# *Proving the Invisible Injury: TBI Caused by Motor Vehicle Accidents—A Comprehensive Review of Legal Challenges in Proving Brain Injury and Related Disabilities*

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# I. INTRODUCTION

One of the most challenging aspects of personal injury litigation is proving the existence, cause, and extent of a traumatic brain injury (TBI), particularly when that injury results from a seemingly minor automobile collision. Unlike broken bones or lacerations, traumatic brain injuries often present as "invisible disabilities" – conditions that can profoundly affect an individual's cognition, emotion, and daily functioning despite normal appearance and, frequently, normal diagnostic imaging studies. The disconnect between the outward appearance of normalcy and the internal neurological dysfunction creates significant evidentiary hurdles for plaintiffs' attorneys in North Carolina courts.

The complexity of these cases is exacerbated by common defense strategies that rely on the absence of objective findings in standard imaging studies, minimal vehicle damage, and pre-existing conditions to argue against causation or diminish the severity of injury claims. Attorneys representing TBI survivors must understand not only the medical aspects of brain trauma but also the specific legal framework within North Carolina that governs how these injuries must be proven to secure fair compensation.

This paper examines the legal challenges in proving traumatic brain injuries in North Carolina personal injury litigation, with a particular focus on cases where standard diagnostic studies show "normal" results and where the causative accident resulted in seemingly minor vehicle damage. By analyzing relevant North Carolina case law, statutory requirements, and practical litigation strategies, this paper provides attorneys with a comprehensive understanding of how to effectively advocate for clients with "invisible" yet profoundly life-altering brain injuries.

Each year, an estimated 1.5 million Americans sustain a traumatic brain injury, and of these, an estimated 80,000-90,000 will experience long-term disability as a result.[1] Despite this prevalence, TBIs remain among the most misunderstood and underdiagnosed injuries in both medical and legal contexts. A 2008 study found that up to 56% of mild traumatic brain injuries are missed in emergency department settings, primarily due to normal imaging findings and the absence of "classic" symptoms such as loss of consciousness.[2]

# II. UNDERSTANDING TRAUMATIC BRAIN INJURIES

## A. Medical Definition and Classification

Traumatic brain injury (TBI) is broadly defined as an alteration in brain function or other evidence of brain pathology caused by an external force.[3] The external force can be a direct impact to the head, rapid acceleration or deceleration forces, a penetrating object, or blast waves. TBIs are typically classified as mild, moderate, or severe based on clinical presentation, duration of loss of consciousness, post-traumatic amnesia, and Glasgow Coma Scale scores.

Mild traumatic brain injuries (mTBIs), including concussions, represent approximately 75-85% of all traumatic brain injuries.[4] Despite being classified as "mild," these injuries can cause significant and persistent dysfunction. About half of patients with mild traumatic brain injuries have symptoms after a year.[5]

Mild TBIs are characterized by:

1. Brief loss of consciousness (usually less than 30 minutes) or no loss of consciousness
2. A Glasgow Coma Scale score of 13-15
3. Post-traumatic amnesia less than 24 hours
4. Normal structural imaging (CT or MRI)

It is this last characteristic—normal structural imaging—that often creates the greatest challenge in litigation. In a legal case our law firm handled, Jane Doe v. Trucking Company (names changed to protect the patient's privacy), a neuropsychological expert Dr. Jeffrey Ewert explained, "CT

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[1] Thurman, David J. MD, MPH*; Alverson, Clinton MS†; Dunn, Kathleen A. MD, MSPH*; Guerrero, Janet MS‡; Sniezek, Joseph E. MD, MPH*. Traumatic Brain Injury in the United States: A Public Health Perspective. Journal of Head Trauma Rehabilitation 14(6):p 602-615, December 1999.

[2] Powell, J. M., Ferraro, J. V., Dikmen, S. S., Temkin, N. R., & Bell, K. R. (2008). Accuracy of mild traumatic brain injury diagnosis. Archives of Physical Medicine and Rehabilitation, 89(8), 1550-1555.

[3] Corrigan, John D. Traumatic Brain Injury and Treatment of Behavioral Health Conditions. Psychiatric Services, vol. 72, no. 9, American Psychiatric Publishing, Sept. 2021, pp. 1057–1064, doi:10.1176/appi.ps.201900561. September 01, 2021.

[4] Report to Congress on mild traumatic brain injury in the United States: steps to prevent a serious public health problem. National Center for Injury Prevention and Control; Atlanta, GA: 2003.

