Texas Trial Lawyers Association
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March 3, 2016
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Attacking the Bio-Mechanic
APPENDIX 2

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Appendix 2

CAUSE NO. 372270

MELODY SCHOONOVER	§	**IN THE COUNTY COURT**
Plaintiff,	§	
	§	
V.	§	**AT LAW NO. 10**
	§	
GEICO GENERAL INSURANCE	§	
COMPANY	§	
Defendant.	§	**BEXAR COUNTY, TEXAS**

PLAINTIFF'S MOTION TO EXCLUDE CHARLES E. BAIN, M.D. FROM TESTIFYING AS AN EXPERT WITNESS, AND TO STRIKE HIS PROPOSED EXPERT TESTIMONY

TO THE HONORABLE JUDGE OF SAID COURT:

NOW COMES Plaintiff, Melody Schoonover, and files her Motion To Exclude Charles E. Bain, M.D. ("Bain") From Testifying as An Expert Witness, and To Strike His Proposed Expert Testimony in this case. In support, Plaintiff would respectfully show this Court the following:

I. FACTS

On or about April 26, 2009, a motor vehicle accident involving Plaintiff and Jorge Izquierdo occurred as follows: Plaintiff Melody Schoonover was stopped at a red light near the intersection of Military Highway and Highway 90. Jorge Izquierdo rear-ended Plaintiff's vehicle. As a direct and proximate cause of the accident, Plaintiff, Melody Schoonover, sustained bodily injuries.

On April 26, 2009, the date of the accident, Melody Schoonover was covered by insurance issued by Defendant, policy number 0140166150101053, issued by Geico General Insurance Company. This policy included coverage for underinsured motorists. Plaintiff, Melody Schoonover, is a valid "covered person" under this policy as the insured. Defendant was timely informed of the accident, and notified that Plaintiff intended to claim her underinsured benefits in a letter dated November 2, 2010.

II. ARGUMENT

DEFENDANT'S DESIGNATED EXPERT, CHARLES BAIN, MD, IS UNQUALIFIED AND HIS OPINIONS, TESTIMONY, AND CONCLUSIONS ARE UNRELIABLE, HAVE NO PROPER FOUNDATION, ARE UNSCIENTIFIC AND SHOULD BE EXCLUDED AND STRICKEN.

A. Summary of Bain's Conclusions.

The Defendant has retained Charles E. Bain, M.D. as an expert in this case. Bain is a medical doctor employed by Biodynamics Research Corporation, Inc. and has been designated by Defendant to provide expert testimony in the area of injury causation and biomechanics. His report is summarized as follows:

1. At the time of the wreck, **if** Izquierdo's Mitsubishi's delta-V was as high as 7mph, **then** Plaintiff's Ford's delta-V would have been 4.6 mph, **if** the closing velocity of the Mitsubishi would have been 9 mph, **then** the Ford's peak acceleration would have been 4.1 g.

2. Any neck pain experienced from either a low-speed rear impact or high-speed rear impact resolves in weeks.

3. Disk injuries do not occur from traumatic events such as car wrecks, falls, or lifting heavy objections improperly unless the event causes a bone fracture.

4. There is no association between car wrecks, falls, and lifting and chronic low back pain.

5. Protruding disks, annular tears and spondylolisthesis cannot be made chronically painful by a traumatic event.

6. Studies have shown that there is no association between minor traumas such as car collisions, falls and lifting and adverse low back pain events.

7. The car wreck did not exacerbate or aggravate Schoonover's degenerative disk disease.

8. Schoonover's symptoms relating to the car wreck should have resolved in a few weeks or in three months at the outside; after that, those complaints are related to psychological issues, including compensation issues.

B. *Robinson* Analysis Must Be Applied

Bain's testimony should be excluded by the Court because his opinions are not reliable pursuant to Rules 702 or 703 of the Texas Rules Of Civil Evidence, and do not meet the requirements set out in *E.I. duPont de Nemours & Company, Inc. v. Robinson*, 923 S.W.2d 549 (Tex. 1995). Defendant has the burden of establishing that Bain's testimony meets these requirements.

Rule 702 of the Texas Rules of Evidence requires that, not only must an expert witness be qualified, but his testimony must also be shown to be both relevant to the issues in the case and based upon a reliable foundation. *Gammill v. Jack Williams Chevrolet, Inc.*, 972 S.W.2d 713, 727-28 (Tex.1998); *Robinson*, 923 S.W.2d at 554. To be relevant, the testimony must be "sufficiently tied to the facts of the case that it will aid the jury in resolving a factual dispute." *Robinson,* 923 S.W.2d at 556. In determining reliability, the factors that a trial court may consider include, but are not limited to:

(a) the extent to which the theory has been or can be tested;

(b) the extent to which the technique relies upon the subjective interpretation of the expert;

(c) whether the theory has been subjected to peer review and/or publication;

(d) the technique's potential rate of error;

(e) whether the underlying theory or technique has been generally accepted as valid by the relevant scientific community; and

(f) the non-judicial uses which have been made of the theory or technique.

Robinson, 923 S.W.2d at 557. If the trial judge determines that the expert's testimony meets the tests of both relevancy and reliability, the court must then determine whether to exclude the evidence because its probative value is outweighed by the danger of unfair prejudice, confusion of the issues or misleading the jury. *Id.;* Tex. R. Evid. 403.

Using the *Robinson* factors as guidance, it is clear that Bain's proposed expert testimony does not satisfy the Texas Rules of Evidence requirements for admissibility and should be excluded.

C. Analysis of Bain's Report

Bain's written report was submitted July 22, 2012. *See* report of Charles E. Bain, M.D., attached and referred hereto as Exhibit 1. Reviewing Bain's report, it is abundantly clear that the opinions and testimony Bain offers are unreliable and irrelevant, and therefore must be excluded. *Robinson*, 925 S.W.2d at 557; Tex. R. Evid. 702. It is also obvious that Bain is wholly unqualified as an expert in the areas in which he claims to have expertise and that he should not be allowed to provide any expert testimony in this case. Further, the report and opinion given by Bain would only serve to confuse the issue, mislead the jury, and be unfairly prejudicial to the Plaintiff in a trial of this case. All the preceding factors outweigh any probative value Bain's testimony may have. *Id.;* Tex. R. Evid. 403.

i. Disc Injuries as They Relate to Trauma

Bain's opinion as to the degree of force inflicted on Plaintiff and her vehicle in the accident made the basis of this lawsuit is purely speculative. Exhibit 1, pg. 4, ¶ 7 (using an "if..then" proposition as his methodology). The report never provides an opinion as to the **exact** speed the Mitsubishi was traveling or the **exact** degree of force applied. Exhibit 1, pg. 4, ¶ 7. After brushing over the issues of speed and force, he opines that there is no way this accident could have caused Schoonover's injuries. *See* Exhibit 1. However, in order to draw

this conclusion – whether Schoonover could have been injured in the accident – he must first provide a reliable, scientifically supported analysis of the accident in question. *See Robinson*, 923 S.W.2d 549. Many of the scientific articles upon which Bain relies reach their conclusions based upon the degree of force and/or speed of a vehicle, therefore, Bain must prove that the accident falls within the scope of the research used to support his argument.

