. Scher is trained in measurement and mathematical analysis. He has used photogrammetry in his work for the past nineteen years. His "knowledge, skill, experience, training, or education" qualify him to provide expert testimony about photogrammetry. Fed. R. Evid. 702.

Courts have recognized photogrammetry and the associated use of laser scanning are reliable methodologies accepted within the fields of science and engineering. *Gecker as Tr. for Collins*, 2019 WL 3778071, at *4 (collecting cases and observing that "[a]s technology has become more advanced, so too have photogrammetric techniques and

applications; however, photogrammetry itself has a long, recognized history of reliability in the scientific and judicial community"); *see also id.* at *5 ("When Dr. Fisher generated a laser scan point cloud using the Faro Focus3D X330 scanner, he applied standard, peer-reviewed techniques from the field of photogrammetry in forming his conclusions.").

While Plaintiff does not contend that photogrammetry is unreliable as a methodology, he asserts that Dr. Scher failed to reliably apply photogrammetric methods to the available evidence because he analyzed a single photograph taken by an unidentified person several hours after Plaintiff's accident in which the padding has been replaced on the snowmaking gun base by an unknown person. He also inspected the scene virtually rather than in person and relied on measurements taken by others. His subsequent laser scan was taken more than a year after the accident. Plaintiff's rebuttal expert Dr. Campbell opined that Dr. Scher's analysis is inaccurate because the objects in the photograph were not situated in a single plane perpendicular to the camera and the photograph shows visible variation in the surface of the snow around the snowmaking station base. He contested the accuracy of Dr. Scher's assumptions that the padding faced uphill and that its position and movement were limited by the snowmaking station's structure.

Although an expert's testimony may not be "speculative or conjectural," an expert may base his testimony upon reasonable assumptions of fact. *Boucher v. U.S. Suzuki Motor Corp.*, 73 F.3d 18, 21 (2d Cir. 1996) ("A district court has discretion under Federal Rule of Evidence 703 "to determine whether the expert acted reasonably in making assumptions of fact upon which he would base his testimony") (internal quotation marks omitted). "Unless the information or assumptions that [the] plaintiff's expert relied on were 'so unrealistic and contradictory as to suggest bad faith,' inaccuracies in the underlying assumptions or facts do not generally render an expert's testimony inadmissible." *Scott v. Chipotle Mexican Grill, Inc.*, 315 F.R.D. 33, 52 (S.D.N.Y. 2016). "Other contentions that the assumptions are unfounded go to the weight, not the admissibility, of the testimony." *Zerega Ave. Realty Corp. v. Hornbeck Offshore Transp.,*

LLC, 571 F.3d 206, 214 (2d Cir. 2009) (alteration adoption and internal quotation marks omitted).

Dr. Scher need not take a photograph himself in order to rely on it in forming his opinions. *See Daubert*, 509 U.S. at 592 ("Unlike an ordinary witness, see Rule 701, an expert is permitted wide latitude to offer opinions, including those that are not based on firsthand knowledge or observation."); *United States v. Clayton*, 643 F.2d 1071, 1074 (5th Cir. 1981) ("A witness qualifying a photograph need not be the photographer or see the picture taken; it is sufficient if he recognizes and identifies the object depicted and testifies that the photograph fairly and correctly represents it."); *see also United States v. Ruggiero*, 928 F.2d 1289, 1303 (2d Cir. 1991) ("Rule 901(a) requires the proponent of any evidence to submit 'evidence sufficient to support a finding that the matter in question is what its proponent claims.' This requirement is satisfied if sufficient proof has been introduced so that a reasonable juror could find in favor of authenticity or identification.") (internal quotation marks omitted). He also need not personally inspect the scene depicted in the photograph. *See Jackson v. E-Z-Go Div. of Textron, Inc.*, 326 F. Supp. 3d 375, 436 (W.D. Ky. 2018) ("Photogrammetry is defined by taking measurements based on objects in *photographs* of an accident scene and does not require examination of the scene itself.") (emphasis in original). Although it is unclear whether certain objects and the snow contours in the photograph reflected the conditions at the time of the Plaintiff's collision and remained undisturbed by a presumably chaotic accident scene, these disagreements generally pertain to weight as opposed to admissibility.

Likewise, it matters not whether Dr. Scher took certain measurements himself provided those measurements are reliable. The photograph Dr. Scher analyzed contains multiple objects whose dimensions were measured by individuals following his directions. It also depicts the padding which Dr. Scher personally examined and measured and upon which his opinions regarding the orientation of the padding are based. Dr. Scher claimed these opinions are corroborated by Okemo employee Ray Kennedy's deposition testimony that at the time of the collision the padding was upright and facing

uphill.

Dr. Scher's assumptions are reasonable and non-speculative in light of the information available to him. *See Gecker as Tr. for Collins*, 2019 WL 3778081, at *6 ("Under *Daubert,* the accuracy of Dr. Fisher's underlying data goes to weight, not admissibility, of his [photogrammetry] testimony."). They do not contain obvious inaccuracies suggestive of bad faith. To the extent Plaintiff wishes to contest the accuracy of Dr. Scher's measurements or assumptions, he may do so on cross-examination. *See Amorgianos v. Nat'l R.R. Passenger Corp.*, 303 F.3d 256, 267 (2d Cir. 2002) (recognizing that "our adversary system provides the necessary tools for challenging reliable, albeit debatable, expert testimony").

Finally, although the court has not yet ruled whether the photograph fairly and accurately represents what is depicted therein at the relevant time of Plaintiff's collision, *see Zerega*, 571 F.3d at 214 (upholding objection to admission of photograph that district court sustained for lack of a proper foundation), evidence generally need not be admissible to provide a basis for an expert witness opinion. *See United States v. Mejia*, 545 F.3d 179, 197 (2d Cir. 2008) ("Under Rule 703, experts can testify to opinions based on inadmissible evidence, including hearsay, if 'experts in the field reasonably rely on such evidence in forming their opinions.'") (quoting *United States v. Locascio,* 6 F.3d 924, 938 (2d Cir. 1993)). In this case, however, whether the photograph is a true and accurate representation of the objects depicted therein is likely to be essential to the admissibility of Dr. Scher's opinions. Because Defendant may be able to lay a proper foundation for the photograph on which Dr. Scher's photogrammetry opinions are based, Plaintiff's motion to exclude those opinions is DENIED WITHOUT PREJUDICE.