[5]Theadom A, Parag V, Dowell T, McPherson K, Starkey N, Barker-Collo S, Jones K, Ameratunga S, Feigin VL; BIONIC Research Group. Persistent problems 1 year after mild traumatic brain injury: a longitudinal population study in New Zealand. Br J Gen Pract. 2016 Jan;66(642):e16-23. doi: 10.3399/bjgp16X683161. PMID: 26719482; PMCID: PMC4684031.

scans are very good at picking up blood in the brain, but they don't really pick up on what's going on as far as the performance of the brain."[6] This fundamental limitation of standard imaging underscores why TBIs are often described as "invisible injuries."

## B. The "Invisible" Nature of TBI

The term "invisible disability" aptly describes many traumatic brain injuries because:

1. Standard structural imaging studies (CT, MRI) are frequently normal, especially in mild TBIs.[7]
2. Physical appearance of the injured individual is usually unchanged.
3. Symptoms may fluctuate in severity, with "good days and bad days."[8]
4. Cognitive, emotional, and behavioral changes may be misinterpreted as personality issues, laziness, or malingering.
5. The injured individual may lack self-awareness of certain deficits (anosognosia).[9]

It is important that North Carolina courts recognize the limitations of traditional diagnostic tools in TBI cases and the "invisible" nature of TBIs. Take for example, the workers' compensation case of *Irby v. New Tel. Co.*, 2003 N.C. App. LEXIS 1785 (2003), wherein the North Carolina Court of Appeals considered whether the plaintiff's claim of mild traumatic brain injury and resultant loss in wage earning capacity was supported by sufficient evidence where an EEG and MRI found "no neurological reason for plaintiff's problems." The Court ultimately held that, despite the lack of direct evidence of a head injury, the plaintiff's claim of TBI was sufficiently supported by evidence showing that the plaintiff injured his head in a fall and developed psychiatric problems thereafter, and no reasonable explanations existed for the plaintiff's ongoing symptoms, including personality changes.

Jane Doe's case vividly illustrates this "invisible" nature. Despite normal CT imaging and no loss of consciousness, Dr. Ewert's neuropsychological testing revealed "severe deficits in attention, concentration, working memory, visual reasoning abilities, and verbal-visual memory functions."[10] Similarly, a neuro-optometric evaluation revealed profound visual processing deficits not detectable through standard medical examination, including severely constricted peripheral vision (5-8 degrees compared to normal 30-45 degrees) and eye teaming correlation at only 35%

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[6] Recorded Statement of Dr. Jeffrey Ewert, Neuropsychologist, Jane Doe case.

[7] Shenton, M. E., Hamoda, H. M., Schneiderman, J. S., Bouix, S., Pasternak, O., Rathi, Y., Vu, M., Purohit, M. P., Helmer, K., Koerte, I., Lin, A. P., Westin, C., Kikinis, R., Kubicki, M., Stern, R. A., & Zafonte, R. (2012). A review of magnetic resonance imaging and diffusion tensor imaging findings in mild traumatic brain injury. Brain Imaging and Behavior, 6(2), 137-192.

[8] Centers for Disease Control and Prevention. (2024). About Potential Effects of a Moderate or Severe TBI. Retrieved from https://www.cdc.gov/traumatic-brain-injury/about/potential-effects.html.

[9] Robertson K, Schmitter-Edgecombe M. Self-awareness and traumatic brain injury outcome. Brain Inj. 2015;29(7-8):848-58. doi: 10.3109/02699052.2015.1005135. Epub 2015 Apr 27. PMID: 25915097; PMCID: PMC4769700..

[10] Recorded Statement of Dr. Jeffrey Ewert, Neuropsychologist, Jane Doe case.

(compared to 99% in normal readers).[11] These objective clinical findings provided substantive evidence of brain dysfunction despite normal structural imaging.

## C. Mechanism of Injury in Motor Vehicle Collisions

The brain can sustain injury in motor vehicle collisions even when external forces appear minimal. In low-impact collisions, several biomechanical factors can result in brain injury:

1. **Rotational acceleration-deceleration forces**: The brain can rotate within the skull, causing shearing of axons (diffuse axonal injury) even without direct impact.[12]
2. **Coup-contrecoup injuries**: The brain collides with the interior of the skull at the site of impact and then rebounds against the opposite side.[13]
3. **Susceptibility factors**: Individual anatomical differences, pre-existing conditions, and age can make certain individuals more vulnerable to brain injury.[14]

Jane Doe's deposition testimony provides a clear example of these principles in action. She described seeing a tractor-trailer truck's grille rapidly approaching in her rear-view mirror moments before impact. The collision was significant enough to push her vehicle into the car ahead, though interestingly, Jane has no memory of this secondary impact[15]—a fact consistent with the cognitive effects of concussion and the formation of post-traumatic amnesia.[16] Despite normal CT imaging and no documented loss of consciousness, Jane exhibited classic post-concussive symptoms, including severe head pain, neck pain, and a "foggy" feeling with difficulty processing information immediately after the accident.