Bain first relies on Expert AutoStats to support his contention that this was a "minimal contact accident." Exhibit 1, pg. 4, ¶ 5. Bain uses Expert AutoStats to obtain dimensional data of the vehicles involved in the accident; the software does not provide for accident reconstruction. Exhibit 1, pg. 4, ¶ 5. Expert AutoStats' user guide cautions about the danger in accident reconstruction of attempting to "fine tune" the calculations. Expert AutoStats' User Guide, pg. 9, attached hereto as Exhibit 2. "There is also danger in believing that if one sees information…it is correct and beyond dispute…that is not the case…as it applies to this program." Exhibit 2, pg. 9. Additionally, the height measurements provided by Expert AutoStats are based on several factors: tire size, profile, and air pressure. Expert AutoStats advises that there could be a 2 to 3 inch variance. Exhibit 2, pg. 13. The braking data provided by Expert AutoStats "are highly dependent on the skill of the driver." Exhibit 2, pg. 16. The data upon which Bain relies is not dependable to make a determination based solely on bumper height and braking. Bain draws the conclusion that because there is no evidence that the Mitsubishi hit the Ford's hitch and/or exhaust system, then there must have been minimal contact between the vehicles. Exhibit 1, pg. 4, ¶ 5. Bain makes this assertion without considering the variety of angles a car may be situated while waiting to turn, or if another car swerves in an attempt to avoid the collision. Exhibit 1, pg. 4, ¶ 5. Both these alternative theories would reasonably explain why either the trailer hitch or exhaust system was not damaged or struck in the collision. Bain's determination that there is "no evidence"

is based upon 2 photos of the Mitsubishi, and no analysis of the Mitsubishi's repair estimate. Exhibit 1, pg. 2, ¶ 8.

The next report relied upon is the Insurance Institute for Highway Safety 5 mph testing.[1] Exhibit 1, pg. 4, ¶ 6. This report analyzes the **front bumper** during a 5 mph front crash into a barrier, yet the report is for a 2002 Mitsubishi Lancer, and while the 2004 Mitsubishi Lancer (the vehicle that struck Schoonover) is practically the same, the only difference is a **redesigned front bumper**, as admitted by Bain. Exhibit 1, pg. 4, ¶ 6. This report is inapplicable, as the 2004 model is distinguishable from the very subject of the research: the front bumper.

Bain then argues that several studies have documented a relationship between speed and injury potential. Exhibit 1, pg. 5, ¶ 2. Bain's opinions regarding the injury potential of the car wreck to Schoonover are based on the premise that he was able to quantify the degree of force imparted to Plaintiff-Schoonover in the crash and that the quantity of force was insufficient, or below the threshold of force necessary to cause the injuries suffered by Plaintiff. This is known as a "threshold" defense tactic, meaning that the crash forces are said to be below the injury threshold for the Plaintiff. It is a technique not used outside of litigation and is used solely to defend claims to recover for personal injuries. There is no rational or reliable basis for this theory, and this factor alone demonstrates that his opinions are inadmissible and should be stricken. However, the studies upon which Bain relies to make such bold conclusions are inadequate for a number of reasons.

The first methodological error found within these studies is the inadequate study size. "Rear-End Impact Testing with Human Test Subjects" by T.A. Bruan, et al.[2] tests **seven**

[1] Insurance Institute for Highwasy Safety, "Bumpers on 3 Small Cars Fail to Resist Low-Speed Damage." News Release. March 13, 2002.
[2] Braun, T.A., J.H. Jhoun, et al. (2001). Rear-End Impact Testing with Human Test Subjects. 2001-01-0168, Society of Automotive Engineers, Warrendale, PA.

volunteers, 6 of whom are male, and only 2 of whom are within a decade of Schoonover's age at the time of the incident. "Analysis of Human Test Subject Kinematic Responses to Low Velocity Rear End Impacts" by W.E. McConnell, et al.[3] tests **four volunteers**, all male, all of whom were employed for the company doing the research: Biodynamic Research Corporation (the same company by whom Bain is employed). McConnell literally stacked the study with his colleagues, who were vested in their employment and the results of the study. "Brake Pedal Response and Occupant Kinematics During Low Speed Rear-End Collisions" by M. Ivory, et al.[4] came to their conclusions based on tests of **six volunteers**. The confidence interval is simply too wide in any of these studies to draw a supportable scientific conclusion, and thus Bain's assertions from the studies. Further, the participants in these studies are entirely nonrepresentative of the population as a whole. Almost all the test subjects were male, and the studies contain colleagues of the authors. These participants would be less likely to report any injury, since it would be contrary to the study's hypothesis. Even if these studies had an adequate sample size, they still draw their conclusions based on nonrepresentative crash conditions. The studies consisted of perfectly healthy males, who were prepared for the impact, and situated ideally in the seat at the time. These particular facts do not represent the majority of crash victims, and certainly not Schoonover, a middle-aged female surprised by the rear-end impact caused by Jorge Izquierdo.

Bain then cites "Scientific Monograph of the Quebec Task Force on Whiplash-Associated Disorders: Redefining 'Whiplash' and its Management" by W.O. Spitzer, et al.[5] This study is fatally flawed for several reasons. First, the sample used for this insurance data

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[3] McConnell, W.E., R.P. Howard, et al. (1993) Analysis of Human Test Subject Kinematic Responses to Low Velocity Rear-End Impacts. 930889, Society of Automotive Engineers, Warrendale, PA.
[4] Ivory, M.A., C.J. Furbish, et al. (2010). Brake Pedal Response and Occupant Kinematics During Low Speed Rear-End Collisions. 2010-01-0067, Society of Automotive Engineers, Warrendale, PA.
[5] Spitzer, W.O., M.L. Skovron, et al. (1995). "Scientific Monograph of the Quebec Task Force on Whiplash-Associated Disorders: Redefining "Whiplash" and its Management." Spine. 20: 1-73.

