

## Back To Chiropractic Continuing Education Seminars PI Ethics & Law ~ 2 Hours

**Welcome:**

**This course is approved for 2 Hours of CE for PI Ethics & Law for the Chiropractic Board of Examiners for the state of California and is also accepted in Colorado, Iowa, Michigan, Oregon and Washington.**

**There is no time element to this course, take it at your leisure. If you read slow or fast or if you read it all at once or a little at a time it does not matter.**

**How it works:**

- 1. Helpful Hint: Print exam only and read through notes on computer screen and answer as you read.**
- 2. Printing notes will use a ton of printer ink, so not advised.**
- 3. Read thru course materials.**
- 4. Take exam; e-mail letter answers in a NUMBERED vertical column to [marcusstrutzdc@gmail.com](mailto:marcusstrutzdc@gmail.com).**
- 5. If you pass exam (70%), I will email you a certificate, **within 24 hrs**, if you do not pass, you must repeat the exam. If you do not pass the second time then you must retake and pay again.**
- 6. If you are taking the course for DC license renewal you must complete the course by the end of your birthday month for it to count towards renewing your license. I strongly advise to take it well before the end of your birthday month so you can send in your renewal form early.**
- 7. Upon passing, your Certificate will be e-mailed to you for your records.**
- 8. DO NOT send the state board this certificate.**
- 9. I will retain a record of all your CE courses. If you get audited and lost your records, I have a copy.**

**The Board of Chiropractic Examiners requires that you complete all of your required CE hours BEFORE you submit your chiropractic license renewal form and fee.**

**NOTE: It is solely your responsibility to complete the course by then, no refunds will be given for lack of completion.**

**Enjoy,  
Marcus Strutz DC  
CE Provider  
Back To Chiropractic CE Seminars**

### **COPYRIGHT WARNING**

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In my experience as a Chiropractic Doctor for 30 years and as a personal injury lawyer for 10 years, only about one-third of patients fully recover after a car accident. Nearly 2/3 of them will have “residual” pain and/or have to get some kind of medical attention like shots or surgery. Until recently, it has been difficult to predict those that will get completely well at the *beginning* of the case. Now, with modern science, it is very easy to accurately predict after the first week which patients will heal completely and which will not get well. Knowing this, you will need to make your first ethical decision: “Should I refer now or later when I’ve delivered a few months of care?” This course will help you make the decisions if or when to refer out a PI patient.

Another ethical consideration for the treating chiropractor is whether it is permissible to send a thank you gift to a personal injury attorney that refers a case to you. California Board of Chiropractic Examiners Rules & Regulations Section 317 states:

(t) The offering, delivering, receiving or accepting of any rebate, refund, commission, preference, patronage, dividend, discount or other consideration as compensation or inducement for referring patients to any person;

Be advised that **thank you gifts from the chiropractor to anyone for referring patients is against the law in California.** Receiving any gift from an attorney for referring a patient TO any P.I. attorney is against the law in California. When I was new in chiropractic practice, an attorney contacted me, took me to lunch and we decided to work together. I referred him a case. He referred me a case a month or two later. Then he called me and said, “Where is my next referral?” I asked what he meant. “You referred me one, I referred one back to you. Now you owe me one.” I was smart enough at the time to recognize that the attorney was violating state Chiropractic law and putting my license in jeopardy. The law says, “any” preference, patronage...or other consideration is against the law.

It is perfectly legal to refer patients to any attorney or doctor that you want. It is only illegal if there is any quid pro quo (this for that.) If the referrals are made in exchange for anything, even a referral back from the other person, it is illegal. It IS legal in California to send a nominally priced gift basket to a P.I. attorney that you have worked with that year as part of your seasonal gift giving to business associates and friends. The key is “nominally priced” and doing it at holiday time is not a quid pro quo (this for that) situation where the referral and the gift occur closely together on the calendar. Once a year during the holidays is all you can do and, remember, an extravagant gift makes it obvious that you are giving the gift in exchange for the referral.

The next ethical concern for the treating chiropractor is to make sure to not violate Section 317(w) of the Chiropractic Act:

(w) Not referring a patient to a physician and surgeon or other licensed health care provider who can provide the appropriate management of a patient's physical or mental condition, disease or injury within his or her scope of practice, if in the course of a diagnostic evaluation a chiropractor detects an abnormality that indicates that the patient has a physical or mental

condition, disease, or injury that is not subject to appropriate management by chiropractic methods and techniques. This subsection shall not apply where the patient states that he or she is already under the care of such other physician and surgeon or other licensed health care provider who is providing the appropriate management for that physical or mental condition, disease, or injury within his or her scope of practice.

**It is a violation of California law and can get your chiropractic license suspended or revoked for failure to refer any patient to a doctor, dentist, neuropsychologist, psychiatrist, psychologist, etc. when the patient has a concussion, PTSD, anxiety from the accident (PTSD usually), torn neck ligaments (Prolotherapy or surgery may be needed) or a myriad of injuries that frequently walk into chiropractic offices in the form of people that have been in car accidents.**

Many chiropractors are surprised to learn that anxiety is the most common symptom after a car accident. It is even more common than neck pain. **Failure to diagnose anxiety and refer the patient to a psychologist, neuropsychologist or psychiatrist is illegal in California and you could have your license suspended or revoked.**

Seat belts and shoulder belts can cause injuries to the patient's heart and many chiropractors never even take the patient's blood pressure during an examination. Proper examination of a P.I. patient includes blood pressure and taking the patient's pulse. An uneven, irregular pulse is a sign that the patient has a traumatically induced cardiac dysrhythmia. Imagine how disappointed the patient will be knowing that the chiropractor he/she trusted missed heart damage and the case was settled for a small amount but the patient will have to take heart medications for the rest of his/her life. Patients deserve compensation for all their injuries so do not be the doctor that failed to diagnose all of their conditions and get them into the hands of specialists that can treat them. A study published in 2007 found that people under 50 years of age who are in car accidents have a 400% higher chance of getting some kind of heart dysrhythmia or irregular heartbeat.

People over 50 only have a 200% higher chance of having these heart problems after a car accident. *Only* 200% higher. I have atrial fibrillation from my 2012 car accident and will have to take heart medications for the rest of my life. It happens to chiropractic patients.

I had a brain concussion from my accident. Now that will change your life. I was diagnosed with Post Traumatic Stress Disorder (PTSD) and I said, "I thought soldiers got this." Yes, they do, but the National Institutes of Health states that car accidents are a common cause of PTSD.

All of these and more can be the symptoms from "Whiplash Syndrome" in a car accident. It is a mistake to think that car accidents only cause neck injuries. I will introduce you to many of the various symptoms and injuries that are part of Whiplash Syndrome after a car accident.

### **Soft Tissue Injuries (e.g. the Muscles)**

Claim adjusters have been taught to believe that all "soft tissue" injuries heal in three to six weeks (even without any treatment.) If you do a poor job as the treating Chiropractor of

accurately assessing, examining and diagnosing a whiplash patient, you have suffered an ethical breakdown and have done a terrible disservice to your patient.

The only way to counteract the junk science that insurance companies promulgate is with good science and good doctoring. The scientific truth is that only *one* of the many types of soft tissues will actually heal as they were taught. Muscles are the “soft tissues” that heal in three to six weeks. Muscles have a great blood supply, are extremely pliable and flexible, and most muscle will heal (as these insurance adjusters are taught) in about three to six weeks and often without any treatment at all. You strain a muscle and it gets better pretty quickly.

Unfortunately, structures such as ligaments, tendons, and nerves definitely do not heal in three to six weeks as the insurance industry has indoctrinated their claim adjusters to believe. **Your ethical job as a treating Chiropractor is to separate out these different structures and describe ON PAPER what has happened to each of them during a whiplash.**

Brain injuries (concussions) are a type of soft tissue injury since the nerves inside your brain are soft. Ligament injuries are also a type of soft tissue injury since ligaments are not as hard as the bones. Both nerve and ligament injuries can leave your patient with permanent impairments and a lifetime of pain and suffering. Tendon injuries can be caused by long term, repeated small injuries (such as tennis elbow) or by one single, sudden trauma such as a car accident or throwing a baseball too hard. Athletes have "torn a tendon" or have a "rotator cuff" injury. These are examples of one sudden tendon trauma that often require surgery or simply end the season (or career) of that athlete. Football players can "blow out a knee" which is a common expression for a season-ending ligament injury in a knee. There are 22 ligaments in the human neck and they are frequently torn in car accidents. Failure to diagnose them is a violation of Chiropractic Rule 317(w) which requires you to figure it out and refer the patient to the appropriate specialist for treatment.

**Another ethical concern for the treating chiropractor is, “Should you be delivering high-velocity, low amplitude adjustments to the neck of a patient with a torn anterior longitudinal ligament and three torn capsular ligaments?”** I suggest the patient will have more pain after the adjustment for several days if you do that. A client recently told me, “I had to quit going to my chiropractor because his adjustments made me hurt for 2 days.” She told me that she had already told the chiropractor and he just kept adjusting her “like he used to before the accident.” Within a week after she quit getting adjusted by him, her neck felt “great.”

Insurance companies do not want to compensate your patient adequately for one of these tendon or ligament injuries and many California chiropractors are unwitting accomplices to the insurance company’s deception because the chiropractor fails to diagnose the torn ligaments.

In car insurance company language, injuries that the doctor has not done the proper tests to demonstrate are called “non-demonstrable” injuries. If the proper test is simply not done (stress x-rays in this case), your patient’s very demonstrable ligament or tendon injury becomes non-demonstrable so that the jury cannot see, touch or feel it. A \$30,000 settlement is turned into a \$12,000 settlement because the chiropractor failed to diagnose a torn neck ligament

Here is a rule of thumb for chiropractors to live by when dealing with car accident patients. If the patient does not feel 100% better within four months after a car accident, that patient has much MORE serious injuries than just a simple muscle injury. There is a 99% probability that the patient has torn neck ligaments that you failed to diagnose. I remind you that **Section 317 requires that you be “Competent” and that you “make appropriate referrals”** to specialists such as pain management for treatment of torn ligaments with treatments such as prolotherapy, PRP and stem cell injections.

Modern technology allows torn neck or back ligaments to be visually demonstrated just as obviously as a broken bone on an x-ray. Good doctors can now accurately predict exactly how long it will take for you to heal after the very first examination! All you need is be a good doctor and examine the patient properly

Sprain is a very old term to describe a ligament injury. The word was used before any type of medical testing could distinguish between a simple muscle injury and the more complicated combination of both muscle and ligament injury. Modernly, knowledgeable doctors use the terms torn ligament, ligament laxity, ligament partial tear, and ligament instability to describe a ligament injury instead of sprain. These injuries are easily documented with the proper stress x-ray films or digital motion x-rays (fluoroscopy.) Doctors who are still using the old sprain/strain diagnosis (and nothing else) are not being accurate, thorough, or even honest in describing your injuries. I suggest that you ask to look at your own chart to see what diagnosis you use to describe your patient’s whiplash. If it is just "sprain/strain" then your next ethical concern is whether you are keeping up with science or still using the knowledge you gained 20 or 30 years ago when you graduated from Chiropractic College.

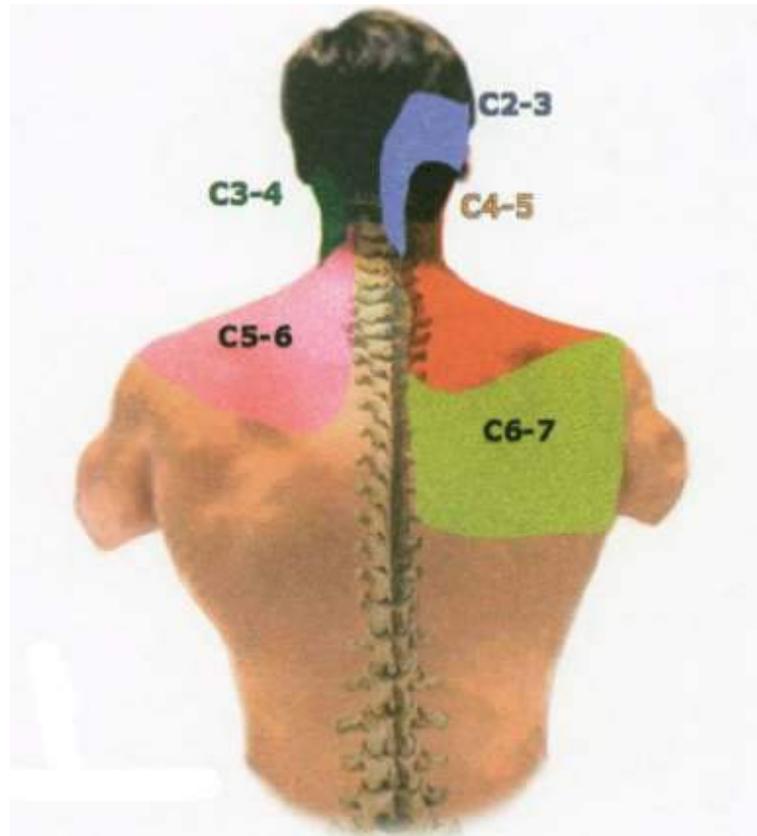
### **Ligament Referred Pain Patterns**

Torn ligaments cause sclerogenic referred pain in the pattern on the following map. The P.I. patient often presents with aching trapezius pain and the chiropractor treats the traps as if it were the injury. That is OK but a good chiropractor will recognize that when the traps still hurt 2 months after the accident it is NOT a strained trapezius. It is torn ligaments (probably the capsular ligaments) at the C4-5, C5-6 or C6-7 joint(s). Then is it time to re-evaluate your patient, take another look at the Davis series of neck x-rays (or take them if you never did) and make an accurate diagnosis on the patient.

Referred pain does not *progressively* improve. Ask your P.I. patients how many hours of relief they are getting after your treatments. If it is 2 months since you began treating the patient and they are still only getting a few hours of relief from your treatments, you have misdiagnosed the patient (specifically, failed to diagnose torn neck ligaments.) If your patient has an actual injury to your shoulder or trapezius and you apply the proper conservative treatments, your patient should feel a little better the first month, even better the second month, and still better the third month (e.g. progressive improvement.)

However, pain from torn neck ligaments referring to your patient’s shoulder will not heal progressively. You will hear, “I get a few hours relief after treatments.” **IT IS NOT ETHICAL TO KEEP TREATING A PATIENT THAT YOU ARE NOT HELPING.** You

need to ask the patient to describe their symptoms. If they describe vague, aching pain according to the ligament referred pain (sclerogenic) patterns on the following diagram, the patient HAS A TORN FACET CAPSULE and not a strained trapezius.



Torn Neck Ligament Referred Pain

This type of pain pattern must be accurately diagnosed. If not, your patient will suffer needlessly and get a very poor settlement for their case. Also, if you do not refer this patient to the proper specialist, you have violated Section 317(w) of the Chiropractic Act, a very serious ethical violation for which your license could be disciplined, suspended or revoked.

Any joint with partially torn ligaments is loose, moves too much, and doctors often call this *translation*. Translation in a joint means that before the normal bending of the joint begins, the bones translate on each other, or *slide* back and forth before starting to bend.

The human body has many mechanisms to heal itself. When a ligament is torn and your body senses that your joint is loose, it tries to heal itself by tightening the joint. At first, the body causes muscles to tighten up (spasm, guarding) to stop the sliding motion. Then the joint forms degenerative arthritis in that joint which eventually stiffens up the joint and stops the excess motion. It is common knowledge that arthritis makes joints stiff. Now you understand why the body does this. The joint is too loose and the body is forming arthritis to stiffen it up.

Arthritis begins forming almost immediately and takes two or three years to really make the patient notice the stiffness in the injured joints. By this time, the P.I. case has settled and the patient is just beginning to deal with the aftermath of the failure by the treating chiropractor to

accurately diagnoses his/her injuries. DJD gets bad so fast that it can be observed on an MRI film within about three years and visible on plain x-ray films within about seven years. The human body tries to stabilize the injured joint for several years by causing muscles to spasm until the arthritis can fully form the bone spurs and scar tissue that eventually stiffens up the patient's neck. Tight muscles will partially stabilize the patient's joint. Unfortunately, muscle spasms themselves are painful.

The patient gets a treatment (massage, ultrasound, adjustment) which relieves the muscle pain and spasms for a maximum of about two weeks. However, once the treatment loosens up your muscles, your vertebrae begin to translate and slide excessively every time the patient moves his/her neck. The body senses this again and causes muscles to tighten up again with spasms. This is the vicious cycle of translation instability and secondary muscle spasms. Remember, doctor, that the muscle spasms are *secondary* and being caused by the torn neck ligaments. Stop treating the symptoms and focus on accurately diagnosing the patient's torn ligaments so you can do the patient some real good in the long run. That is your ethical responsibility under California law.

Eventually, degenerative arthritis gets bad enough that it stiffens up the joint so the muscle spasms are not needed as much. The patient feels somewhat better after two or three years because the arthritis has stopped the vicious cycle of muscle spasms. Unfortunately, the arthritis makes the patient's neck stiff all the time. They have to keep going to the chiropractor for adjustments to help the stiff neck.

### **Injured Neck Ligaments**

There are 22 major ligaments in the neck. You need to know how many of your patient's ligaments are torn so certain tests should be done. The first test to be done for injured neck ligaments is stress x-ray films. They are cost-effective and, when read properly by someone who knows what to look for, can quickly and easily find up to 6 of the most commonly injured neck ligaments. Doctors are taught that a Davis Series of neck x-rays should be done after trauma. Two of the films from the Davis Series (lateral flexion and lateral extension) will assess two of the neck ligaments, the posterior longitudinal ligament (PLL) and the anterior longitudinal ligament (ALL).

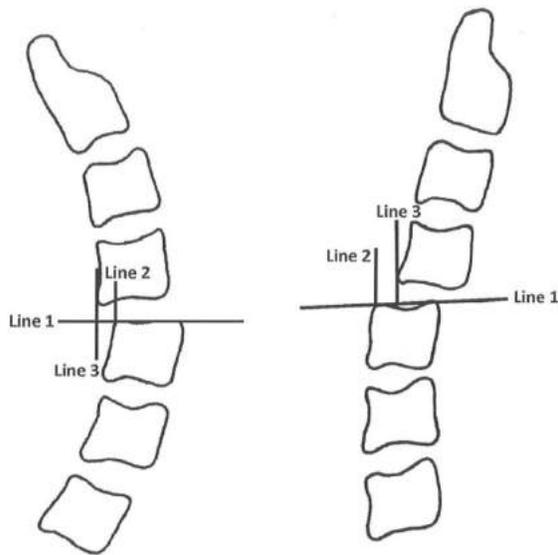
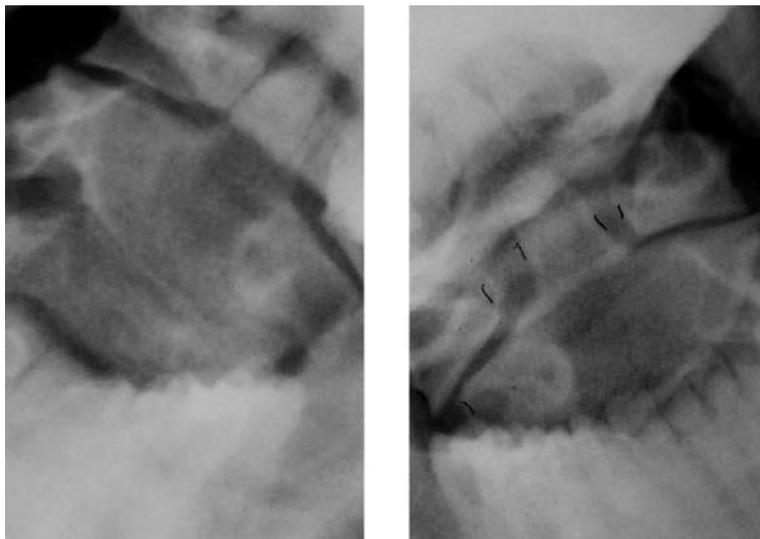


Figure 1: Extension Lateral

Figure 2: Flexion

The Davis Series includes a film called the Anterior-Posterior Open Mouth (APOM) view in which you open your mouth and they take a film of your upper two vertebra. This film, however, is not a stress film and does not show injuries of the accessory and alar ligaments. I recommend replacing the single APOM with two stress APOM films in certain trauma cases.



When the patient has dizziness, lightheadedness, or headaches after trauma, I recommend the doctor take the *two APOM views*, one with the patient's head tilted sideways to the left and one with the patient's head tilted sideways to the right. The cause of dizziness will sometimes be very obvious because the first and second vertebra *translate (slide)* way too much in relation to each other. The doctor will look for two things that indicate partially torn alar and/or accessory ligaments in your neck: (1) Asymmetrical lateral Atlanto-Dental Interspace (ADI); and (2) the body of the first neck vertebra (C1) will slide off the second neck vertebra (C2) in one direction or the other.

If the alar and accessory ligaments are intact on the APOM stress view AND there is no stair-stepping of George's line on the flexion and extension lateral, your patient may be among the 35% of car accident patients that heal completely. Knowing that much is a good start.

However, if you find *any* of these 6 ligaments injured in the plain x-ray films, the next test that should be done is a Digital Motion X-ray (video fluoroscopy) study. When you look at the plain x-ray films and find *any* of the 6 ligaments partially torn, the DMX should be routinely ordered about six to twelve weeks after the accident to test the other 16 neck ligaments. This is the only way to know what is really wrong with your patient.

I strongly recommend using a DACBR to read all your films but especially in trauma cases. I had 2 clients die of cancer during my first 4 years as a P.I. lawyer because the chiropractor did not see the obvious cancer that was on his own x-ray films in each case. The cancer was discovered about 18 months later when the patient failed to improve after the accident and another doctor requested the original chiropractic films for comparison. In both cases, the cancer was on the chiropractor's films. Two patients died needlessly because these chiropractors did not use a DACBR to read the films

You need to watch for the following symptoms of torn neck ligaments in your patients:

- Pain that increases with neck movement
- Secondary muscle spasms
- Degenerative Arthritis
- Posterior neck pain (pain at the back of your neck)
- Headaches
- Dizziness
- Vertigo
- Balance Problems
- Vague Ache in Neck, Shoulder, Upper Back
- *Occasional* Numbness, Tingling, Pins & Needles in arm, hand, or fingers

Watch for this specific group of symptoms in your P.I. patients. Watch especially for "occasional" radicular pain or numbness in patients. When this occurs, it is most likely NOT a disk herniation but, rather, it is torn neck ligaments.

### **Arthritis: Natural Progression of Torn Ligament Injuries**

I was rear-ended in a car accident in 1985. At the time, my chiropractor did not know how to read my x-ray films and see the ligament damage at the joint between the 3<sup>rd</sup> and 4<sup>th</sup> vertebra in my neck. Over the years I had to get regular adjustments from my chiropractor to keep the pain and stiffness to a minimum. I have several sets of x-ray films taken over the years and each set shows a constant progression of degenerative arthritis between the 3<sup>rd</sup> and 4<sup>th</sup> neck vertebra. Neck x-rays in 2010 showed that those two bones have almost completely fused together on their own (without surgery.) Neck x-rays taken after my 2012 car accident showed those two vertebra bones were 100% completely fused.

We have known scientifically for well over 25 years that there is a 66% likelihood that you will get arthritis in your neck within seven years after getting in a rear-end car accident. Based on my research into ligament laxity cases, I now believe that doctors can predict to almost 100% accuracy exactly which joints will get arthritis within seven years after a car accident. Your doctors can now read your x-ray films immediately after an accident and see whether there is translation instability in any of your neck joints.



This x-ray of my neck demonstrates the natural progression of torn neck ligaments. My anterior longitudinal ligament was torn in a minor rear end collision in 1985. This x-ray was taken in 2011. It took 26 years for the C3-4 vertebrae to fuse all by themselves naturally. I took x-ray films in my office about every four to five years and the natural progression of fusion is obvious on that series of films. Please, doctor, check for stair-stepping of George's Line on your patient's flexion and extension x-ray films. He or she will look like this in 26 years and it will be your fault for failing to know what was truly wrong with your patient. Your patient cannot possibly win his/her personal injury case and be properly compensated without accurate information from you. Section 317(c) is another reason the State Board can suspend or revoke your license. "Incompetence" is all it says under 317(c), Failing to diagnose a torn neck ligament so your patient ends up looking like the x-ray above in 26 years is a pretty good description of incompetence to me.

### **Post Traumatic Stress Disorder**

A large number of patients in car accidents have PTSD according to the National Institutes of Health. I believe that chiropractors are responsible for diagnosing this in their patients and making referrals to psychologists, psychiatrists and neuropsychologists in order to not violate Section 317(w) or Section 317(c).

You are NOT being an ethical Chiropractic if you never diagnose PTSD in your car accident cases. It is a very common and VERY serious condition. Your patients with PTSD will suffer FAR MORE from it than from their neck injury.

Nearly 8% of people have PTSD in their lifetimes. Some people have PTSD-like symptoms for only a few hours or days and they just go away. Others experience these symptoms for a few weeks and this is called Acute Stress Disorder (ASD.) However, when symptoms last more than a month and start to negatively affect the patient's life in many ways, PTSD is the correct diagnosis.

### **How To Diagnose PTSD**

A health professional or mental health professional with specialized training is the only one that can "diagnose" PTSD. However, it turns out that most primary care doctors are not routinely screening for PTSD and, because of that, people with PTSD are not being identified and not being treated. The reason primary care doctors are supposed to routinely screen their patients is that most patients are too embarrassed to tell their doctor that they are having all these "weird" symptoms. Patients don't "volunteer" how crazy they feel in their heads and all their emotional outbursts because they are embarrassed and don't understand what is wrong with them.

You are required under the Chiropractic Rules and Regulations ("the law") Section 317 to competently screen personal injury patients for the very common (and often missed) conditions of PTSD and brain concussion. The technical criteria to be able to correctly diagnose PTSD is that the patient must have all of the following for at least one month: (1) At least one re-experiencing symptom; (2) at least three avoidance symptoms; and (3) at least two hyperarousal symptoms. Let me teach you what they are so you can screen your patients and follow the law in making appropriate referrals.

### **Re-Experiencing Symptoms**

After a traumatic event such as a car accident, a patient may re-experience the stress all over again when reminded of the trauma. People in car accidents are frequently reminded every time they drive or even ride in a car. Those situations can trigger an unconscious fear that you just cannot overcome by trying to "think it away." Words or objects can also be triggers that remind you of the trauma and cause you to re-experience not just the event, but the stressful feeling that occurred during the trauma. The three examples of re-experiencing are:

- Flashbacks
- Bad Dreams
- Frightening Thoughts

### **Avoidance Symptoms**

People avoid activities that remind them of the car accident. I have heard many patients tell me that they take a different route to work after an accident so they do not have to drive through the intersection where the accident occurred. Some have stopped driving their car and their husband

or wife has to drive them everywhere. This is not easy given all the doctor appointments a person has after being injured in a car accident.

Avoidance symptoms means that patients are consciously or sub-consciously changing their daily routine or their brain has kind of “shut down” its emotions in order to not feel the strong emotions associated with the car accident. The brain can close down other bad emotions and even good emotions just to avoid the severe emotional roller coaster that the patient may be experiencing after a car accident. The five main avoidance symptoms are:

- Staying away from places, events or objects that remind you of the car accident
- Feeling emotionally numb
- Feeling strong guilt, depression or worry
- Losing interest in activities that were enjoyable in the past
- Having trouble remembering the dangerous event

### **Hyperarousal Symptoms**

These symptoms are present in the PTSD patient’s life pretty much all the time as opposed to the other symptoms which only come on when “triggered.” The hyperarousal symptoms are:

- Being easily startled
- Feeling tense or “on edge”
- Having difficulty sleeping
- Angry outbursts

### **Ethical Standards for California Chiropractors & PTSD**

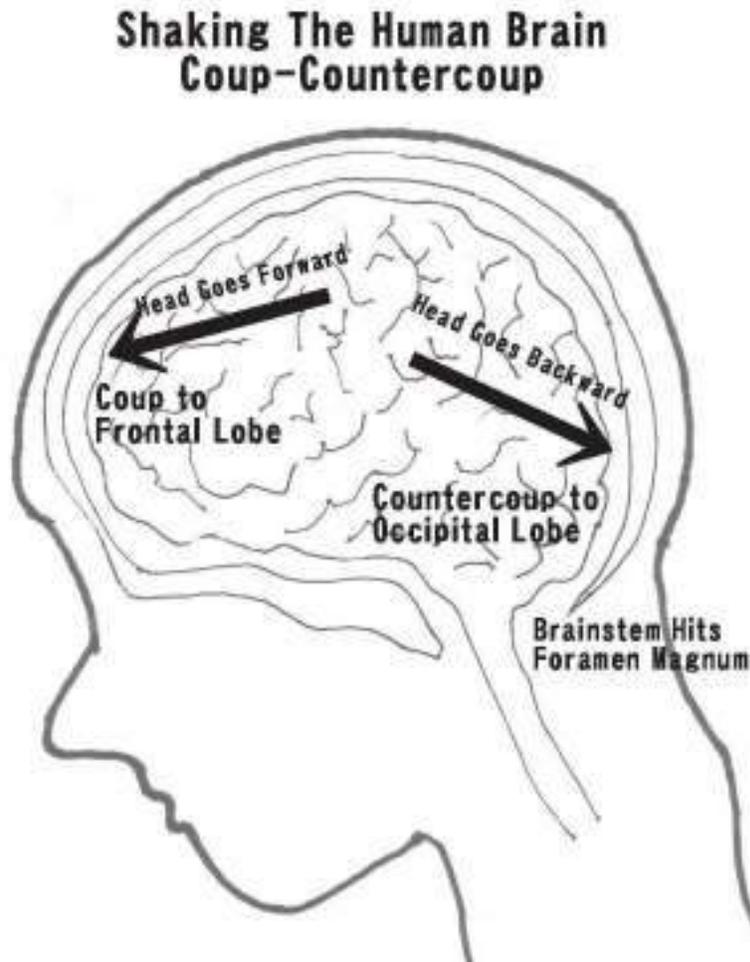
It is the job of primary doctors (including chiropractors) to screen patients for PTSD after car accidents and other traumatic or life-threatening events. You will be given a form with the paperwork for this class that makes screening quite simple. The Symptoms form includes all the classic musculoskeletal symptoms your patients might have plus all of the PTSD and brain concussion symptoms as well. Using the Symptoms form (or a similarly comprehensive one) supplied with these notes will help you provide better patient care.

### **Brain Concussions Caused By Shaking-NOT Hitting Your Head**

There is no bigger myth in the auto insurance industry than the mistaken belief that you have to hit your head on something to get a concussion. Since the word “concussion” means to “shake”, people who believe this myth simply do not understand the most simple medical terms. Shaking your head causes a concussion. When you hear about someone getting a concussion after hitting their head, you should understand that *hitting the head caused the brain to shake*. Shaking the brain is what causes the concussion.

Doctors understand this mechanism so well that it has a name. Scientists call it *contre-coup* (from the Latin meaning opposite blow.) You hit the right side of your head and it shakes your brain so that the left side of your brain hits the left side of the inside of your skull. The left side

of the brain is injured in this contre-coup type brain concussion. The reality is that many different areas of the brain's nerves can be injured when your head shakes violently during a whiplash.



### **Five Categories of MTBI Symptoms**

There are numerous systems that have been created over the past one hundred fifty years to describe and categorize this constellation of brain concussion symptoms. The knowledge and understanding of brain concussions has evolved as doctors have made new discoveries and science has advanced in its ability to test the brain. A new system to explain the various symptoms has been published and adopted each time a significant leap forward has occurred.

As usual, each time a new system is created it is adopted and used by some doctors while other doctors continue to use the older system. Research in this field of neurology continues today. New scientific papers are published every year as doctors continue to understand, explain, and treat the unfortunate victims of this devastating brain injury.

My system is based on function and can be used to categorize the five categories of MTBI symptoms. It was derived from the research available today. I adapted it from all the various systems and put all the symptoms in a system of categories that takes the point of view of the concussion victim. These are the symptoms you may be feeling. This is how your brain injury may be affecting your life. The six categories of concussion symptoms are:

- Physical
- Emotional
- