June 25, 2024

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RE: *Keith Morris v Denise Goulet et al., Case No: A-22-860747-C, District Court, Clark County, Nevada*

Date of Crash: November 25, 2020

Date of Birth: *Keith Morris:* December 4, 1981 [38 years old at time of crash]

Dear Ms. Coats,

I have reviewed the documentation accompanying your correspondence, including the May 10, 2024, report from the defendant's medical expert Mr. Oliveri, the March 30, 2024, report from medical expert Dr. Jeffrey Wang, the May 22, 2024, report from Dr. Raimondo Leon, the May 22, 2024, report from the plaintiff's reconstruction expert Sam Terry, and the May 22, 2024, report from the defendant's reconstruction expert Dr. John Droge.

The purpose of this report is primarily to provide an analysis of the opinions given by Mr. Oliveri, particularly with regard to the potential of the crash to cause the injuries diagnosed in Mr. Morris. I have also provided comments on some of the opinions provided by the defendant’s medical experts at the end of this report.

In brief (as they are described at greater length in previous report in this matter and in my CV), my qualifications to provide the opinions in this report are as follows: I am Professor and Chair of Forensic and Legal Medicine with the Faculty of Forensic and Legal Medicine of the Royal College of Physicians (UK) and a consultant in the fields of forensic medicine and forensic epidemiology. I am credentialed as a Fellow of the Royal College of Pathologists (UK), Fellow of the Faculty of Forensic and Legal Medicine (FFLM) of the Royal College of Physicians (UK), and member of the British Association in Forensic Medicine, *i.a.*

In addition to my academic credentials, publications, etc. which are described in the attached CV, I have been a crash reconstructionist since 1996 and have had ACTAR accreditation (the Accreditation Commission on Traffic Accident Reconstruction) since 2005. I am a member of the American Society of Biomechanics and have more than 60 scientific publications pertaining to injury biomechanics and have served as a consultant on injury biomechanics to state and federal government.

**Opinions of plaintiff’s expert, Sam Terry**

Mr. Terry completed a supplemental report dated May 22, 2024. His conclusions and opinions did not change from his initial report dated April 26, 2024.

**Opinions of defendant’s expert, Dr. Droge**

Dr. Droge completed a 13-page rebuttal report dated May 22, 2024, wherein he commented on Mr. Terry’s and Dr. Freeman’s reports. The following are his opinions of Dr. Freeman’s April 26, 2024, report only:

* It was unclear how Dr. Freeman determined that the Mercedes had a delta V of 12.3 mph and a peak acceleration of 9.0 g.
* The following were his concerns of Dr. Freeman’s analysis:
  + No data, calculations, or references were supplied to support his analysis.
  + Dr. Freeman claimed that his results were based on repair estimates, level of observed damage in the provided photos, deposition testimony, and the estimated crush to each vehicle. An independent analysis of the damage evidence was not consistent with Dr. Freeman’s estimates.
  + Dr. Freeman failed to address the EDR data from the Lexus, which was a critical methodological failure. (However, this information was discussed in Dr. Freeman’s rebuttal report of Dr. Droge.)
* Dr. Freeman opined that the PDOF of the Mercedes was near the 11 o’clock direction and it was unclear how he made that determination based on the configuration of the impact.
* Dr. Freeman claimed that the deploying airbag would have propelled Mr. Morris to the left and into the driver’s door. This did not occur and regardless of the PDOF, a deploying airbag will not propel an occupant.
  + Staged crash tests have shown that an occupant may miss an airbag or catch the edge and glace off, but direct contact results in the slowing of the occupant and mitigates subsequent interior contact.

**Dr. David Oliveri’s rebuttal report: May 10, 2024**

The review of Dr. Freeman’s reconstruction and biomechanics report [and conclusions] do not alter his medical analysis of causation outlined in his 01/15/24 report. Of note, Dr. Oliveri did not see Mr. Morris had injuries that resulted in identifiable spine pain generators; pain management and surgical intervention was not necessary; his diagnoses associated with the subject crash should have resolved without surgical intervention and without ongoing medical treatment; and the need for psychology and psychiatric services seems disproportionate to the subject crash and injuries.