study is non-representative of the population as a whole: the study was comprised of individuals who received insurance compensation for cervical sprains and strains in Quebec in 1987. The insurance database from which the study got their test 'subjects' provided age, gender, and geographical region, but provided no information about treatment received, symptoms, or the extent of functional impairment. The sample also excluded any person who, in addition to their neck strain or sprain, had any other diagnosis, such as lumbar strain. Second, the report defines "recovery" as cessation of compensation from the insurance provider. The 'results' and 'discussion' sections of the study refer to when percentages of the population have "recovered" but did not gather the information necessary to actually determine the level of recovery after an injury: amount or type of treatment, symptoms, functional impairment. Third, the report has unsupported conclusions, especially in light of other studies included within the report. The report, in its prevalence of symptoms at follow-up referenced "The Prognosis of Neck Injuries Resulting from Rear-End Vehicle Collisions" by S.H. Norris and I. Watt, saying that 66 percent of their cohort study had neck pain an average of two years after their incident (the report actually stated that neck pain at a two year follow up existed in 44%, 81%, and 90% in the three groups they studied). Next, "Role of Psychological Stress in Recovery from Headache After Common Whiplash" by B.P. Radanov, et al. was cited in the "prevalence of symptoms at follow-up" table, which found in two different studies that 27% of individuals had headaches six months after the collision. Last, the table included the "Outcome After Soft-Tissue Injury if the Cervical Spine: A Prospective Study of 93 Car-Accident Victims" by C. Hildingsson and G. Toolanen. Hildingsson and Toolanen reported that 43% of their cohort was symptomatic two years after injury. Despite these findings, the Spitzer article concluded that any whiplash associated disorder are benign and rarely result in permanent harm. This bold assertion contradicts the

very research relied upon within the report, and is unsupported by the data. These three methodological flaws within the Spitzer report deem it unreliable, at best, and any opinion arising there from is also unreliable.

Bain relies on another study, "Pain After Whiplash: A Prospective Controlled Inception Cohort Study" by D. Obelieniene, et al.[6] Exhibit 1, pg. 5, ¶ 2, to support his contention that any symptoms Schoonover may have experienced, assuming she was injured, would have been resolved weeks after the incident. Bain attempts to draw conclusions about Schoonover based on a cohort study conducted in Luthuania. This study has been criticized because while the study includes over 210 individuals, this is an inadequate sample size because only 15% of these (32 individuals) had actually been injured initially and thus exposed to late whiplash. Michael D. Freeman & Arthur C. Croft, "Late Whiplash Syndrome, 3d reply." The Lancet, July 13, 1996, at 125. In order for the study to have sufficient statistical power to discern a significant difference between the two groups, the total study cohort would need to be at least 3,000 individuals. Michael D. Freeman, "The Epidomology of Late Whiplash." Presentation to the British Columbia Chiropractic Association, November, 1997 Vancouver, B.C. Any conclusions drawn within the study or by Bain from the study are not based on valid research results.

The next assertion Bain makes compares a study based on delta forces – no valid assertion of the delta V at the time of the incident has been made – which asserts that the forces involved in a rear-end collision are comparable to everyday sports and activities. Exhibit 1, pg. 5, ¶ 3. Bain asserts that because the same forces are involved in activities like soccer ball heading, head shaking, and chair tip-overs and these do not cause injuries, then

[6] Obelieniene, D., H. Schader, et al. (1999). "Pain After Whiplash: A Prospective Controlled Inception Cohort Study." Journal of Neurology, Neurosurgery, and Psychiatry. 66: 279-283.

whiplash forces should not cause injuries. *Id.* This study[7], also conducted by Bain and his Biodynamic Research Corporation colleagues, involved 20 volunteers. The study size is too small of a sample to produce scientifically reliable results. Beyond this flaw, the study correlates whiplash and other movements studied (a soccer ball impact to the head, a voluntary hand strike to the forehead, plopping down in a seat, and a vertical drop while seated in a supine chair). None of these movements duplicate the direction, or vector of force of whiplash trauma. Most of the acceleration in rear-end impact crashes is along the x vector, which is from front to back. This vector was not represented to the extent that is actually seen in an accident by these 5 activities. It is apparent that Bain and his colleagues had no other purpose to create this study other than to trivialize whiplash injuries. There is no scientific reason to study and compare other movements that do not usually cause whiplash injury and his study could not have actually yielded any real scientific information about whiplash injuries since neither the injuries nor the mechanisms of these injuries were studied.

Bain cites "Response of Out of Position Dummies in Rear Impact" by C.E. Strother, et al.[8] to support his assertion that "various authors have investigated lumbar load in rear-end impacts." Exhibit 1, pg 5, ¶ 4. While that may be the case, none of the researched cited supports his assertion that Schoonover could not have been injured in the accident made the basis of this lawsuit "as a result of the excellent support provided by her seatback." Exhibit 1, pg 5, ¶ 4. The Strother article directly contradicts this finding because the publication articulates in the field data that a significant number of individuals involved in accidents are not positioned in the "normal seated position" at the time of impact, which may be a result of braking, swerving, or an individual could be leaning forward at the moment of incident. Such

[7] Funk, J. R., J. M. Cormier, et al. (2007). An Evaluation of Various Neck Injury Criteria in Vigorous Activities. 2007 International IRCOBI Conference on The Biomechanics of Impact, Maastricht, Holland.
[8] Strother, C.E., M.B. James, et al. (1994). Response of Out-Of-Position Dummies in Rear Impact, 941055, Society of Automotive Engineers, Warrendale, PA.

would be the case with in individual, such as Schoonover, who has just applied her brakes, is about to turn, and may be leaning forward to see if any vehicles are coming in order to make a safe right turn. There is no way, absent Bain's own observation inside Schoonover's car at the time of impact, that he can make the absolute conclusion that Schoonover was seated in the ideal position, that the seat itself was all the way up and not leaned back, and that the seatback did in fact create little differential movement.

In an attempt to draw conclusions based on other research regarding lumbar accelerations and lumber loads, Bain creates his own estimation of the amount of force Schoonover experienced. Exhibit 1, pg. 5, ¶ 5. In order to do so, Bain utilized the 'University of Michigan 3D Static Strength Prediction Program' ("3DSSPP") ergonomic software as well as a visual aid in the form of a chart. Exhibit 1, pg. 5, ¶ 5, pg. 6. The 3DSSPP software is precluded from providing Bain or this Court with an estimation of the force applied to Schoonover at the time of the accident, because this software is not designed to predict the force of an individual during a rear-end collision, rather the software only predicts static strength requirements for tasks such as lifts, presses, pushes, and pulls. It is not necessary to provide this Court with the various and abundant ways in which an individual who has been subjected to a rear-end collision is drastically different from picking up a large, heavy box.

The program creates job simulations based on posture, gender, and other factors which then outputs the percentage of men and women who have the strength to do the particular task input into the computer system. Extensive research into the program has not revealed the ability to input data (force vectors, speed, mass, etc.) from a rear-end collision. Beyond the absence of the programs ability to adequately provide a simulation of Schoonover, 3DSSPP is most useful in the analysis of slow movements used in heavy materials handling tasks because the biomechanical computations **assume the effects of**

acceleration and momentum are negligible. This is inapposite to the environment in which a rear-end collision occurs: rather than a slow movement, the duration of the peak acceleration during a rear-end collision is 70 milliseconds. Gunter P. Siegmund, et al. (1997). Head/Neck Kinematic Response of Human Subjects in Low-Speed Rear-End Collisions, 973341, Society of Automotive Engineers, Warrendale, PA.. Further, Bain has had no training on the use of 3DSSPP and thus any conclusion based on his use of the program is a layperson's guess, at best. The University of Michigan offers training workshops through the Center for Occupational Health and Safety Engineering as well as open enrollment in course 'Using the 3D Static Strength Prediction Program.' Bain's Curriculum Vitae does not reveal any training in 3DSSPP. This is particularly important because the 3DSSPP assumes the analyst understands the application of program design.

To assist in Bain's explanation of his estimation of the amount of axial load and how Schoonover could not have possibly been injured, he included a chart of other actions and the axial load associated. Exhibit 1, pg. 6, Figure 1. Bain has once again attempted to prove that because other daily maneuvers exert some sort of force on the human body yet does not cause injury, then so must a rear-end collision victim not sustain injury. This logic is flawed as there is no category for 'sustaining a rear-impact collision.' What is also absent is any activity that would even resemble the position of one's body while seated inside a vehicle, any activity in which the force in question came from behind the person, any activity where the person was unprepared for the force, or any activity where the force came from another outside factor, and not the movements of the person. It is a fallacy to analogize walking, sitting in a chair, or picking up a box with a rear-end collision. It is further fallacy, one might even argue it is intellectually dishonest, to argue that since one's spine is not injured while

walking, sitting in a chair, or picking up a box, then one cannot be injured in a rear-end-type automobile collision.

Further, the table is scientifically unreliable because there is no axis to gauge the weight of the person. The table provides one line: 'Weight of Average Man,' however provides no statistical data regarding the weight of the average man, and thus it is impossible to relate this table to Schoonover and her weight.

Because Bain has not presented scientific support for his assertion on the amount of axial load Schoonover experienced during the rear-end collision, his reliance on the Manoogian and Ng articles[9][10] are irrelevant. Exhibit 1, pg. 5 ¶ 5. Even if Bain had presented documentation for the amount of force exerted on Schoonover's lumbar spine in the accident, these articles consist of the same flaws seen in the figure included in the Spitzer article. That is, flawed reasoning based on comparisons between everyday activities and rear-end auto collisions. These articles conclude that because one is not injured in everyday activities, one cannot be injured in a rear-end auto accident. For example, "Thoracic and Lumbar Spine Accelerations in Everyday Activities" by T.P. Ng studied sitting in a chair, sitting quickly in a chair, walking, running, jumping jacks, jumping up, and jumping off a step 20 cm high. The article makes no connection with these activities and their relation to being in a rear-impact collision nor how the results of these findings are comparable.

Bain's assertion that disc injuries cannot be as a result of a single traumatic event unless bone disruption occurs is unsubstantiated. Exhibit 1, pg. 6 ¶ 3- pg. 7 ¶ 1. The reports upon which Bain relied to make this assertion make this finding based on experiments conducted on only segments of the spine. Studying a singular disc with its attached singular

[9] Manoogian, S. J., J. R. Funk, et al. (2010). Evaluation of Thoracic and Lumbar Accelerations of Volunteers in Vertical and Horizontal Loading Scenarios, 2010-01-0146, Society of Automotive Engineers, Warrendale, PA.
[10] Ng, T. P., W. R. Bussone, et al. (2006). "Thoracic and Lumbar Spine Accelarations in Everyday Activities." Biomedical Sciences Instrumentation. 42: 410-415.

vertebrae while outside of the body does not amount to research that can reasonably be connected back to the functioning and pain that exists for an entire connected spine while still inside of a living body. Further, the experiments conducted still fail to simulate the trajectory of forces that are experienced in a rear-end collision. For example, "Injury of the Annulus Fibrosis and Disc Protrusions: An In Vitro Investigation on Human Lumbar Discs" by P. Brinkman[11] as well as "Biomechanical Response of the Human Cervical Spine" by S.M. Duma[12] only examine spine segments subjected to axial compression which does not replicate the force that is applied during a rear-end collision. The same can be said for "Mechanical Response of the Lumbar Intervertebral Joint Under Physiological (Complex) Loading" by H.S. Lin.[13] While this research explored more than axial compression with eccentric loading – using wedge shaped load head and rotating the vertebrae – none of the research imitated the force vectors of a rear-end collision. That is, the force is on the x axis. Bain also uses the Duma article to support his assertion that traumatic disc injury occurs rarely and distinct from degenerative disc disease. Exhibit 1, pg. 7 ¶ 1. This research investigated the effect on a spine segment when subjected to **axial** compression, a force not experienced by Schoonover in this accident. Further, this research was conducted solely on male specimens. This is important because not only is this nonrepresentative of the general population, but also because an article cited by Bain, "An Epidemiological Study of MRI and Low Back Pain in 13-year-old Children" by P. Kjaer, et al.[14], comes to the conclusion that there is a **gender difference** between what section of the spine caused lower back pain in the

[11] Brinckman, P. (1986). "Injury of the Annulus Fibrosis and Disc Protrusions, An *in vitro* Investigation on Human Lumbar Discs." Spine. 11(2): 149-153.
[12] Duma, S. M., A. Kemper, et al. (2008). Biomechanical Response of the Cervical Spine. Rocky Mountain Bioengineering Symposium and International ISA Biomedical Sciences Instrumentaion Symposium, Copper Mountain, CO.
[13] Lin, H. S., Y. K. Liu, et al. (1986). "Mechanical Response of the Lumbar Intervertebral Joint under Physiological (Complex) Loading." The Journal of Bone and Joint Surgery. 60: 41-55.
[14] Kjaer, P., C. Leboeuf-Yde, et al. (2005). "An Epedimiologic Study of MRI and Low Back Pain in 13-Year Old Individuals." Spine. 30(7): 798-806.

girls versus the boys. Bain attempts to support his assertion through other articles, "Cervical Spine Injury Mechanisms" by G.S. Nusholtz, et al.[15] and "Experimental Spinal Injuries with Vertical Impact" by N. Yoganandan, et al.[16], but these studies also contain fatal flaws as seen in other reports. Exhibit 1, pg. 7 ¶ 1. First, the sample size is too small (15), hardly enough to give scientifically supported results without a large range of error. Second, the sample size consists of cadavers, eight in the Nusholtz article and Fifteen total, only 8 of which simulated muscles in a real person, in the Yoganandan article. Third, the method of the research was dropping a cadaver on its head; free falling upside down is hardly a simulation of what happened to Schoonover's spine during her rear-end collision. Even if these methodological errors were not harmful, the Yoganandan article found that the cadavers which were restrained in order to simulate muscle forces were the ones most severely injured. "The Influence of End Condition on Human Cervical Spine Injury Mechanisms" by R.W. Nightingale[17] has similar methodological flaws. Exhibit 1, pg. 7 ¶ 1. The research was conducted on 18 unembalmed cadaver spine segments from the base of the skull through the first thoracic vertebra. The method was then to apply axial pressure to these segments. There is no axial pressure asserted on the spine during a rear-end collision, making this research irrelevant to the question at hand. The purpose of the Nightingale article was to determine spine injuries based on three different types of neck constraints: unconstrained, rotation constrained, and full constraint. The research acknowledges that there are other factors beside head constraint that predispose a spine to injury such as the initial position of the neck and the presence of a preflexed back. *Influence of End Condition* at 397.

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[15] Nusholtz, G. S., D. E. Huelke, et al. (1983). Cervical Spine Injury Mechanisms. 831616, Society of Automotive Engineers, Warrendale, PA.
[16] Yoganandan, N., A. Sances, et al. (1986). "Experimental Spinal Injuries with Vetical Impact." Spine. 11(9): 855-860.
[17] Nightingale, R. W., B. S. Myers, et al. (1991) The Influence of End Condition on Human Cervical Spine Injury Mechanisms. Proceedings of the 39th Stapp Car Crash Conference, Paper 912915.

Similarly, Bain's reliance on "The Role of Torsion in Cervical Spine Trauma" by B.S. Myers, et al.[18] is misplaced because the method used in not analogous to the force a spine experiences in a rear-end collision. Exhibit 1, pg. 7 ¶ 1. Myers studied the effect of a lower spine when the head is rotated using a machine that applies torque during a pure rotation of the head. This publication is irrelevant and does not support the conclusions Bain makes in reference to this case at hand. This is also the case for "Cervical Injuries Under Flexion and Compression Loading" by R.R. Crowell, et al.[19] because this research only studied cadaver spine segments subjected to pure flexion rotation or pure flexion rotation combined with axial compression. Exhibit 1, pg. 7 ¶ 1. However, in the rear-end collision made the basis of this suit, there is no evidence in the record to stand for the proposition that Mrs. Schoonover's spine was rotated, nor is there any evidence that axial force was applied to the top her head. Therefore, the conclusions based on this report should not be held as relevant.

Likewise, Bain relies on "Dynamic Characteristics of the Human Cervical Spine" by F. Pintar, et al.[20] which is inapplicable because it only studied neck injuries as a result of hitting the crown of the head at varying speeds. Exhibit 1, pg. 7 ¶ 1. Again, there is no evidence to suggest Mrs. Schoonover's injuries are as the result of axial force being applied to the crown of her head in this accident.

Bain asserts, "Epidemiology, Classification, Mechanism, and Tolerance of Human Cervical Spine Injuries" by B.S. Myers[21] does not provide research on cadavers, rather, it reviews already published research. Exhibit 1, pg. 7 ¶ 1. The study essentially compared a

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[18] Myers, B. S., J. McElhaney, et al. (1991). "The Role of Torsion in Cervical Spine Trauma." Spine. 16(8): 870-874.
[19] Crowell, R. R., M. Shea, et al. (1993). "Cervical Injuries Under Flexion and Compression Loading." Journal of Spinal Disorders. 6(2): 175-181.
[20] Pintar, F., N. Yoganandan, et al. (1995). Dynamic Characteristics of the Human Cervical Spine. Proceedings of the 39th Stapp Car Crash Conference, Paper 952722.
[21] Myers, B. S. and B. A. Winkelstein (1995). "Epidemiology, Classification, Mechanism, and Tolerance in Compressive Impacts." Critical Reviews in Biomedical Engineering. 23(5&6): 307-409.

multitude of other published research to compose classifications, such as an age dependent variation in the location of cervical spine injury. Ultimately, the article concluded with the assertion that there are areas in which more research needs to be done, specifically in the area of spinal injury biomechanics. Plaintiff could not agree more.

The final article Bain cites in reference to the cadaver research is "The Dynamic Responses of the Cervical Spine: Buckling, End Conditions, and Tolerance in Compressive Impacts" by R.W. Nightingale, et al. Exhibit 1, pg. 7 ¶ 1. This published article is presented based on head impact. The cadaver's head and neck were attached to a drop track system to find results of spinal injuries related to head impact. Schoonover did not hit her head when she was rear-ended. Any results presented from the study would not be helpful in determining what caused Schoonover's spinal injuries.

Bain lacks the requisite research to support his claim that disc injuries "cannot be generated …in cadaver specimens" because out of all the research Bain cites, none produce any relevant research to the case at hand with applicable research methodologies. Exhibit 1, pg. 7 ¶ 2. Additionally, it is flawed reasoning to conclude that because some research did not find any disc injuries after a particular event and other research did find injuries after another certain type of event, that the latter is the only event in which would cause the injury. Bain presents such flawed reasoning when he states that because research on cadavers when subjected to axial compression or pure rotation does not cause a disc injury, but other research on other cadavers subjected to repeated cyclic loading does cause disc injuries, this must mean that disc injuries occur progressively and not as a sudden event. Exhibit 1, pg. 7 ¶ 2.

ii. Disc Injuries Resulting from Aging, Wear and Tear, and Genetic Factors

Bain attempts to blame-shift, again, and asserts that most disc injuries are the result physiological and genetic factors. Exhibit 1, pg. 7 ¶ 3. While research may show that these factors play a role in certain disc injuries, the research does not exclude the possibility or probability of Schoonover's injuries arising from her rear-end collision. The assertion made by Bain that genetic and physiological elements "play a much more important role" in disc injuries is not supported by the research cited. Exhibit 1, pg. 7 ¶ 3. The first study, "The Twin Spine Study: Contributions to a Changing View of Disc Degeneration" by M.C. Battie, et al.[22], contains the incongruent sample of twins that is not comparable to Schoonover, nor the American population, in general; the cohort consisted of Finnish males.

Another article relied upon which stands for the proposition that degenerative disc disease is as a result of aging and wear and tear, 'An Epidemiological Study of MRI and Low Back Pain in 13-year-old Children'[23] also notes that there is a gender difference in regard to disc degeneration. Therefore, a study based entirely on males cannot be relied upon in Bain's analysis of Schoonover, a female. While the "Twin Spine Study" found that genetic factors, including the first gene forms found in the study, do indeed play a role in disc degeneration, the study does not proclaim that genetics are the sole, or primary factor.

The research still concedes that 1) there are other elements that effect disc degeneration, and 2) these elements are mostly unknown. These important conclusions reached by the 'Twin Spine Study' provided a paradigm shift for the medical community concerning its views on degenerative disc disease. Further, the study stands for the proposition that aging and 'wear and tear' are not necessarily the primary factors in disc

[22] Battie, M. C., T. Videman, et al. (2009). "The Twin Spine Study: Contributions to a Changing View of Disc Degeneration." The Spine Journal. 9(47-59).
[23] Kjaer, P., C. Leboeuf-Yde, et al. (2005). "An Epedimiologic Study of MRI and Low Back Pain in 13-Year Old Individuals." Spine. 30(7): 798-806.

degeneration. This is significant, particularly in light of Bain's testimony that that aging and "wear and tear" are the primary factors behind disc degeneration.