C. Whether Dr. Scher's Qualitative Analysis of Possible Injury Mechanisms Must Be Excluded.

Dr. Scher reviewed Plaintiff's medical records and other materials to conduct a qualitative analysis of the mechanisms of Plaintiff's injuries, including whether Plaintiff's injuries could have been produced by impacting the padding on the snowmaking station base, and whether Plaintiff's injuries were more consistent with

striking the padding or the metal base. In light of the injuries described in Plaintiff's medical records,[3] he concluded that Plaintiff's "thoracic spine injuries were produced biomechanically by a large extension moment, along with axial loading of the spine and a lateral bending moment." (Doc. 85-2 at 39.) Dr. Scher opined that this large "extension moment" occurred when Plaintiff struck the left side of his mid-lower back on the padding, causing his torso to decelerate while his pelvis and lower extremities continued at their pre-impact velocities. According to Dr. Scher, the loads produced by this impact and the energy and momentum of the "non-contact areas" overwhelmed the load bearing capacity of Plaintiff's thoracic spine. *Id.* at 26. "Portions of this additional momentum and energy were attenuated by the creation of additional injuries (such as ligament tears and transverse process fractures)." *Id.*

Considering Plaintiff's "constellation of spine fractures," "large region of tissue swelling," and "posterior, medial rib head fractures," as well as his lack of injuries consistent with striking a "fixed rigid object" such as contusions, abrasions, lacerations, localized ecchymosis, or anterolateral or posterior-lateral rib fractures, *id.* at 27-28, Dr. Scher opined that Plaintiff's injuries were more consistent with striking the Gilman TS-2 padding than a metal pole. If Plaintiff's left mid-back had contacted the metal base of the snowmaking equipment, Dr. Scher opined Plaintiff would likely have "sustained additional rib fractures, spinous process fractures, localized ecchymosis, contusions, abrasions, and/or lacerations on his body where he contacted the pole." *Id.* at 28. Absent

---

[3] Dr. Scher described Plaintiff's injuries as follows:

> [Plaintiff's] post-accident medical records reported an unstable T9 fracture involving middle and posterior columns with evidence of ligamentous injury involving the T8-T9 anterior and longitudinal ligament, posterior longitudinal ligament, interspinous ligament, and right capsular ligament. In addition, the medical records document an epidural hemorrhage at T8 and T9, epidural air from T6 through L1, paraspinous soft tissue swelling and gas in paraspinous soft tissues from T5 through T12, a pleural hemorrhage (more on the right side), an aortic injury at T9-T10, posterior medial rib fractures at T8 through T10, and fractures of the left L1 and L2 transverse processes.

(Doc. 85-2 at 26.)

physical evidence of these types of injuries, Dr. Scher opined Plaintiff's injuries were most likely produced by striking the Gilman TS-2 padding.

Plaintiff contends that Dr. Scher is not qualified to testify regarding the specific causation of Plaintiff's injuries because he is not a medical doctor and lacks sufficient medical training. Defendants counter that biomechanical engineers are "qualified to testify as to the force on [a] [p]laintiff's body during the accident, the type of injury it could cause, and whether [a] [p]laintiff's injuries were consistent with that analysis." *Gecker as Tr. for Collins*, 2019 WL 3778071, at *8. Dr. Scher opined that because biomechanical engineering focuses on determining the forces and motions creating damage to the body, it is distinct from medicine, which instead focuses on diagnosing and treating the damage.[4]

Courts in the Second Circuit typically allow biomechanical engineers to testify only to general causation, "i.e., whether the force sustained by a 'plaintiff in the subject accident could potentially cause certain injuries.'" *Thomas v. YRC Inc.*, 2018 WL 919998, at *5 (S.D.N.Y. Feb. 14, 2018) (emphasis omitted) (quoting *Manlapig v. Jupiter*, 2016 WL 916425, at *3 (S.D.N.Y. Mar. 10, 2016)). A biomechanical engineer without a medical degree or training is therefore generally not allowed to "testify regarding whether a specific accident caused or contributed to a plaintiff's injuries." *Gade v. State Farm Mut. Auto. Ins. Co.*, 2015 WL 7306433, at *15 (D. Vt. Nov. 19, 2015) (footnote omitted);

---

[4] The Federal Judicial Center's REFERENCE MANUAL ON SCIENTIFIC EVIDENCE (3d ed. 2011), which Dr. Campbell cited in his rebuttal report, states:

> 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. Biomechanical engineers are trained in principles of mechanics (the branch of physics concerned with how physical bodies respond to forces and motion), and also have varying degrees of training or experience in the biological sciences relevant to their particular interest or expertise.

(Doc. 102-4 at 4.)

see also Bennett v. Target Corp., 2019 WL 7556361, at *7 (E.D.N.Y. Jan. 2, 2019) (agreeing with courts in the Southern District of New York that without medical training, "biomechanical engineers are not qualified to testify as to whether an accident caused or contributed to any of plaintiff's injuries, as this would amount to a medical opinion") (alteration adopted and internal quotation marks omitted).

Although Dr. Scher received training in human biology as part of his education, he does not have a medical degree or formal medical training. He is therefore unqualified to "venture into the realm of medical diagnosis by reviewing [Plaintiff's] primary medical records and opining as to the extent of his injuries." *Rodriguez v. Athenium House Corp.*, 2013 WL 796321, at *5 (S.D.N.Y. Mar. 5, 2013).[5] His opinions regarding the mechanism of Plaintiff's injury are not framed as general causation opinions "about the nature and amount of force generated by the accident in question and the observed effect of that force on a human body in comparable accidents." *Morgan v. Girgis*, 2008 WL 211250, at *6 (S.D.N.Y. May 16, 2008). Instead, they purport to opine as to the specific cause of Plaintiff's injuries.

Because Dr. Scher is not qualified as an expert witness in the medical field, Plaintiff's motion to exclude Dr. Scher's specific causation opinion based on his qualitative analysis is GRANTED. Dr. Scher may provide only an opinion regarding general causation which is a factual predicate for his specific causation opinion.

---

[5] Several courts have excluded Dr. Scher's specific causation opinions. *See, e.g.*, *Cooper v. Thompson*, 353 P.3d 782, 791 (Alaska 2015) (affirming trial court's limitations on Dr. Scher's testimony based on its "conclu[sion] that any testimony about the specific causes of [the plaintiff's] injuries would exceed Dr. Scher's biomechanics expertise and amount to a medical diagnosis he was not qualified to make"); *Forhan v. Altena*, 2012 WL 6727465 (Wash. Super. July 5, 2012) ("Scher is simply not qualified to give such opinions about the causal connection between the collision and Plaintiff's injuries."); *Wallace v. Pineda*, No. A-14-705744-C (Nev. Dist. Ct. Aug. 8, 2016) (excluding Dr. Scher's opinions that "biomechanically, the force and other facts [Dr. Scher] identified from the collision are not consistent with causing certain injuries to Plaintiff" and observing "[t]o the degree [Dr. Scher] has published anything on biomechanics, he has not shown any of his work was applicable to Plaintiff['s] . . . specific injuries").

D. Whether Dr. Scher's Opinion Based on His Computer Modeling Must Be Excluded.

Dr. Scher created a computer model to determine the possible force on Plaintiff's spine from impacting a snowmaking station with Gilman TS-2 padding that was fully or partially fastened to the snowmaking station's base. Based on simulations he ran with his model, he opined that Plaintiff's injuries were caused by striking the snowmaking station padding at a high rate of speed. In turn, he opined that Plaintiff would have sustained the same injuries whether the padding was properly installed or not. Dr. Scher recorded the simulation input parameters and results in a spreadsheet but did not otherwise save the raw output data from the over seventy computer simulations he ran.