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[11] Deposition of Dr. Genia Beasley, Jane Doe case.

[12] Meaney, D. F., & Smith, D. H. (2011). Biomechanics of concussion. Clinics in Sports Medicine, 30(1), 19-31.

[13] Shaw, N. A. (2002). The neurophysiology of concussion. Progress in Neurobiology, 67(4), 281-344.

[14] National Institute of Neurological Disorders and Stroke. Traumatic Brain Injury (TBI). Retrieved from https://www.ninds.nih.gov/health-information/disorders/traumatic-brain-injury-tbi#toc-who-is-more-likely-to-get-a-traumatic-brain-injury-.

[15] Excerpt from Jane Doe's Deposition:

**Q. And as you sit here today, you have no recollection of hitting someone in front of you?**
A. I don't remember.
**Q. Okay.**
A. I don't remember that.
**Q. I assume that at some point since the accident you've talked with [your husband] about how it happened, correct?**
A. Yes.
**Q. And so is that how you learned that you hit the car in front of you?**
A. Yes, I believe it was [my husband] that told me that.

[16] Shaw, N. A. (2002). The neurophysiology of concussion. Progress in Neurobiology, 67(4), 281-344.

# III. NORTH CAROLINA LEGAL FRAMEWORK FOR TBI CLAIMS

## A. Causation Requirements

Under North Carolina law, a plaintiff must establish that the defendant's negligence was a proximate cause of the plaintiff's brain injury. In medical causation, plaintiffs have the burden of proof and must establish:

1. That the defendant was negligent in causing the accident;
2. That the accident caused a traumatic brain injury necessitating medical treatment; and
3. That the defendant's negligent actions were a proximate cause of the plaintiff's traumatic brain injury.

North Carolina follows the "reasonable degree of medical certainty" standard for expert testimony on causation. As established in *Young v. Hickory Business Furniture*, 353 N.C. 227, 538 S.E.2d 912 (2000), expert testimony that is based merely upon speculation and conjecture is not sufficiently reliable to qualify as competent evidence on issues of medical causation. An expert stating that an accident "could or might" have caused an injury, or "possibly" caused it is not generally enough. *Carr v. HHS (Caswell Ctr.)*, 218 N.C. App. 151, 155, 720 S.E.2d 869, 873 (2012). Such expert opinions must state that something "more than likely" caused an injury or that the expert is satisfied to a "reasonable degree of medical certainty" to serve as competent evidence for medical causation. *Id.*

For TBI cases specifically, circumstantial evidence can play a crucial role in establishing causation when direct evidence is limited. "Before and after" evidence may be used to support causation where it can demonstrate that cognitive changes developed following an accident and were not present before the accident. For example, in the *Irby* case, the plaintiff offered the testimony of a medical provider who treated him before and after his accident. Testimony established personality changes experienced by the plaintiff after the accident which were not present before the accident. This was used to establish that the accident caused the plaintiff's traumatic brain injury where there were no other reasonable explanations for his symptoms.

## B. Expert Testimony Requirements

North Carolina has adopted modified Daubert standards for the admission of expert testimony through Rule 702 of the North Carolina Rules of Evidence. Under this standard, as clarified in *State v. McGrady*, 368 N.C. 880, 787 S.E.2d 1 (2016), expert testimony must be:

1. Based on sufficient facts or data,
2. The product of reliable principles and methods, and
3. The result of the expert applying those principles and methods reliably to the facts of the case.

This standard presents particular challenges in TBI cases where traditional diagnostic tools may be inconclusive. In such cases, attorneys must carefully select experts who can explain why imaging does not rule out TBI and who can reliably interpret neuropsychological testing, clinical observations, and other more sensitive measures of brain function.

Importantly, North Carolina law recognizes the value of treating physicians' testimony. Although Rule 26(b)(4) of the North Carolina Rules of Civil Procedure governs the discovery of experts in the course of litigation, the North Carolina Court of Appeals held in *Lail ex rel. Lail v. Bowman Gray Sch. Of Med*., 196 N.C. App 355, 367, 675 S.E.2d 370, 377 (2009) that treating physicians represent a "bright line exception" to the requirement that treating physicians be designated pursuant to the rule. This is because the treating physician has acquired his or her information as "an actor or viewer with respect to transactions or occurrences that are part of the subject matter of the lawsuit. Such an expert should be treated as an ordinary witness." N.C.G.S. § 1A–1, Rule 26(b)(4) comment (1975). See also *Turner v. Duke University*, 325 N.C. 152, 168, 381 S.E.2d 706, 716 (1989) (Party was not required to identify treating physician as expert witness). It is imperative in cases of traumatic brain injury that the plaintiff's treating physician testify regarding their observations over the course of treating the plaintiff which were not developed in preparation for litigation.