The research used to support this contention that aging and wear and tear reaches conclusions inapposite to Bain's assertions. These studies are: "Gradual Disc Prolapse" by M.A. Adams and W.C. Hutton[24], "The Biomechanics of Lumbar Disc Herniation and the Effect of Overload and Instability" by D.G. Wilder, et al.[25], "Mechanism of Disc Rupture, A Preliminary Report" by S.J. Gordon, et al.[26], "Intervertebral Disc Herniation: Studies on a Porcine Model Exposed to Highly Repetitive Flexion/Extension Motion with Compressive Force" by J.P. Callaghan and S.M. McGill[27], and "Progressive Disc Herniation" by C. Tampier, et al.[28] Bain's presentation and reliance on the 'Twin Spine Study' nullified by these five studies, which conclude that aging and wear and tear are the primary factors behind degenerative disc disease (Twin Spine concluded that genetics were the primary factor). It is also important to note Bain's reliance on two studies based entirely on examining results from baby pigs' spines, "Intervertebral Disc Herniation: Studies on a Porcine Model Exposed to Highly Repetitive Flexion/Extension Motion with Compressive Force" by J.P. Callaghan and S.M. McGill[29], and "Progressive Disc Herniation" by C. Tampier, et al.[30] While baby pigs, or pigs in general, do have a spine, biologically speaking, distinct anatomical differences of vertebrae have been found between the human and pigs. Sun-Ren Sheng,

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[24] Adams, M. A. and W. C. Hutton (1985). "Gradual Disc Prolapse." Spine. 10(6): 524-531.
[25] Wilder, D. G. , M. H. Pope, et al. (1988). "The Biomechanics of Lumbar Disc Herniation and the Effect of Overload and Instability." Journal of Spinal Disorders. 1(1): 16-32.
[26] Gordon, S. J., K. H. Yang, et al. (1991). "Mechanism of Disc Rupture, A Preliminary Report." Spine. 16(4): 450-456.
[27] Callaghan, J. P. and S. M. McGill (2001). "Intervertebral Disc Herniation: Studies on a Porcine Model Exposed to Highly Repetitive Flexion/Extension Motion with Compressive Force." Clinical Biomechanics. 16: 28-37.
[28] Tampier, C., J. D. M. Drake, et al. (2007). "Progressive Disc Herniation." Spine. 32(25):2869-2874.
[29] Callaghan, J. P. and S. M. McGill (2001). "Intervertebral Disc Herniation: Studies on a Porcine Model Exposed to Highly Repetitive Flexion/Extension Motion with Compressive Force." Clinical Biomechanics. 16: 28-37.
[30] Tampier, C., J. D. M. Drake, et al. (2007). "Progressive Disc Herniation." Spine. 32(25):2869-2874.

Xiang-Yang Wang, et al., "Anatomy Of Large Animal Spines And Its Comparison To The Human Spine: A Systematic Review." Eur Spine J. 19(1): 46–56 (2010). Specifically, in the thoracic and lumbar regions, the mean pedicle height of porcine were found to be greater than the human pedicles. *Id.* The human spinal canal is wider and deeper in the anteroposterior plane than in a pig. *Id.* The mean human vertebral body width and depth is greater than that of swine. *Id.* "The ideal animal model for human spine does not exist…the differences between human and quadruped spines may affect the consequences for the interpretation of experimental results." *Id.* Therefore, the results from these studies cannot support claims made in reference to humans such as Schoonover.

The first article relied upon by Bain to support his claim that genetic and physiological factors are more important than mechanical loading is the 'Twin Spine Study' which documented interviews from Finnish male twins, a discussed above. The second article relied upon to carry this proposition is "Risk Factors for Lumbar Intervertebral Disc Herniation in Chinese Population: A Case-Control Study" by Y.G. Zhang, et al.[31] Bain's reliance on these studies in application to Schoonover is misplaced because the subjects are inherently different from Schoonover, or an average American female. Not only culturally, but also in every day habits, such as modes of transportation or physical taxation via employment. Rail is the primary mode of transportation in China. Fengbo Zhang, Ph.D., *An Economic Analysis of Chinese Transportation* (2009). Public transportation is also very common in Finland. Finnish Transport Agency, *Finnish Railway Statistics* (2011). Other studies previously relied upon in his report make claims that transportation and employment's physical demands can and do impact lumbar disc herniations. *See* D.G. Wilder, M.H. Pope, et al. *The Biomechanics of Lumbar Disc Herniation and the Effect of*

[31] Zhang, Y. G., Z. Sun, et al. (2009). "Risk Factors for Lumbar Intervertebral Disc Herniation in Chinese Population: A Case-Control Study." Spine. 34(25): E918-E922.

Overload and Instability (1988); Exhibit 1, pg. 7 ¶ 2; M.C. Battie & T. Videman, et al., *Determinants of Lumber Disc Degeneration*, Spine 20(24) 2601 ("heavier lifetime occupational and leisure physical loading was associated with greater disc degeneration…whereas sedentary work was associated with lesser degeneration").

Further, the purpose of the Zhang study, as specified in the objective, was to explore the risk factors of lumbar disc herniation **in China**. An objective of the study controls the research progression as well as the outcome. If the scientists had the objective to find answers specific to the Chinese population, it must not apply to United States Citizens in a United States court. The research further articulates the need to study spine changes or increased risk factors of lumbar disc herniation due to changes in living environments and working conditions **in China**. The purpose of the study can reveal no outcome that would apply to Schoonover. Further, Bain's conclusions based on the study are misleading. While Zhang's study did find that family history played a factor in disc injuries, he also found that there were many other factors, such as 'lumbar load', 'hard work' and 'time urgency.' This Court cannot allow Bain to testify that Schoonover's injury was not as a result of the automobile collision made the basis of this suit. The research and articles cited previously contradict one another. Some studies stand for the proposition that disc disease is purely degenerative and the result of aging and wear and tear; while others reach the conclusion that disc disease is based on a number of genetic factors. None of the studies cited in this section stand for the proposition that one cannot incur a spinal injury as the result of a rear-end automobile collision.

iii. Chemical Induction of Disc Degeneration

The next conclusion made by Bain is that 'animal models have shown that disc degeneration can be induced chemically with no mechanical trauma whatsoever.' Exhibit 1,

pg. 7 ¶3. Conclusions based on research performed on animal spines are unreliable and inapplicable to human spines. *See* Sun-Ren Sheng, Xiang-Yang Wang, et al., "Anatomy Of Large Animal Spines And Its Comparison To The Human Spine: A Systematic Review." Eur Spine J. 19(1): 46–56 (2010). Specifically, this study[32] used 12 goats, however, the mean ovine pedicle height is greater than human pedicles. *Id.* The human spinal canal is wider and deeper in the anteroposterior plane than in goats. *Id.* The mean human vertebral body width and depth were found to be greater than that of the goat. *Id.* For these reasons, this underlying research on goats' spines does not provide sufficient basis for Bain's opinion.

iv. Genetic Factors, Revisited

Bain then shifts back to his claims that genetic factors are to explain for the percentage of variation seen in adult disc degeneration, based on several epidemiological studies. Exhibit 1, pg. 7 ¶3. Using statistical modeling to assess the genetic contribution to a trait has well-recognized methodological problems. M.J. Khoury, et al., Fundamentals of Genetic Epidemiology (Oxford University Press) (1993). The "Determinants of Lumbar Disc Degeneration: A Study Relating Lifetime Exposures and Magnetic Resonance Imaging Findings in Identical Twins" by M.C. Battie, et al.[33] article provides research based on what seems to be spine scientists' favorite gender: male. While the 115 male identical twins may provide applicable and reliable data for a male individual with spine problems, it once again is not sufficient to provide support for Bain's conclusions in regard to Schoonover, a female, for the reasons previously stated.