According to Dr. Scher, his computer model supported the conclusion that Plaintiff must have slid into the padding at sixteen or more miles per hour to produce his thoracic spine injuries, leading Dr. Scher to conclude that "it is highly likely that [Plaintiff] was skiing faster than a typical beginner,[6] and at or above the average speeds of non-beginners on these types of trails, prior to contacting the Gilman TS-2 padding system (that is, when he was skiing just before his accident)." *Id.* at 31 (footnote supplied).

Dr. Scher's computer model combined two software programs: MADYMO and LS-DYNA. Dr. Scher described MADYMO as a "well-established and validated database of human and anthropomorphic testing device models" that is "regularly" used by biomechanical engineers "to model accidents and determine the motions of individuals[.]" (Doc. 85-2 at 29.) Using MADYMO, Dr. Scher created a "surrogate" for Plaintiff by scaling the MADYMO human body model to represent a 5'11" tall, 180-pound man wearing a ski helmet and ski boots.[7] He used MADYMO to model the

---

[6] Dr. Scher based his opinion regarding typical speed for beginner skiers on his research on skier speeds, which found that "the average speed of beginner and non-beginner skiers on slopes similar to Lower Mountain Road is 10.5 miles per hour and 18.6 miles per hour[,]" respectively. (Doc. 85-2 at 23.) His report does not, however, cite this research or any other publications supporting this data.

[7] It is undisputed Plaintiff was not wearing skis when he collided with the snowmaking station.

interactions between surfaces and the computer surrogate and the loads on the surrogate. He used LS-DYNA to model the "finite[ ]elements," such as the snowmaking equipment and Gilman TS-2 padding system, based on his measurements, unidentified scientific literature, and material testing of a piece of Gilman TS-2 padding which he acquired from a mountain in New Jersey.

To "test a range of potential impact scenarios[,]" Dr. Scher used his model with various initial conditions, including the surrogate's location relative to the snowmaking gun, its body position, and its velocity. *Id.* He conducted simulations in which the padding was "fixed permanently" to the snowmaking gun's base, unattached and able to move freely, or removed entirely. He then compared the model's outputs for the human body's kinematics, thoracic spine compression force, and thoracic spine moment with the forces associated with injury creation. He named this ratio the "Factor of Risk." *Id.* When the Factor of Risk was above one, a thoracic spine injury was more likely than not, with the likelihood increasing as the Factor of Risk increased. Dr. Scher opined that regardless of whether the padding was fixed or could move freely, when the model's surrogate impacted his left mid-back on the padding, "extension moments and axial compression loads in the mid-thoracic spine were often large and the associated Factor of Risk ratio exceed[ed] . . . [one] when using the scaled values for thoracic spine injury." *Id.* at 30.

As of the issuance of his initial expert witness report, Dr. Scher had not independently validated his novel application of the MADYMO and LS-DYNA programs and cited no evidence that anyone else had done so.

1. Whether Dr. Scher's Computer Modeling Opinion Is Admissible Under Fed. R. Evid. 702.

Plaintiff asks the court to exclude Dr. Scher's opinions based on his computer modeling because they were created for the purposes of this litigation, because Dr. Scher is not qualified to model thoracic spine injuries, and because his model is unreliable, irrelevant, and untested. Plaintiff observes that Dr. Scher's novel computer modeling has never been peer-reviewed or validated by either Dr. Scher or anyone else.

Dr. Scher uses computer modeling in his research, and the scientific literature

proffered by the parties demonstrates that biomechanical engineers commonly use computer modeling to simulate impacts on the human body. As a threshold matter, Dr. Scher's "knowledge, skill, experience, training, [and] education" in the field of biomechanical engineering qualify him to testify as an expert regarding computer modeling of thoracic spine injuries. Fed. R. Evid. 702.

"[W]hether a witness's area of expertise [is] technical, scientific, or more generally 'experience-based,' Rule 702 requires the district court to fulfill the 'gatekeeping' function of 'mak[ing] certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." *Nimely v. City of New York*, 414 F.3d 381, 396 (2d Cir. 2005) (citations and footnote omitted).

> In deciding whether a step in an expert's analysis is unreliable, the district court should undertake a rigorous examination of the facts on which the expert relies, the method by which the expert draws an opinion from those facts, and how the expert applies the facts and methods to the case at hand.

Amorgianos, 303 F.3d at 267.

a. The Computer Model's Basis in Peer-Reviewed Research, Error Rate, and Raw Output Data.

"In determining whether a computer simulation is reliable, the court may consider whether the program has been or can be tested, has been subjected to peer review and publication, has a known or potential rate of error and has gained general acceptance in the relevant scientific community." *Valente v. Textron, Inc.*, 931 F. Supp. 2d 409, 420 (E.D.N.Y. 2013), *aff'd*, 559 F. App'x 11 (2d Cir. 2014) (citing *Daubert*, 509 U.S. at 593-94). Although Dr. Scher testified that he has published peer-reviewed research using the same combination of LS-DYNA and MADYMO, he did not identify this research. Moreover, while his research has focused on snow sport safety generally, Dr. Scher has not studied impacts to the thoracic spine as part of that work. Rather, he "developed [his] opinions expressly for purposes of testifying." *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 43 F.3d 1311, 1317 (9th Cir. 1995). The fact that Dr. Scher's opinions were derived

solely for purposes of litigation undercuts their reliability. *See id.* (expressing a preference for opinions derived not solely for litigation purposes because "an expert [who] testifies based on research he has conducted independent of the litigation provides important, objective proof that the research comports with the dictates of good science").

There is no known error rate for Dr. Scher's model. *See Daubert*, 509 U.S. at 594 ("[I]n the case of a particular scientific technique, the court ordinarily should consider the known or potential rate of error[.]"); *Valente*, 931 F. Supp. 2d at 421 ("The Court also finds that [the expert's] simulation model is not reliable because its error rate is unknown and cannot be determined."). Dr. Scher's work in this case has not been peer-reviewed or published, *see Daubert*, 509 U.S. at 593 (observing that "[a]nother pertinent consideration is whether the theory or technique has been subjected to peer review and publication" though "[p]ublication . . . is not a *sine qua non* of admissibility"), nor has it been tested. *See id.* ("Ordinarily, a key question to be answered in determining whether a theory or technique is scientific knowledge that will assist the trier of fact will be whether it can be (and has been) tested.").

Plaintiff asserts that Dr. Campbell was unable to replicate Dr. Scher's computer model simulation results using the data and software he provided, because although Dr. Scher provided the model files and a summary of the results he obtained for each set of input parameters he used, he did not retain or provide the raw output data produced when he ran the model. He averred that in his experience as a journal editor and reviewer, article manuscripts are commonly accepted for publication when accompanied by data in the format he employed. This may be true, however, "[t]he Advisory Committee's notes to the 1993 amendment of Rule 26 of the Federal Rules of Civil Procedure specifically state that the expert witness disclosure include the data and other information considered by the expert." *Wile v. James River Ins. Co.*, 2020 WL 5995183, at *4 (W.D.N.Y. Oct. 9, 2020). Without disclosure of Dr. Scher's raw data, "there is no way to check the quality and accuracy of [his] work." *Bain v. Wrend*, 2017 WL 11505976, at *2 (D. Vt. Sept. 6, 2017). The inability to test Dr. Scher's model weighs against its admissibility under Rule 702.

b. The Computer Model's Factual Inputs.

Although experts may make reasonable assumptions of fact, they may not offer testimony that is "speculative or conjectural[.]" *Major League Baseball Props., Inc. v. Salvino, Inc.*, 542 F.3d 290, 311 (2d Cir. 2008) ("At trial, proffered expert testimony should be excluded if it is speculative or conjectural . . . ; the [a]dmission of expert testimony based on speculative assumptions is an abuse of discretion[.]") (first alteration in original) (internal quotation marks and citations omitted). If expert testimony does not "fit" the facts of the case so that it is helpful to the jury in understanding the evidence or resolving a factual dispute, it does not satisfy the requirements of Rule 702. *Daubert*, 509 U.S. at 591 (citing *United States v. Downing*, 753 F.2d 1224, 1242 (3d Cir. 1985)); *see also Downing*, 753 F.2d at 1242 (observing that an "aspect of relevancy" is "whether expert testimony proffered in the case is sufficiently tied to the facts of the case that it will aid the jury in resolving a factual dispute").

Dr. Scher ran more than seventy simulations of Plaintiff's collision using different combinations of variables such as velocity, slope angle, pad stiffness, and with the padding affixed permanently to the snowmaking equipment and not affixed at all. Although he testified that his intent was not to recreate the actual collision,[8] he relied on

---

[8] When Dr. Scher was asked, "[I]n doing this modeling were you attempting to re-create the incident?" he responded, "No, I was not." (Doc. 119 at 41.) Dr. Scher's concession that he did not attempt to recreate the actual collision reflects his opinion that it does not matter how Plaintiff came to collide with the snowmaking system as he only studied what transpired at the moment of impact. Dr. Scher explained: "[Y]ou're right, in the sliding portion, all those things that you mention absolutely matter: the snow, topography, the type of snow, all of those things. I agree 100 percent. Those things only don't matter -- or they don't matter only when you're considering that 100 milliseconds of padding contact." (Doc. 124 at 84-85.) He explained why he considered only the padding contact as follows:

> Q. How long is the model analyzing the impact here?
>
> A. Approximately 120 milliseconds.
>
> Q. And why is it running for 120 milliseconds?
>
> A. Because that's when the peak loads occur. So after 120 milliseconds, the injury would already have happened, and so I'm not interested after that.
>
> Q. And how do you know that peak loads occur at that point?

the simulation results to opine that it was "highly likely" that Plaintiff was skiing faster than sixteen miles per hour when he fell and that Plaintiff's injuries resulted from sliding into the padding, not the snowmaking gun's metal base, at a high rate of speed, purportedly to demonstrate that Plaintiff was at least contributorily negligent for his own injuries. (Doc. 85-2 at 31.) The range of values Dr. Scher used in his model do not reflect the known facts of the case and thus Dr. Scher has failed to "show that he has sufficient data to use the methodology employed." *Rogers by Rogers v. K2 Sports, LLC*, 348 F. Supp. 3d 892, 901 (W.D. Wis. 2018). Similar computer modeling work by Dr. Scher has been excluded by at least one other federal court which found that "[his] simulation, and the opinions based on it, are inadmissible because they are based on guesswork rather than the facts of [the plaintiff's] accident." *Id.* As one court explained:

> A district court must determine whether a methodology, even one based on established scientific foundations, is reliable for the factual issues raised in a particular case. . . . Even a generally accepted computer simulation program, like PC–Crash, which is based on the laws of physics and accepted principles of accident reconstruction, is not a reliable methodology in all factual circumstances[.]

Valente, 931 F. Supp. 2d at 421.

Because Dr. Scher's computer modeling does not reflect the known facts of the case, whether it can be reliably used to analyze those factual circumstances remains unknown. *See Dreyer v. Ryder Auto. Carrier Group, Inc.*, 367 F. Supp. 2d 413, 434 (W.D.N.Y. 2005) ("The reliability of the expert's methodology in reaching his conclusions must . . . be evaluated against the specific facts at issue, not generalized theories.") (citing *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 154 (1999)). This, too, weighs against its admissibility.

> A. Because afterwards you see the loads decreasing as you continue the simulation.
>
> Q. And what's the significance of the peak loads?
>
> A. The peak loads would be the highest likelihood of injury.

(Doc. 119 at 48.)

c. Validation of the Computer Model's Application of MADYMO and LS-DYNA.

"Regardless of the use, confidence in computational simulations is only possible if the investigator has verified the mathematical foundation of the model and validated the results against sound experimental data." Doc. 85-4 at 19 (quoting Heath B. Henninger et al., *Validation of Computer Models in Biomechanics*, 224(7) PROCS. INST. MECH. ENG'RS, PART H: J. ENG'G MED. 801 (2010)) (internal quotation marks omitted); *Valente*, 931 F. Supp. 2d at 421 ("Without validation, the Court cannot determine whether [the expert]'s simulation model, reliably simulates an accident involving a vehicle rollover."). "[V]alidation is defined as the process of determining the degree to which a model is an accurate representation of the real world from the perspective of the intended uses of the model[.]" Doc. 85-4 at 19 (internal quotation marks omitted). "[I]n order to validate a simulation through real-world testing, an individual must put certain inputs into both the simulation and the real-world system and compare the results to see if they are similar enough within some desired degree of accuracy." *Valente*, 931 F. Supp. 2d at 423–24.

Dr. Scher contends that his modeling work is consistent with that conducted by a team of biomechanical engineers in France who have used computer modeling to study spinal flexion-extension injuries in snowboarding accidents. Like Dr. Scher, those researchers combined "finite element" and human body model software packages. The researchers then "validated" their models by using them to reproduce experimental crash tests and compared the results from the computer model simulations and crash tests. They also compared the response of the MADYMO human body model to work with cadavers published by other researchers.[9]

---

[9] The researchers summarized their process in the abstract of their 2018 paper *Spinal Injury Analysis for Typical Snowboarding Backward Falls*: "A human facet-multibody model, which was calibrated against spinal flexion-extension responses and validated against vehicle-pedestrian impact and snowboarding backward fall, was used to reproduce typical snowboarding backward falls considering various initial conditions . . . . The SPI risks were quantified by normalizing the numerical spinal flexion-extension ROMs against the corresponding ROM thresholds from literature." (Doc. 102-3 at 48.)

In response to criticism that he could and should have performed a similar validation of his novel application of the LS-DYNA and MADYMO programs, Dr. Scher testified:

> What you're asking would be for me to take a cadaver and then take that and run it into the subject padding, which is more equivalent to the human body model. I think that would be difficult and I'm not sure ethically sound with the University of Washington here to do that for a forensic case.

(Doc. 119 at 110.)

Dr. Scher also conceded that he did not validate his model using "real[-]world crash test validation" with crash dummies (Doc. 85 at 15), but responded in his Declaration to Dr. Campbell's criticism by claiming he later "validated" the MADYMO human body model for blunt impacts to the thoracic spine region by using MADYMO and LS-DYNA to "model[] the impacts described by Forman et al.[,]" who conducted an experiment in which they "contacted the back of seated cadavers with a rigid impactor and reported thoracic spine extension angles[.]" (Doc. 102-3 at 18.) He averred that because "[t]he human body model's thoracic spine response in the simulated impacts matched well the thoracic spine extension results reported by Forman et al.[,] . . . the MADYMO human body model passes validation for impacts to the thoracic spine region." *Id.* This validation process was similar to that used by the French research team and cited by Plaintiff, as well to that employed in at least one research study conducted by Dr. Campbell. Dr. Scher averred that it is common practice for biomechanical engineers to rely on this type of validation.

Dr. Scher's validation based on the Forman et al. study does not constitute proper reply expert testimony or supplemental expert disclosure. He did not proffer any other admissible evidence showing that he personally validated the MADYMO human body model for thoracic spine impacts. After his report and rebuttal reports, he claimed to have sent an email dated January 12, 2023 to Dr. Pierre-Jean Arnoux which resulted in a response that was favorable. Defendants' counsel did not produce this email until the eve of the second part of the court's *Daubert* hearing and the court ruled that this late disclosure was improper supplementation of an expert witness's opinion.

Dr. Scher claimed he did not need to validate his model personally, because he merely combined two validated software programs[10] and because "[e]ssentially Dr. Wei has validated and shown that the human body model from MADYMO is reliable for looking at the response of the thoracic spine in snow sports accidents and contacts[,]" (Doc. 119 at 23), and "[t]he Wei group with Dr. Pierre-Jean Arnoux already validated the human body model, so I did not feel that I needed to redo that." *Id.* at 102.[11]

The French research study referenced by Dr. Scher, however, cautioned that it was specific to snowboarding backward falls:

> Current [spinal injury ("SPI")] analysis was only performed for snowboarding backward falls. . . . The experimental reproduction of snowboarding backward falls was the only study available for our model validation to investigate SPI in winter sports. As far as we knew, experimental reproductions of other winter-sports accidents were found nowhere else in literature. Model validation against other accident scenarios and SPI analysis for these conditions remain to be done in future works.

---

[10] Dr. Scher testified:

> Q. Dr. Scher, could you talk briefly about validation of the model here. You already talked about the work of Dr. Wei and MADYMO. What else did you do to validate this model here?
>
> A. Sure. Yeah. The way I see it, there's kind of like three elements, if you will. One is the human body model, which we've talked about quite a bit.
>
> The second would be the actual modeling environment itself. Does the computer package, LS-DYNA and MADYMO, calculate the physics properly, the physics and engineering? And I think the answer there is an easy yes. It's well accepted by everyone that I know of, frankly. It's been shown over and over to do the forward equations of motion. So these are essentially expanded versions of Newton's laws, and you take an initial condition and you integrate it forward in time. Very common, taught in undergrad and graduate schools, modeled appropriately with LS-DYNA and MADYMO. So that has been validated repeatedly. It's used by government agencies. It's used by companies, Ford, GM, Boeing. All of these companies use LS-DYNA and MADYMO. So that's the modeling package.

(Doc. 119 at 57-58.)

[11] Because Dr. Scher's citation to the Wei article's validation of the MADYMO model does not constitute proper reply expert testimony or supplemental expert disclosure, the court cannot not consider it in evaluating the reliability of Dr. Scher's computer modeling.

(Doc. 102-3 at 55.) Dr. Scher acknowledged that this statement advised against use of the model in other circumstances but concluded it did not impact his ability to rely on the French research team's validation of the MADYMO human body model for his work in this case.[12] He cited a Ph.D. thesis by Dr. Marine Dorsemaine, another member of the French research team, as an example of another researcher who has used the team's MADYMO validation work in research analyzing skier collisions with rigid objects,[13] but he did not claim the Dorsemaine thesis is a direct validation of his own model.

Dr. Scher's reliance on other researchers' validation work to validate a model he conceded is a "novel" application[14] calls into question the reliability of his opinions. He admitted that validation is the *sine qua non* of reliability. *See* Doc. 124 at 87 ("Q: . . . This is your platform, and you want to sell it to whoever or you want to write about it and you want to validate it. You would have done the testing, crash testing? A: That's true. If it was a unique platform and a unique dummy, absolutely."). He has not shown that his computer model has been "evaluated against the specific facts at issue in order to ensure that the model can reliably recreate the relevant accident at issue." *Valente*, 931 F. Supp. 2d at 424. He thus did not employ the degree of rigor in developing his computer model for his expert witness opinions that would be expected outside the courtroom. *See*

---

[12] Dr. Scher stated: "What they mean, and I know this from talking with Dr. Wei and Pierre-Jean Arnoux, is that if you want to use this model for, say, a skier fall and the fall kinematics before contacting, say, the snow, then you'd need an additional step. But in terms of the human body model being valid or contacting objects, no, it's valid. You don't need to do additional work." (Doc. 119 at 95.) This explanation is not included in Dr. Scher's reports.

[13] Dr. Scher testified that he is familiar with Dr. Dorsemaine's Ph.D. thesis because was "was actually on her Ph.D. committee, so [he] observed her defense and judged it." (Doc. 119 at 24.) Plaintiff argues this indicates Dr. Scher's bias.

[14] Although Dr. Scher testified that engineers frequently combine LS-DYNA and MADYMO programs, he acknowledges he has never previously combined these computer modeling programs to predict thoracic spine injury nor is he aware of anyone else who has done so. *See* Doc. 119 at 67 ("Q. And you've never published a peer-reviewed article or peer-reviewed research on using computer modeling to predict a thoracic spinal cord injury in a ski accident or any other kind of accident, correct? A. That's right. Just cervical and lumbar spine."); *id.* at 68 ("Q. And isn't it true, sir, that there does not exist to date any peer-reviewed articles or published studies on how much force is required upon someone's thoracic spine to cause a spinal cord injury at the T9 level of the thoracic spine? A. As you've asked it, no.").

Kumho Tire Co., 526 U.S. at 152 (noting that the court "is to make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field").

d. Validation of the Computer Model Padding.

To accurately calculate the forces possible in a collision like Plaintiff's, Dr. Scher's model also needed to account for the properties of the padding attached to the snowmaking station. Although Defendants provided Dr. Scher with the padding involved in Plaintiff's collision (the "subject padding") and exemplar Gilman TS-2 padding (the "exemplar padding"), Dr. Scher used neither in his testing. Instead, he tested a piece of padding which he acquired at least five years ago from a ski resort in New Jersey and which he believed to be the same material as the exemplar padding. He testified that, in his experience, all Gilman TS-2 foam has the same properties after it is exposed to the elements for "a couple of years[.]" (Doc. 124 at 19.) Dr. Scher's experience with Gilman TS-2 foam, however, is not identified in his report. His choice of materials for testing reflected his desire to preserve the exemplar padding for demonstrative evidence at trial. Again, this is not the type of scientific rigor that could reasonably be expected from an expert in the field. *See Sheehan v. Daily Racing Form, Inc.*, 104 F.3d 940, 942 (7th Cir. 1997) (explaining that *Daubert* "requires the district judge to satisfy [her or] himself that the expert is being as careful as he would be in his regular professional work outside his paid litigation consulting").

Dr. Scher validated the padding model by comparing it to the results of testing conducted by Carley Ward and Plaintiff's expert Mr. Penniman.[15] Although Dr. Scher

---

[15] Dr. Scher explained:

> Q. Dr. Scher, could you talk briefly about validation of the model here. You already talked about the work of Dr. Wei and MADYMO. What else did you do to validate this model here?
>
> . . .
>
> A. And then I used in this case standard engineering techniques. I took the material properties of Gilman foam, measurements of the subject pad, and put

asserted that his model of the padding reproduced the results of Ms. Ward's physical testing to an acceptable degree, [16] he criticized those same test results, stating: "There is insufficient information provided by Mr. Penniman for Ms. Ward's and the Gilman Corporation testing to figure out why specifically there is [a] ~54 percent increase in deceleration in Ms. Ward's testing." (Doc. 85-2 at 34.) Dr. Scher's decisions to validate his computer model by using a study about which he lacked information and which he criticized further call into question the reliability of his opinion.

e. Dr. Scher's Use of the Computer Model's Output Data to Calculate Thoracic Spine Injury Likelihood.

In addition to challenging the reliability of the model's outputs, Plaintiff argues that Dr. Scher employed a flawed methodology to calculate his Factor of Risk ratio, which predicts injury likelihood by comparing the model-generated impact loads with the average injury loads he calculated using data from published scientific literature. Pointing to Dr. Scher's acknowledgment that no peer-reviewed research has been published on the force required to cause thoracic spinal injuries like Plaintiff's, Plaintiff contends that Dr. Scher improperly scaled injury loads from the lumbar spine to the thoracic spine. Dr.

> them together into a padding system, and then I look at the response and compared it to Dr. Ward's testing that Mr. Penniman used. So instead of running my own tests with a Bla[c]k Tuffy or a crash test dummy, instead of arguing about those, I decided it was okay, because I had the data from Miss Ward's testing, to look at the velocity profiles, the acceleration profiles, are we talking about the same time durations, the pole shapes, all of that, and determined that those were appropriate. The one thing I did do was because my material testing on the foam is *quasi* static, it's a slow compression test, and we know these pads respond differently with higher speeds, I used a multiplier for stiffness, which is a common technique used in mechanical engineering. It's well accepted. Everyone uses it that I know of. And I scaled the material curve for *quasi* static to the dynamic curve that would match Ms. Ward's testing.

(Doc. 119 at 57-58.)

[16] As described in Dr. Scher report, Ms. Ward used a pickup truck to drive a "Black Tuffy" dummy, which consisted of molded blue rubber attached to a piece of plywood and "a single triaxial accelerometer," into a padded pole to calculate the dummy's deceleration upon impact. (Doc. 85-2 at 33.) Dr. Scher did not provide any details about the padding Ms. Ward used in her testing.

Scher notes Dr. Campbell's own use of scaling to develop child-specific injury criteria where only adult-specific data were available. He also cites two articles and a textbook that use scaling to compare the forces experienced by the lumbar and thoracic spines in his Declaration, but neither he nor Defendants provide the text of those articles. In deposition, Dr. Scher testified that he did not "know specific literature" regarding "the accuracy of scaling lumbar studies to thoracic spine injuries[.]" (Doc. 85 at 25) (internal quotation marks omitted).

Without more information regarding the basis for Dr. Scher's scaling technique, Defendants essentially ask the court to accept Dr. Scher's word that his possibly novel scaling is reliable. "The [c]ourt would not be performing its gatekeeping function, if it merely accepted, without any proof, a party's contention that its expert's opinion is reliable." *Valente*, 931 F. Supp. 2d at 422. Absent proof that Dr. Scher's scaling to calculate the injury loads of the thoracic spine is supported by peer-reviewed literature or generally accepted in the biomechanical engineering community, Dr. Scher's Factor of Risk calculations do not comport with Rule 702's reliability requirements. *See also Valente v. Textron, Inc.*, 559 F. App'x 11, 13 (2d Cir. 2014) (quoting *Zerega Ave. Realty Corp. v. Hornbeck Offshore Transp., LLC,* 571 F.3d 206, 213-14 (2d Cir. 2009)) ("[I]t is well-settled that where, as here, a trial judge finds that assumptions underlying expert testimony 'are so unrealistic and contradictory as to suggest bad faith or to be in essence an apples and oranges comparison,' it has the discretion to exclude the testimony.").

For the foregoing reasons, Dr. Scher's computer modeling opinion is unreliable and inadmissible under Rule 702.

2. Whether Dr. Scher's Computer Modeling Opinion Is Admissible Under Fed. R. Evid. 403.

Even if the court had decided Dr. Scher's computer modeling was admissible under Rule 702, under Rule 403 the court must analyze whether the danger of unfair prejudice or confusing the issues substantially outweigh the probative value of Dr. Scher's computer model. Here, the probative value of Dr. Scher's novel application is not particularly robust in light of his lack of validation; however, its highly technical,

seemingly "scientific" presentation has a significant potential to confuse a jury. "Expert evidence can be both powerful and quite misleading because of the difficulty in evaluating it." *Daubert*, 509 U.S. at 595; *see also Nimely*, 414 F.3d at 397 (noting the "unique weight such [expert testimony] may have in a jury's deliberations"). In light of the novel and untested application and the significance of the opinion he seeks to offer to the jury, his computer model will not be helpful to the jury and has a substantial risk of misleading jurors into believing that a model created by a well-qualified engineer has more predictive certainty than Dr. Scher's own research has demonstrated.

Under Rule 403, the probative value of his opinions regarding computer modeling is substantially outweighed by the potential for juror confusion. In addition, there would be unfair prejudice to Plaintiff from an untested "scientific" analysis of his skiing speed where scant evidence of that speed is otherwise present in this case. Dr. Scher's computer modeling is inadmissible for this reason as well. *See Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997) ("[N]othing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.").

For the foregoing reasons, Plaintiff's motion to exclude Dr. Scher's computer model and the opinions based on it is GRANTED.

E. Whether Dr. Scher's Opinion Regarding the Limitations of Ski Padding Systems Must Be Excluded.

Dr. Scher opined: "[a]ll ski area[] padding systems have limitations (for example, finite energy attenuation capabilities) and cannot prevent all injuries when contacted by a snowsport participant." (Doc. 85-2 at 39.) Based on his "experience testing padding used at ski areas and [on] data from scientific presentations at ski safety meetings," Dr. Scher stated that typical padding systems used at ski resorts could absorb "less than a few hundred joules" from an impact, leaving enough energy to produce significant injury. *Id.* at 31. According to Dr. Scher,

> at the speeds and energies associated with beginner skiers on trails of

> similar slopes to Lower Mountain Road, the Gilman TS-2 padding system would have produced a low likelihood for [Plaintiff]'s injuries; that is, the padding would be effective in preventing severe injury at contact from a person traveling at beginner skier speeds.

Id.