**Dr. Jeffrey Wang/Keck Medical Center of USC; addendum report: March 30, 2024**

Dr. Wang opined that there are still no structural injuries, and he does not relate any of the ongoing subjective reports of spine symptoms nor any ongoing or future medical care to the spine to be causally related to the subject crash. Dr. Wang’s initial opinions remain unchanged.

**Dr. Raimondo Leon supplemental report; May 22, 2024**

Notes Dr. Freeman’s methodology for analysis, report, and summary but without comment or opinion. Agrees that Mr. Morris’s injuries and sequelae are causally related to the subject crash in his initial report.

*General comments on Mr. Oliveri’s approach*

The purpose of Mr. Oliveri's opinion is to provide a backdoor medical causation opinion that Mr. Morris was not injured in the subject collision because he (Mr. Oliveri) deemed any injury to be *impossible* in the crash. Mr. Oliveri made no attempt to assess the actual probability of injury from any real-world crash like the subject collision, information which can only come from observational (epidemiologic) study of injuries associated with real world crashes, not from intellectually dishonest comparisons between one of the most common causes of injury in the US to innocuous activities of daily living. Mr. Oliveri cites to multiple publications in his report, yet none of them provide valid or reliable evidence that the injuries diagnosed in Mr. Morris cannot, or did not, result from the collision that he was exposed to.

As I noted in my original report in this matter, the generally accepted and peer-reviewed method of crash-related injury causation analysis for a specific individual is performed by assessing the risk of injury from the collision and comparing it to the probability that the injuries or conditions would have been present at the same point in time if the collision had not occurred. The process is referred to as a "3-step" injury causation method in which improbable alternative causes are ruled out and the single most likely cause is identified. The analysis is accomplished via the application of crash reconstruction, biomechanical, medical, and epidemiologic (risk assessment) principles.[[1]](#footnote-1)-[[2]](#footnote-2)[[3]](#footnote-3)[[4]](#footnote-4)[[5]](#footnote-5) This 3-step methodology has been extensively described in the peer-reviewed literature, been deemed generally accepted by Courts in the United States, and has been adopted as part of case law in the U.S.[[6]](#footnote-6)-[[7]](#footnote-7)[[8]](#footnote-8)[[9]](#footnote-9)[[10]](#footnote-10)

Mr. Oliveri’s frankly absurd comparisons to everyday activities and volunteer crash tests in no way addressed whether the subject collision could have caused the injuries and sequelae observed in Mr. Morris, the first element of the causal analysis. Mr. Oliveri’s blanket denial that a mechanism existed in the subject collision for any of Mr. Morris’s diagnosed and persisting injuries is an uninformed assertion with no basis in science, medicine, or the facts in this case and does not constitute an assessment of the plausibility of his injuries resulting from the collision.

Mr. Oliveri has no information on the pre-crash condition of Mr. Morris’s spine, or any other part of his body. He couldn’t pick him out of a lineup and hasn’t the faintest idea of his tolerance to any type of trauma, including the subject crash. **The tolerance of an individual to forceful external loads is only defined once it has been exceeded,** not based on comparisons to studies of dissimilar forces applied to bits and pieces of dead bodies (part of the basis for Mr. Oliveri’s opinion). A review of all of the evidence in the subject case clearly established the fact that Mr. Morris’s tolerance was exceeded by the forces of the subject crash.

As Mr. Oliveri does not (and cannot) dispute any of Mr. Morris’s diagnoses, and he does not provide an alternative explanation for how his diagnosed injuries would have occurred at the same time as the collision, his analysis is incomplete, and fails to account for the undeniable evidence of injury following the crash.

The generally accepted 3-step approach to causation described above dictates that if there are no other contemporaneous competing causes for the injury that are more likely than an investigated plausible cause of the injury, then it is the investigated cause that is the most likely cause. Mr. Oliveri simply ignored Mr. Morris’s medical history like it never happened; his approach to "assessing" the cause of his injuries was to reject any evidence that he was injured in the first place. Mr. Oliveri doesn’t consider, much less mention the fact, that there are no plausible competing causes of Mr. Morris’s injuries occurring at the same time as the crash.

The concept of injury thresholds as a bright line below which no injury can occur is one that has been evaluated and rejected by the biomechanical community that is involved with the evaluation of occupant forces in motor vehicle crashes. Injury thresholds have nothing to do with the evaluation of real-world collisions and can never be used to deny the presence of a real-world injury following a collision. This is made clear in an SAE publication (J885) that summarizes human threshold data for use in government crash testing:[[11]](#footnote-11)

"Such [tolerance] specifications are beyond the state-of-the-art in biomechanics except perhaps for a few academic situations. There are several difficulties which prevent a ready establishment of human tolerance levels. First, there are differences in judgment as to the specific degree of injury severity that should serve as the tolerance level. Second, large differences exist in the tolerances of different individuals. It is not unusual for bone fracture tests on a sample of adult cadavers to show a three-to-one load variation. Presumably, variations of at least this magnitude exist in the living population. Finally, most tolerance levels are sensitive to modest changes in the direction, shape, and stiffness of the loading source. The above considerations indicate that complete and precise definitions of human tolerance levels will require large amounts of data based on controlled statistical samples. Only in this way can the influence of age, size, sex, and weight be comprehensively assessed and only in this way can mean loads and statistical measures of scatter be linked to specific tolerance levels."

1. Melia P et al. Development of the INFERENCE (INtegration of Forensic Epidemiology and the Rigorous EvaluatioN of Causation Elements) approach to causal inference in forensic medicine. Int J Environ Res Public Health 2020;17:8353; doi:10.3390/ijerph17228353. [↑](#footnote-ref-1)
2. Freeman MD, Zeegers M. Principles and applications of forensic epidemiology in the medicolegal setting. Law, Probability, & Risk 2015; doi:10.1093/lpr/mgv010. [↑](#footnote-ref-2)
3. Koehler S, Freeman MD. Forensic epidemiology; a methodology for investigating and quantifying specific causation. Forens Sci Med Path 2014 Jun;10(2):217-22 [↑](#footnote-ref-3)
4. Hashish R, Badday H. Frequency of acute cervical and lumbar pathology in common types of motor vehicle collisions: a retrospective record review. BMC Musculoskeletal Disorders 2017;18:437 [↑](#footnote-ref-4)
5. Freeman MD. A practicable and systematic approach to medicolegal causation. Orthopedics 2018;41(2):70-2. [↑](#footnote-ref-5)
6. Freeman MD, Centeno CJ, Kohles SS. A systematic approach to clinical determinations of causation in symptomatic spinal disc injury following motor vehicle crash trauma. PM R 2009;1(10):951-6. [↑](#footnote-ref-6)
7. Hashish R, Badday H. Frequency of acute cervical and lumbar pathology in common types of motor vehicle collisions: a retrospective record review. BMC Musculoskeletal Disorders 2017;18:437 [↑](#footnote-ref-7)
8. Bunketorp O (2017) WAD – Criteria for Evaluation of Causality. Open J Trauma 1(3):054-063. [↑](#footnote-ref-8)
9. 35 F.Supp.3d 1360 United States District Court, D. Colorado. Donald L. Etherton, Plaintiff, v. Owners Insurance Company, a Michigan Insurance Company, Defendant. Civil Action No. 10–cv–00892– PAB–KLM [↑](#footnote-ref-9)
10. Etherton v. Owner Insurance Company. U.S. District Court of Appeals, 10th Circuit. Case No. 14-1164. [↑](#footnote-ref-10)
11. Freeman MD, Leith WM. Estimating the number of traffic crash-related cervical spine injuries in the United States; an analysis and comparison of national crash and hospital data. Accident Analysis and Prevention 2020: doi:https://doi.org/10.1016/j.aap.2020.105571. [↑](#footnote-ref-11)