Further, Bain skews the percentage genetic factors' role plays in the variational findings. He claims that the percentage ranges from 50%-75%. Exhibit 1, pg. 7 ¶3. The

[32] Hoogendoorn, R. J., M. N. Helder, et al. (2008). "Reproducible Long-Term Disc Degeneration in a Large Animal Model." Spine. 33(9): 949-954.
[33] Battie, M. C., T. Videman, et al. (1995). "Determinants of Lumbar Disc Degeneration." Spine. 20(24): 2601-2612.

research does make a finding that 77% of the upper lumber level variability is explained, 54% of that is explained by familial aggregation, while the other percentages consist of 7% for the mean job code and 16% based on age. More interesting, the evaluation of the lower lumbar levels, from which Schoonover complains injury, familial or genetic factors only accounted for 32% of the variable. Further, this is evidence that Bain is attempting to distort the statistics in his favor when he does not include 32% as the lower range of percentage, but instead cites 50%. Exhibit 1, pg. 7 ¶3; this is blatantly misleading. Any potential verbal testimony along with his report must be stricken by this Court; this flawed interpretation is reason enough to strike him as an expert. A flaw in the expert's reasoning from the data may render reliance on a study unreasonable and render the inferences drawn therefrom dubious. *Merrell Dow Pharm., Inc. v. Havner,* 953 S.W.2d 706, 714 (Tex. 1997) (if the foundational data underlying an expert's opinion testimony is unreliable, the expert will not be permitted to base an opinion on that data because any opinion drawn from that data is likewise unreliable). Under this circumstance, the expert's scientific testimony is unreliable and, legally, not evidence. *Id.*

The next supporting citation is "Genetic Influences on Cervical and Lumbar Disc Degeneration" by P.N. Sambrook, et al.[34] This article was published in 1999, and in 2011, a ten year follow-up on the research was published, entitled "Progression of Lumbar Disc Degeneration Over a Decade: A Heritability Study" by P.N. Sambrook, et al.[35], an article that was not cited in the report. It is misguiding for Bain to present the archaic article when the same researchers have followed up and presented new and more reliable evidence. This is especially important considering that the more recent study found that almost every

[34] Sambrook, P. N., A. J. MacGregor, et al. (1999). "Genetic Influences On Cervical and Lumbar Disc Degeneration." Arthritis and Rheumatism. 42(2): 366-372.
[35] Sambrook, P. N., A. J. MacGregor, et al. (2011). "Progression of Lumbar Disc Degeneration Over A Decade: A Heritability Study." Arthritis and Rheumatism. ;70(7):1203-1207.

individual had disc degeneration, and found that this was attributable to age. Additionally, with regard to the heritability, it found that "heritability of the summary score progression reflects that of its components and is *mainly influenced by genetic factors at younger age.*" Sambrook, P. N., A. J. MacGregor, et al. (2011). "Progression of Lumbar Disc Degeneration Over A Decade: A Heritability Study." Arthritis and Rheumatism. ;70(7) at 1205 (emphasis added). The further research proved that while genetic factors played a factor when individuals were younger, the primary factor for individuals as they become older is age, not genetics. This completely undermines Bain's assertion that genetic and physiological plays such an important role. However, for reasons unknown, Bain chose to include the outdated research in his report rather than the more relevant follow-up study.

Bain further relies on two twin studies for support of his genetic influence claims: "Structural, Psychological and Genetic Influences on Low Back and Neck Pain: A Study of Adult Female Twins" by Alexander J. MacGregor, et al.[36] and "Genetic and Evironmental Effects on Disc Degeneraton by Phenotype and Spinal Level: A Multivartiate Twin Study" by M.C. Battie, et al.[37] M.C. Batte's twin study contains the gender prejudicial flaw seen in other studies: it only collected data and conducted research on male, Finnish twins. Any conclusions made are inapplicable to Schoonover, an American female. Further, "twin studies can sometimes produce an exaggerated estimate of heritability because of certain biases, typically selection bias, whereby subjects with a disease self-select themselves." P.N. Sambrook & A.J. MacGregor, et al. (1999). "Genetic Influences on Cervical and Lumbar Disc Degeneration," Arthritis & Reumatism, 42(2): 370. "Moreover, for any cofounder to have an impact on heritability measures of the size observed, [86 pairs of MZ twins and 77

[36] MacGregor, A. J., T. Andrew, et al. (2004). "Structural, Physiological, and Genetic Influences on Low Back and Neck Pain: A Study of Adult Female Twins." Arthritis and Rheumatism. 51(2): 160-167.
[37] Battie, M. C., T. Videman, et al. (2008). "Genetic and Environmental Effects on Disc Degeneration by Phenotype and Spinal Level." Spine. 33(25): 2801-2808.

pairs of DZ twins], the association between the cofounder and the degenerative disc disease would have to be extremely strong, even if there was a large imbalance in its distribution between the MZ and DZ twins." *Id.*, citing M.J. Khoury & T.H. Beaty, et al. (1998). "Can Familial Aggregation of Disease be Explained by Familial Aggregation of Environmental Risk Factors?" American Journal of Epidemiology, 127:674-83.

The Battie article ultimately came to the conclusion that for upper and lower lumbar levels, genetic correlations were significantly lower than that of disc height or bulging correlations to genetics, and that for upper and lower lumbar levels, disc degeneration is largely influenced by independent effects as opposed to genetics. This means two things: first, Bain was again misleading regarding claims made in his report and second, that independent events, such as being involved in a car crash, largely effect upper and lower lumbar levels.

v. Specific Event Leading to Spinal Injury

Next, the assertion is made that "many are unable to cite the event that caused their disc herniation," relying on an article by Suri, et al.[38] Exhibit 1, pg. 7, ¶3. Bain neglects to inform the reader that this study ultimately supports the claims made by Schoonover. The study does, in fact, reveal that some individuals are able to determine the exact traumatic event that triggered their pain. Additionally, this report is based on self-reporting of the patients. Simply because a patient is unaware of what has caused the lower back or leg pain does not mean scientifically and factually that a specific event did not cause the injury. Reliance on patient's reporting cannot be held to scientific standards. This is akin to a layperson making a medical diagnosis, and does not provide Bain with the scientific support he needs to make such claims in his report.

[38] Suri, P., D. J. Hunter, et al. (2010). "Inciting Events Associated with Lumbar Disc Herniation." The Spine Journal. 10: 388-395.

vi. Malingering and Secondary Gain

The final unsubstantiated and bold statement Bain makes is, essentially, that Schoonover is lying about her symptoms because individuals involved in litigation distort their level of functioning, lie about symptoms, and healthcare results are poorer. Exhibit 1, pg. 8, ¶. The accusation – that Plaintiff is lying – without providing any scientific data or evidence as it specifically relates to Schoonover, will only serve to prejudice Plaintiff, and it must be excluded. Tex. R. Ev. 403. It is prejudicial for Bain to make the accusation that individuals involved in litigation are most-likely feigning injury, because the presumption then will be that Schoonover is fabricating her injuries, or that her testimony as it relates to her injuries is unreliable when such is not the case.

Bain has not met with Schoonover, and cannot make an assessment specific to her case and her injuries related to "malingering". Further, the reports cited to support his contention are unreliable. The Barksy article[39] establishes a four-step plan physicians should use to minimize any underreporting and maximize accuracy. Absent a showing that Shoonover's physician did not use this plan, this article provides no probative value. Further, the Lees-Haley article[40] merely examined 34 litigants, a sample size too small to on which to base any conclusions. This study also found that one must caution whether the person is reliable *or* deceitful. Any regard given to Schoonover's reliability must be left to the jury without any inference to a lack of credibility by Bain.

The two Caragee articles[41][42] are even more prejudicial to Schoonover because the conclusions reached incorporate drug use and psychological problems with an individual's

[39] Barsky, A.J. (2002) "Forgetting, Fabricating, and Telescoping: The Instability of the Medical History." Archives of Internal Medicine. 162(9): 981-984.
[40] Lees-Haley, P. R., C. W. Williams, et al. (1996). "Response Bias in Self-Reported History of Plaintiffs Compared with non-litigating patients." Psychology Reports. 79(3): 811-818.
[41] Carragee, E. J. (2008). "Validity of Self-Reported History in Patients with Acute Back and Neck Pain After Motor Vehicle Accidents." The Spine Journal. 8(2): 311-319.

belief that a car accident was another's fault. The article also claims that drug users and those with psychological problems are litigious and lie about their medical history. These conclusions are highly prejudicial based on the matter discussed and offer no probative value to the case at hand. Tex. R. Ev. 403. No evidence has been presented that Plaintiff is a drug user or has been diagnosed with any psychological disorder. The conclusions reached, based on the research presented cannot be presented in a trial of this cause because they are irrelevant and have no scientific basis as they relates to this case.

Texas Rule of Evidence 705(c) provides that "If the court determines that the underlying facts or data do not provide a sufficient basis for the expert's opinion under Rule 702 or 703, the opinion is inadmissible." The foregoing analysis of the research upon which Bain relies epitomizes the instance for which Rule 705(c) was created. Bain's underlying facts and data do not provide a sufficient basis for his expert opinion. If the foundational data underlying opinion testimony are unreliable, an expert will not be permitted to base an opinion on that data because any opinion drawn from that data is likewise unreliable. *Merrell Dow Pharm., Inc.,* 953 S.W.2d at 714. Further, an expert's testimony is unreliable even when the underlying data are sound if the expert draws conclusions from that data based on flawed methodology. *Id.* Because nearly all of the research relied upon by Bain does not support his claim that Plaintiff's injuries are not as a result of the accident made the basis of this suit, and for the reasons explained above, his report cannot be held as an expert report and must be found to be inadmissible.

vii. Bain Lacks Proper Qualification to Testify

Bain's opinions are not only unreliable, and therefore inadmissible; he is also lacks the necessary qualifications (See Deposition of Bain attached as Exhibit 3) to testify about

[42] Don, A. S. and E. J. Carragee (2009). "Is the Self-Reported History Accurate in Patients with Persistent Axial Pain After a Motor Vehicle Accident?" The Spine Journal. 9(1): 4-12.

the matters in which he claims expertise. In addition to never having met, examined, or treated Schoonover, Bain:

- Has never treated patients in Texas;
- Has never performed a spinal surgery as the primary surgeon;
- Is not a licensed engineer in Texas or in any state;
- Does not have a degree in biomechanical engineering;
- Has no formal education in biomechanical engineering, other than some related courses taken as an undergraduate more than 30 years ago;
- Is not an expert in epidemiology;
- Is not an expert in accident investigation;
- Has limited training by way of a two-week course in accident reconstruction;
- Has limited training by way of a one-week course in accident reconstruction;
- Has never performed an accident reconstruction outside of BRC;
- Did not examine either vehicle;
- Relied entirely on 8 photos of Schoonover's Ford and 2 photos of Izquierdo's Mitsubishi;
- His determination of the post-impact change in speed of the Schoonover's vehicle is entirely speculative: "**if** the Mitsubishi's delta-V was…, **then** the Ford's delta-V **would have been**…" Exhibit 1, pg. 4, ¶ 7.

III. CONCLUSION AND PRAYER

Bain's report makes clear that none of the *Robinson* factors have been met. He is not qualified to testify as an expert regarding the opinions he seeks to offer and his opinions are unreliable and have unreliable foundations. His theories cannot be tested, have not been subjected to peer review and publication, and they enjoy general acceptance within the

scientific community; in fact, the scientific community is not even aware of many of these theories. Bain's opinions are simply not "the product of reliable principles and methods." Tex. R. Ev. 702. Further, his education as a medical doctor does not mean has the qualifications to testify about spinal injuries. *Broders v. Heise,* 924 S.W.2d 148, 152 (Tex. 1996) (experts who are medical doctors are not automatically qualified by virtue of their medical degrees). Given the increasingly specialized and technical nature of medicine, there is no validity, if there ever was, to the notion that every licensed medical doctor should be automatically qualified to testify as an expert on every medical question. *Id.* What is required is that the offering party establish that the expert has "knowledge, skill, experience, training, or education" *regarding the specific issue* before the court which would qualify the expert to give an opinion on that particular subject. *Broders,* 924 S.W.2d at 153 (emphasis added). Because Dr. Bain's experience was general practice and emergency room care and not the specialized area of spinal injuries, he should not be allowed to testify as an expert on the subject of spinal injuries. *Id.*

Based upon the foregoing, Plaintiff respectfully requests this Court enter an order excluding Dr. Charles E. Bain from testifying as a witness in this case, and excluding and striking all of his testimony, reports, and other materials and evidence relating to his opinions in this matter on any topic.

Respectfully submitted,

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By: _____/S/_____

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Attorney for Plaintiff

FIAT

The Plaintiff's Motion to Compel having been presented to me, the undersigned Presiding District Court Judge, and it appearing that a hearing on same is required, said hearing is hereby set for _____ o'clock a.m. on the ___, day of , 2012 in the Presiding County Court, Bexar County, Texas.

Signed this ___ day of _____, 2012.

_____
JUDGE PRESIDING

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the above and foregoing document has been forwarded by Facsimile and/or United States Mail, on this the 18th day of December, 2012, to the following:

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/S/
ROBERT F. WHITE