If Plaintiff had been traveling at eighteen miles per hour, Dr. Scher opined that Plaintiff would have struck the padding with more than 2,600 joules of kinetic energy. He concluded that because of the limits on the amount of energy that ski area padding can absorb, at this speed, "there would be sufficient energy remaining to produce significant injuries even if the padding was attached in a more rigid fashion to the subject padded HKD snowmaking equipment; alternate padding application or position would not have modulated the outcome of the subject accident." *Id.*

Defendants contend that because Plaintiff does not challenge the admissibility of Dr. Scher's opinions related to the limitations of ski trail padding systems, Plaintiff's motion "cannot preclude Dr. Scher from offering his unchallenged opinions at trial." (Doc. 102 at 15.) The court's gatekeeping role under Rule 702 is not confined to admissibility challenges raised by the parties. *See Daubert*, 509 U.S. at 588 ("[U]nder the Rules [of Evidence] the trial judge must ensure that *any and all* scientific testimony or evidence admitted is not only relevant, but reliable.") (emphasis supplied); *Kumho Tire Co.*, 526 U.S. at 147 (expanding *Daubert*'s "gatekeeping obligation" under Rule 702 to "all expert testimony"); *Fraser v. Wyeth, Inc.*, 992 F. Supp. 2d 68, 97 (D. Conn. 2014) (observing that "the Court had the authority to raise *Daubert* concerns *sua sponte*"); *see also United States v. Beigel*, 370 F.2d 751, 756 (2d Cir. 1967) (observing that there is a "duty of the federal courts to make an independent inquiry concerning the admissibility of evidence in federal cases").

Dr. Scher opined: "[i]n order for a padding system to reduce the likelihood of injury to Mr. Grajeda, it would have needed to reduce his energy significantly such that Mr. Grajeda's body attenuated less energy than needed for injury." (Doc. 85-2 at 31.) Based on his research finding that ski trail padding can attenuate less than several hundred joules of kinetic energy, he estimated that if Plaintiff was sliding at eighteen

miles per hour when he contacted the snowmaking gun, the padding would not have absorbed enough energy to prevent severe injury. A representative of the Gilman Corporation, however, has testified she is unaware of a single skier who has collided with properly placed Gilman padding and sustained serious injury. Dr. Scher does not attempt to discredit or explain this deposition testimony.

"If the witness is relying solely or primarily on experience, then the witness must explain how that experience leads to the conclusion reached, why that experience is a sufficient basis for the opinion, and how that experience is reliably applied to the facts." Advisory Committee Notes, 2000 Amendments, Fed. R. Evid. 702. Because Dr. Scher's opinion regarding the energy attenuation limitations of Gilman TS-2 padding is drawn from his experience researching that topic, he may opine that at certain skiing speeds neither the Gilman TS-2 padding nor any other type of padding will prevent significant injuries. Plaintiff is free to cross-examine Dr. Scher with evidence to the contrary. Dr. Scher may not, however, opine that Plaintiff was skiing at a particular speed when the underlying facts do not support that contention and when his computer modeling is inadmissible and does not support it.

For the foregoing reasons, Plaintiff's motion to exclude Dr. Scher's opinions regarding padding limitations in preventing certain injuries is GRANTED IN PART and DENIED IN PART.

F. Whether Dr. Scher's Alternative Explanation for How Plaintiff Came to Rest Next to the Snowmaking Station Base Must Be Excluded.

In response to a question by Plaintiff's counsel during a deposition, Dr. Scher testified that Plaintiff could have come to rest next to the snowmaking gun pole despite having struck the padding:

> Q. So, explain for me, Dr. Scher, that if you're saying that [Plaintiff] could not have slid under the pad and struck the pole, how is it that he ended up . . . against the pole if he didn't slide under the padding?
>
> A. Sure. Absolutely. So, as [Plaintiff] contacts the padded pole – and we know from the dimensions of the pad, the gun, the approximate size of [Plaintiff], that there wouldn't be space for him to completely go under the pad. He interacts with the pad during his contact. During that contact,

> there's going to be a radio component toward the center of the HKD base pole, and there's going to be a tangential component. As he contacts and compresses the cylinder into a more oval shape, or at least one of them starts to wrap around it and created his injuries, that pad is also going to not just compress, but rotate around the pole. As the bottoms hit and the top ones come out, it can then – if the buckle breaks – fall on top of him, so he's actually under it at the end of the event. Alternatively, if – and I remember there was testimony that they had to lift the pad up and over him. Because of the contour of the snow, if he's against part of the pad part – part of the pole at the end, they lift it up and out, he can slide down next to the pole at the very end.

(Doc. 85-3 at 261-62.) Dr. Scher stated that this opinion was not part of his initial report and not based on his computer modeling work or other simulations or testing, but rather was "just physics. That's Newton's and Euler's laws. Yeah. That's classic Newton physics." *Id.* at 263.

Although Plaintiff challenges Dr. Scher's deposition testimony regarding how Plaintiff could have hit the padding but come to rest against the snowmaking gun's metal pole as speculative, he does not challenge the scientific validity of the laws of physics underpinning his opinion which are generally accepted in the scientific community. Plaintiff instead contends that when Dr. Campbell ran the model, it showed that the human body model "bounced off the padding" away from the pole after impact, contradicting Dr. Scher's testimony. (Doc. 85 at 22.)

Because the computer model was designed to simulate only the 100 to 120 milliseconds of impact, the model's results when it is run for a longer time do not contradict Dr. Scher's explanation. Nevertheless, "[a]n expert opinion requires some explanation as to how the expert came to his conclusion and what methodologies or evidence substantiate that conclusion." *Riegel v. Medtronic, Inc.*, 451 F.3d 104, 127 (2d Cir. 2006), *aff'd*, 552 U.S. 312 (2008). Dr. Scher did not explain how he applied Newton's and Euler's laws, and his testimony "essentially provided no explanation of how he had reached his conclusion[.]" *Id.* Lay jurors may be incapable of filling in the gaps and may have no in-depth understanding of the laws of physics he relies on. Dr. Scher's opinion is therefore unhelpful to the jury in determining the facts of this case. *See*

Fed. R. Evid. 702 (requiring an expert witness to "appl[y] the principles and methods reliably to the facts of the case" and requiring the court to find the resulting opinion will "help" the jury).

The court therefore GRANTS Plaintiff's motion to exclude Dr. Scher's alternative explanation for how Plaintiff could have struck the padding but come to rest next to the snowmaking gun pole.

G. Whether Dr. Scher's Rebuttal of Mr. Penniman's Opinions Must Be Excluded.

Dr. Scher offered a rebuttal opinion responding to the opinions of Plaintiff's expert Mr. Dick Penniman that a skier could not have been injured by hitting a properly installed Gilman TS-2 pad, that Defendants should have employed alternative padding or barriers to prevent skiers from colliding with the snowmaking gun, and that ASTM International has established safety criteria for ski area padding. He offers the following criticism:

> Mr. Penniman's logic and opinions regarding the condition and set up of the subject Gilman TS-2 padding system before and during the accident are complete speculation. Mr. Penniman conducted no analysis and his bases/logic are flawed for his conclusions regarding whether or not [Plaintiff] contacted the subject padding, the HKD snowmaking gun base (metal pole), or both.

(Doc. 85-2 at 39.) He further opined that to his knowledge as an active ASTM International member and the former chair and current vice-chair of the ASTM F27 committee which sets snow sport standards, he is unaware of any ASTM International or International Standards Organization snow sport standards governing ski area padding.

Dr. Scher criticized Mr. Penniman's conclusions regarding the circumstances of Plaintiff's collision as speculative and baseless. In an Entry Order dated March 23, 2023, this court significantly limited Mr. Penniman's testimony and excluded his opinion that Plaintiff's injuries were caused by striking a metal pole. Dr. Scher's rebuttal testimony responding to those excluded opinions is thus no longer relevant. *See* Fed. R. Evid. 702. Plaintiff's motion to exclude Dr. Scher's rebuttal opinion is therefore GRANTED.

CONCLUSION

For the foregoing reasons, Plaintiff's motion to exclude Defendants' expert Dr. Irving Scher (Doc. 85) is GRANTED IN PART and DENIED IN PART.

SO ORDERED.

Dated at Burlington, in the District of Vermont, this 27th day of July, 2023.

Christina Reiss, District Judge
United States District Court

SPECIAL THANKS TO ACADEMY SPONSORS

Paramount

Your comprehensive plaintiff-loyal settlement planning firm. Negotiation and mediation support, lien resolution and structured settlement plans.

PRECISION RESOLUTION

Attorney operated Medicare, Medicaid, ERISA and other healthcare lien resolution, and MSA allocation firm. Precision resolves liens so that trial attorneys can focus on the task at hand: winning the case.

THE MENTOR ESQ

A podcast for lawyers and aspiring lawyers hosted by Andrew J. Smiley, Esq.

NAM
NATIONAL ARBITRATION AND MEDIATION®

NAM (National Arbitration and Mediation) is consistently recognized by the legal community for its superb customer service and exceptional panel of arbitrators and mediators.

SmartAdvocate®

A fully-integrated case management system designed exclusively for personal injury and mass tort litigation practice.

Medical Lien Agency

A full service lien resolution company that comes at no cost to law firms and is reducing liens for clients by an average of over 50%.

LexisNexis®

A prominent provider of information and analytics solutions tailored for legal, regulatory, and business experts. Offerings include legal research databases, insights, and news.

CYPRESS GROVE TECHNOLOGIES

Provides managed IT services to customers, including proactive support, live monitoring, management and maintenance for their systems.

SPECIAL THANKS TO ACADEMY SPONSORS

Creative Capital Incorporated Structured Settlements

The attorney's comprehensive resource for structured settlement annuities, consulting and negotiation services.

Sobel Tinari Economics Group

A team of award-winning economists and analysts that provides high-quality economic consulting services in a wide variety of litigated matters.

LEXITAS™

Offers an array of services including local and national court reporting, medical record retrieval, process service, registered agent services and legal talent outsourcing.

STENO

Steno offers unrivaled court reporting services combined with purpose-built technology. Built by legal and tech experts who believed that firms deserve first-class service, clients enjoy white glove service, concierge care and a customer-first approach that is revolutionizing court reporting.

ANYTIME AI

Empowering lawyers in analyzing various legal documents and accelerating fact findings, conducting legal research and auto-drafting legal memos, and automating key workflows in personal injury.

CP COUNSEL PRESS
THE APPELLATE EXPERTS®

Assists attorneys in all 50 states with expert assistance in preparing, filing, and serving appeals in any state or federal appellate court nationwide and several international tribunals.

FIRMPRO™
From C&R Insurance Services, LLC

Professional liability insurance that helps protect law firms with 1-9 attorneys, including attorneys billing less than 26 hours per week.

Flagstar® Bank

Offers a wide range of financial products and services while striving to create a one-of-a-kind banking experience grounded in relationships, nurtured through service, and measured by results.

SPECIAL THANKS TO ACADEMY SPONSORS

MEDQUEST®

Providing medical experts; medical record retrieval; summaries, chronologies & demands by physicians; and medical cost reports by testifying life care planners.

Nota by M&T Bank

Trust accounting and banking solutions for law firms. It is designed with attorney insights - for lawyers, by lawyers - and is a no-cost, cloud-based platform for those managing solo and small law firms.

YoCierge
Record Retrieval Reinvented

Your record retrieval experts: offering flat fee pricing, fast turnaround, live tracking, full control over custodial charges, e-authorization, different user permission levels, and more!

THE EXPERTS
Robson Forensic

A highly credentialed group of engineers, architects, scientists and fire investigators who assist in disputes and litigation through investigations, reports and testimony.

RECORD REFORM
A MEDQUEST COMPANY

Providing physician assistance in reducing, organizing and reviewing digital files.

Expert Institute

The leading expert witness service offering custom expert recruiting and high-touch consulting in every specialty.

HART SETTLEMENT GROUP
PARTNERED WITH
SAGE
SETTLEMENT CONSULTING

Hart Settlement Group's focus centers around assisting attorneys as well as individuals and their families with the evaluation design and negotiation of structured settlements.

Kincaid Wolstein
VOCATIONAL & REHABILITATION SERVICES

Providing objective vocational evaluations, life care plans, and loss of household services evaluation; and will testify credibly & confidently regarding rehabilitation processes, needs, and resources.

SPECIAL THANKS TO ACADEMY SPONSORS

case status

The #1 mobile client engagement software for law firms who care about clients, the bottom line & firm growth.

Emerald-Associated reporters, inc.
...where your words count!

Court reporting and videography services since 1989, as well as litigation support, online document management and protected file storage.

MediVisuals®
Powerful visuals for every phase of litigation.

America's leading medical exhibit specialist offering products such as Animations, Interactive Presentations and Timelines, 3-D Models and Exhibit Boards.

Judgment Enforcement
Law Offices of
LAURENCE J. SASS

Helping NY attorneys recover on judgments for their clients against uninsured and defaulted defendants by using innovative investigative and legal strategies and dogged persistence.

cloudlex

More than just a case management system - designed exclusively for plaintiff personal injury law firms, and allows you to take control of your practice from intake to closure and beyond.

MEDICAL LEGAL CONNECTION

We are a medical professional organization that serves law firms and attorneys. We are medical eyes and ears at Independent Medical Exams and we provide medical case reviews with chronologies.

NYSM
SUCCESS THAT ADDS UP!

A boutique, full service structured settlement firm that provides web-based settlement calculators for the exclusive use its clients.

WA
WALKER ADVERTISING

With over 40 years of experience in the industry, we understand the needs of lawyers. We provide law firms with leads and resources to reach new heights of success.

SPECIAL THANKS TO ACADEMY SPONSORS

Earn CLE credits around the world.
In addition to customized CLE programming, programs offer cultural immersion and local community engagement, creating memorable experiences for lawyers and non-lawyers alike.

The nation's largest online deposition bank, exclusively for plaintiff lawyers.

Providing concise summaries of all torts decisions from the 1st and 2nd Departments and Court of Appeal every week by email, their website, or the NYTW ANYWHERE app.