### C. Evidence of "Invisible" Symptoms

North Carolina courts have recognized the validity of evidence regarding cognitive, emotional, and behavioral changes following an accident, even when objective medical testing is inconclusive. Testimony from family members, co-workers, and the plaintiff regarding changes in functioning can support a finding of brain injury when properly connected to expert testimony explaining the neurological basis for such changes.

The North Carolina Rules of Evidence, particularly Rule 701, allow for lay witness testimony about their observations of the plaintiff's condition before and after the accident, provided they do not offer opinions requiring specialized knowledge. This testimony can be crucial in TBI cases where the day-to-day manifestations of the injury may be more apparent to those who regularly interact with the plaintiff than in clinical settings.

## IV. CHALLENGES IN PROVING TBI IN LOW-IMPACT COLLISIONS

### A. The "Minor Impact" Defense

Defense attorneys often employ what is colloquially known as the "minor impact" defense, arguing that the forces involved in a low-speed or minimal-damage collision were insufficient to cause brain injury. This defense typically includes:

1. Photographic evidence of minimal vehicle damage
2. Biomechanical expert testimony calculating g-forces below purported thresholds for brain injury

3. Medical expert testimony that brain injury is unlikely or impossible with such minor trauma
4. Emphasis on normal emergency department findings and diagnostic imaging
5. Most mTBIs/concussions resolve within the first month post-injury
6. Secondary gain motivations because of a filed lawsuit.

The best way to combat these defenses is through persuasive testimony from the plaintiff and the plaintiff's friends and family as to the "before and after" symptoms of the TBI, medical expert opinions on causation, and strategic lawyering. A plaintiff's lawyer may decide not to present photos of the damage to the vehicles if he or she believes the photos will do more harm than good. An estimate of damage to the vehicle may be used to bolster an argument that there was structural damage, not readily apparent to the naked eye. A lawyer may also file a motion to exclude discussion of the collision being a "minor impact" when there is no testimony that mentions this.

## B. Challenges with "Normal" Diagnostic Imaging

Standard structural imaging studies—CT scans and conventional MRI—often appear normal in cases of mild to moderate traumatic brain injury despite significant functional impairment. This creates a substantial hurdle for plaintiffs, as defense experts commonly cite normal imaging to argue against the existence of brain injury.

As we know, the absence of positive findings on standard diagnostic studies does not preclude a diagnosis of traumatic brain injury when other reliable clinical evidence supports such a diagnosis. TBI plaintiffs should focus on other forms of evidence to support their case, including:

1. Advanced neuroimaging (DTI, fMRI, PET scans)
2. Neuropsychological testing
3. Neuro-Optometric testing
4. Clinical observations and examinations
5. Before-and-after testimony from lay witnesses
6. Medical records documenting cognitive, emotional, or behavioral changes

## C. Pre-existing Conditions and Alternative Causes

Defense attorneys frequently argue that a plaintiff's cognitive or emotional symptoms result from pre-existing conditions or alternative causes rather than the accident in question. Common alternative explanations include:

1. Prior head injuries or concussions
2. Psychological conditions (depression, anxiety, PTSD)
3. Medical conditions (metabolic disorders, sleep apnea, chronic pain)
4. Medication side effects
5. Normal aging processes
6. Malingering or secondary gain

In North Carolina, the eggshell or "thin skull" plaintiff rule, as affirmed in *Potts v. Howser*, 274 N.C. 49, 161 S.E.2d 737 (1968), holds that defendants take plaintiffs as they find them and are

liable for the full extent of the injury even if the plaintiff was unusually susceptible to injury: “if a defendant's misconduct ‘amounted to a breach of duty to a person of ordinary susceptibility, he is liable for all damages suffered by plaintiff notwithstanding the fact that these damages were unusually extensive because of peculiar susceptibility.’" citing *Lockwood v. McCaskill*, 262 N.C. 663, 670, 138 S.E. 2d 541, 546. However, this does not relieve plaintiffs of the burden to prove that the accident was a proximate cause of their specific injuries.

When there is an aggravation or acceleration of a pre-existing condition, the defendant is liable only for the aggravation or acceleration, not for injuries wholly attributable to the disease or condition itself. *Potts v. Howser*, 274 N.C. 49, 161 S.E.2d 737 (1968) (plaintiff suffered pain from arthritis and rheumatism before a boating accident allegedly aggravated his conditions). This requires plaintiffs' attorneys to carefully distinguish between pre-existing conditions and new injuries or clearly demonstrate aggravation.

# V. PRACTICAL STRATEGIES FOR PROVING TBI CLAIMS IN NORTH CAROLINA

## A. Building a Strong Foundation: Early Documentation

Successful TBI litigation begins with thorough documentation from the earliest stages of representation. Critical documentation includes:

1. Detailed client intake questionnaires specifically addressing cognitive, emotional, and physical symptoms
2. Comprehensive analysis of emergency department and early treatment records
3. Identification of witnesses who can testify to changes in the client's functioning
4. Prompt referral to appropriate specialists, potentially including neurologists, neuropsychologists, and physical medicine and rehabilitation physicians
5. Daily logs or journals maintained by the client or family members documenting symptoms and limitations

Under North Carolina law, contemporaneous medical records are given significant weight. Medical records created at or near the time of treatment, particularly those documenting initial complaints and symptoms, carry substantial probative value. This underscores the importance of ensuring that cognitive and behavioral symptoms are properly documented in early medical records.

## B. Specialized Evaluations: Documenting the Invisible Injury

### 1. Neuropsychological Evaluations

A neuropsychological evaluation provides a comprehensive assessment of cognitive, behavioral, and emotional functioning through standardized tests. Unlike imaging studies that visualize brain structure, neuropsychological testing measures performance across multiple domains including

attention, memory, higher level reasoning skills, visual perceptual abilities, language skills and motor skills, as well as personality changes.[17]

In North Carolina, the introduction of neuropsychological test results requires satisfying Rule 702 of the NC Rules of Evidence, which follows the Daubert standard established in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993) and adopted in North Carolina through *State v. McGrady*, 368 N.C. 880 (2016). Under this standard, expert testimony must be:

1. Based on sufficient facts or data,
2. The product of reliable principles and methods, and
3. The result of the expert applying those principles and methods reliably to the facts of the case.

While neuropsychologists can testify about cognitive deficits and functional impairments, North Carolina courts typically require medical doctor testimony to establish the causal diagnosis of TBI.

### 2. Neuro-Optometric Evaluations

Neuro-optometric evaluation has emerged as a powerful tool in documenting objective evidence of brain injury, particularly when conventional medical assessments show normal results. Specialized testing by neuro-optometrists can reveal:

- Binocular vision dysfunction (inability to properly coordinate both eyes)
- Convergence insufficiency (difficulty focusing both eyes at near distances)
- Peripheral vision deficits
- Impaired visual processing and eye teaming

These visual deficits are particularly significant because approximately 70% of all sensory input fibers to the brain begin in the eye, and the visual system is represented in every major lobe of the brain. As documented in materials from the Neuro-Optometric Rehabilitation Association and supported by research published in the Journal of Neuro-Ophthalmology and Brain Injury, visual dysfunction following TBI provides objective evidence of neurological damage, even when structural imaging appears normal.

## C. Expert Witness Selection and Preparation

Successful TBI litigation requires careful selection of expert witnesses who can effectively explain the "invisible" nature of these injuries. Key considerations for North Carolina practitioners include:

1. **Treating Physicians**: Under North Carolina Rule of Evidence 702, treating physicians can offer causation opinions without being designated as formal experts if their opinions derive from their treatment of the patient.
2. **Neuropsychologists**: Comprehensive neuropsychological testing can objectively document cognitive deficits even when structural imaging is normal. A skilled

[17] Recorded Statement of Dr. Jeffrey Ewert, Neuropsychologist, Jane Doe case.

neuropsychologist can explain how post-concussion symptoms manifest in daily functioning and can distinguish between cognitive problems caused by TBI versus those potentially stemming from psychological factors, malingering, or pre-existing conditions.

3. **Neuro-Optometrists**: Specialists in neuro-optometry can provide crucial testimony on visual processing deficits that directly correlate with specific brain functions. The intimate connection between visual dysfunction and brain injury provides compelling objective evidence of neurological damage.
4. **Neuroradiologists**: Experts in advanced neuroimaging can explain why conventional imaging may miss subtle brain injuries and can interpret more sensitive studies such as diffusion tensor imaging (DTI) or functional MRI.
5. **Life Care Planners and Vocational Experts**: These experts can translate the cognitive deficits into concrete economic losses, providing the jury with a framework for damages.

Expert preparation should include thorough education about the unique aspects of the individual case and detailed explanation of why normal imaging does not rule out significant brain injury.

## C. Effective Use of Demonstrative Evidence

Given the invisible nature of TBI, demonstrative evidence can be crucial in helping jurors understand the injury. Effective demonstrative aids may include:

1. Brain models and anatomical displays
2. Animation of acceleration-deceleration forces
3. Before-and-after day-in-the-life videos
4. Visual representations of neuropsychological test results
5. Medical illustrations of damaged neural pathways

The North Carolina Rules of Evidence permit demonstrative evidence when it is relevant, not misleading, and more probative than prejudicial.

## D. Addressing Credibility Concerns

Plaintiffs with TBI often face credibility challenges due to the subjective nature of many symptoms and the possibility of secondary gain. Strategies to address these concerns include:

1. Obtaining independent corroboration from family members, co-workers, and friends
2. Using objective validity measures within neuropsychological testing to rule out malingering
3. Documenting consistent symptoms across multiple treatment providers
4. Emphasizing the client's pre-injury functioning and achievements
5. Addressing pre-existing conditions directly rather than avoiding them

North Carolina law permits testimony from lay witnesses regarding their observations of changes in the plaintiff's behavior, personality, or capabilities following an accident.

# VI. CASE STUDY: DOE V. INSURANCE COMPANY (2024)

The following case study is based on a real litigation matter that illustrates effective strategies in proving a TBI resulting from a low-impact collision with normal conventional imaging, ultimately resulting in a $1.1 million pre-suit settlement.

## A. Case Overview: Jane Doe's TBI

Jane Doe was a 57-year-old former nurse with a Bachelor of Science in Nursing from UNC Charlotte (1987) who worked part-time as a nurse until 2006. At the time of the accident, she co-owned a construction business with her husband, where she handled contracts, HR, and administrative tasks.

On June 22, 2019, Jane was driving northbound on Interstate 77 when she saw a truck's grille approaching rapidly in her rear-view mirror. The truck failed to stop and rear-ended her vehicle. The impact was significant enough to push her car into the vehicle ahead, though Jane herself does not recall this part of the collision. No airbags deployed in her car. Although photos of the damage to Jane's vehicle show minimal property damage, an estimate of damage to the vehicle valued repairs at over $18,000.

At the scene, Jane experienced severe head pain, neck pain, and back pain. She felt "foggy" and had difficulty processing information. She was transported to the hospital by ambulance, where a CT scan came back normal. She had difficulty recalling her medications when asked by medical staff—an early sign of cognitive issues. She was given muscle relaxers and discharged without a diagnosis of brain injury. Notably, no loss of consciousness was recorded in her medical record.

The morning after the accident, Jane's symptoms became more apparent: she couldn't read text messages on her phone, experienced blurry vision, fogginess, and spots in her vision, and needed reading glasses for the first time in her life to see close-up text. These symptoms were consistent with post-concussive syndrome despite the normal CT scan and absence of recorded loss of consciousness.[18]

[18] Mittenberg, W., Canyock, E. M., Condit, D., & Patton, C. (2001). Treatment of post-concussion syndrome following mild head injury. Journal of Clinical and Experimental Neuropsychology, 23(6), 829-836.

## B. Jane Doe's Treatment Timeline

| | |
|---|---|
| **EMS to ER** | 6/22/2019 (Initial accident response) |
| **Primary Care Provider (PCP)** | 6/26/2019 - 5/19/2021 (prescription refills through 2022) |
| **Physical Therapy** | 7/16/2019 - 10/23/2019 |
| **Vision Therapy All Ages Vision Care (Dr. Beasley Neuro-Optometrist):** | 11/07/2019 - 11/17/2022 *68+ documented vision therapy sessions over nearly 3 years* |
| **Neurologist (Dr. Peterson Giallanza):** | 7/26/2021 - 10/19/2022 |
| **Psychological/Neurological Care/Neuropsychological Services (Dr. Jeffrey Ewert with Carolina Neuro Services/The Head Injury Center):** | 6/10/2020 - 2/22/2023<br>o *Initial evaluation: 7/23/2020*<br>o *Re-evaluations: 9/23/2021 and 2/22/2023*<br>o *Regular group therapy sessions: 10/07/2021 - 12/12/2022* |
| **Neuromuscular Massage** | 9/29/2021 – 2/02/2023 |

## C. Expert Evaluations: The Critical Role of Specialized Testing

### 1. Neuro-Optometric Evaluation by Dr. Beasley

Jane was referred to Dr. Genia Beasley, a neuro-optometrist, by her treating physician Dr. Joseph Garcia. Dr. Beasley's specialized evaluation revealed profound visual processing deficits that standard medical examinations had missed:

- Binocular fusion dysfunction (inability of both eyes to hold images steady together)
- Convergence insufficiency (difficulty focusing both eyes at near distances)
- Severely constricted peripheral vision (5-8 degrees compared to normal 30-45 degrees)
- Eye teaming correlation at only 35% (compared to 99% in normal readers)

These visual deficits were causing Jane significant functional problems with reading, concentration, balance, depth perception, and daily activities. Jane's deposition testimony confirmed her difficulty reading text messages on her phone immediately after the accident, experiencing blurry vision, and needing readers for the first time to see close-up text.

Dr. Beasley explained that these symptoms were directly related to Jane's brain injury, as approximately 70% of all sensory input fibers to the brain begin in the eye, and the visual system is represented in every major lobe of the brain. Her testimony regarding the intimate connection between visual dysfunction and vestibular issues also explained Jane's balance problems and dizziness following the collision.

**2. Neuropsychological Evaluation by Dr. Jeffrey Ewert**

Jane was evaluated by Dr. Jeffrey Ewert, a clinical neuropsychologist with extensive experience treating over 10,000 traumatic brain injury patients. Despite the absence of loss of consciousness or direct head impact, Dr. Ewert determined that Jane had suffered significant neurological damage due to acceleration-deceleration forces during the accident, resulting in what he described as "axonal shearing and neurotransmitter disruption."[19]

Dr. Ewert's comprehensive neuropsychological testing revealed:

- Severe deficits in attention, concentration, and working memory
- Significant impairment in visual reasoning abilities
- Compromised verbal-visual memory functions
- Symptoms manifesting in significant daily life impairments, including memory problems, disabling headaches, fatigue, and social withdrawal

Based on these findings, Dr. Ewert initially diagnosed Jane with a major neurocognitive disorder due to TBI. Particularly significant was his explanation that concussions frequently occur without direct head impact or loss of consciousness, and that CT scans are often normal in mild traumatic brain injury cases.[20]Dr. Ewert determined that Jane remained permanently disabled from competitive employment due to her cognitive limitations, which would create safety concerns if she returned to her career as a nurse,, where mistakes such as medication errors could put patients at risk.

## D. Ongoing Symptoms and Treatment

Jane's deposition revealed that she suffered from:

- **Daily headaches** since the accident, requiring Propranolol for migraines
- **Severe vision problems** requiring prescription prism glasses
- **Short-term memory issues**—forgetting conversations minutes after having them
- **Neck pain and stiffness**
- **Increased anxiety and depression**, treated with Wellbutrin, Sertraline, and Klonopin (as needed)

The treatment plan implemented for Jane included:

1. **Cognitive Rehabilitation**: Under Dr. Ewert's guidance, focusing on memory programs and attention/processing speed therapy.
2. **Neuro-Optometric Rehabilitation**: Dr. Beasley implemented a comprehensive treatment plan including:

[19] Recorded Statement of Dr. Jeffrey Ewert, Neuropsychologist, Jane Doe case.
[20] Id.

    - Specialized glasses with prism lenses and blue tint to stabilize fusion and reduce light sensitivity
    - Daily light therapy to expand peripheral vision
    - Extensive vision rehabilitation therapy (approximately 45 in-office sessions over two years)
3. **Psychological Support**: Individual psychotherapy to address anxiety, depression, and low self-esteem; group psychotherapy for support; and family therapy to help Jane's family adjust to their new reality.

According to her deposition, Jane had been unable to return to work since the accident. She could no longer participate in her previous exercise routine at Burn Boot Camp, had difficulty driving due to vision issues and anxiety, and required ongoing treatment from multiple specialists.

## E. Legal Strategy and Settlement

The litigation strategy centered on the following key elements:

1. **Expert Integration**: The complementary findings of Dr. Ewert (neuropsychologist) and Dr. Beasley (neuro-optometrist) created a comprehensive clinical picture of Jane's "invisible" brain injury.
2. **Medical Causation**: Both experts explained how Jane's symptoms were directly caused by the vehicular collision through acceleration-deceleration forces, despite the absence of direct head impact or loss of consciousness. This addressed the defense's "minor impact" argument by establishing the biomechanical basis for diffuse axonal injury.
3. **Objective Evidence of Invisible Injury**: The neuropsychological testing and specialized neuro-optometric evaluations provided objective, quantifiable evidence of brain dysfunction despite normal CT and MRI findings.
4. **Functional Impact Documentation**: Through Jane's deposition, and the depositions of her family members, we established clear evidence of her pre- and post-accident functioning, demonstrating significant changes in her cognitive abilities, work performance, and daily activities. The North Carolina Supreme Court has held that circumstantial evidence can play a crucial role in establishing causation when direct evidence is limited.
5. **Permanent Disability Assessment**: Dr. Ewert's determination that Jane remained permanently disabled from competitive employment due to her cognitive limitations provided a clear basis for substantial damages, aligning with established case law regarding reduced earning capacity. Damages for personal injury cases include fair compensation for reduced capacity to earn money experienced by a plaintiff as a result of her injuries. *Smith v. Corsat*, 260 N.C. 92, 95, 131 S.E.2d 894, 896-97 (1963). See also *Rolling Fashion Mart, Inc. v. Mainor*, 80 N.C. App. 213, 217, 341 S.E.2d 61, 64 (1986).

## F. Litigation Timeline

Although we needed to file a lawsuit, in part due to North Carolina's three-year statute of limitations, the case settled prior to trial after the trial deposition of Dr. Beasley for $1.1 million.

Dr. Beasley's powerful testimony regarding the neurological basis for Jane's visual symptoms proved to be a turning point in the litigation.

| | |
|---|---|
| **Date of Accident** | June 22, 2019 |
| **Pre-suit Negotiations Fail** | March 2022 |
| **Complaint Filed** | April 21, 2022 |
| **Mediation Impasses** | February 13, 2023 |
| **Depositions of Plaintiff and family members taken** | February 27, 2023 |
| **Trial Deposition of Dr Beasley taken** | March 6, 2023 |
| **Case Settled prior to trial date which was set for April 3, 2023** | March 15, 2023 |

## G. Keys to Successful TBI Litigation

This case demonstrates several key principles for TBI litigation in North Carolina:

1. **Specialized Evaluations**: Standard medical evaluations and conventional imaging often miss the functional deficits associated with TBI. Specialized testing through neuropsychological evaluation and neuro-optometric assessment can provide objective evidence of "invisible" injuries.
2. **Complementary Experts**: The combination of testimony from different specialties (neuropsychology and neuro-optometry) created a more complete and persuasive clinical picture than either would have provided alone, aligning with the interdisciplinary approach recommended by contemporary brain injury research.
3. **Education on Biomechanics**: Effective expert explanation of how acceleration-deceleration forces can cause brain injury without direct head impact or loss of consciousness was critical in overcoming the "minor impact" defense. The deposition testimony from Jane herself about seeing the truck's grille in her rear-view mirror moments before impact provided crucial context for understanding the forces involved.
4. **Pre-Suit Resolution**: Well-documented expert opinions and thorough deposition testimony can lead to favorable settlements before formal litigation, saving time and resources while securing appropriate compensation. This approach is particularly effective when the evidence clearly establishes both medical causation and significant damages.
5. **Objective Metrics**: Quantifiable measures (such as eye teaming correlation percentages and peripheral vision field measurements) provide substantive evidence that resonates with insurance adjusters and defense counsel, even when conventional imaging is normal. As demonstrated in this case, objective metrics can transform an otherwise subjective complaint into measurable dysfunction.

# VII. CONCLUSION

Traumatic brain injuries present unique challenges in personal injury litigation, particularly when they result from seemingly minor collisions and produce normal findings on conventional imaging studies. The "invisible" nature of these injuries requires attorneys to develop comprehensive litigation strategies that integrate medical, neuropsychological, neuro-optometric, and lay testimony within North Carolina's legal framework.

The Jane Doe case demonstrates how proper expert evaluations can transform a seemingly minor impact case with normal CT imaging into a substantial settlement. By utilizing specialized neuropsychological testing with Dr. Ewert and neuro-optometric evaluation with Dr. Beasley, invisible yet profound cognitive and visual processing deficits were objectively documented. This multidisciplinary approach was instrumental in securing a $1.1 million pre-suit settlement.

Successfully proving TBI claims in North Carolina requires attorneys to:

1. Understand the science of brain injury and the limitations of standard diagnostic tools
2. Build a strong evidentiary foundation through early and thorough documentation
3. Employ specialized evaluations, including neuropsychological testing and neuro-optometric assessment
4. Select and prepare expert witnesses who can effectively explain TBI concepts using objective metrics
5. Address preemptively the common defense strategies related to minor impacts and normal imaging
6. Utilize the full range of admissible evidence, including lay testimony and advanced diagnostic techniques
7. Integrate findings from multiple specialties to create a comprehensive picture of brain dysfunction

By implementing these strategies, attorneys can overcome the unique challenges of TBI litigation and secure just compensation for clients suffering from these life-altering yet often invisible injuries. As Jane Doe's case illustrates, with the right approach, even cases involving "invisible injuries" from seemingly minor impacts can result in substantial settlements that appropriately compensate clients for their life-changing cognitive impairments.

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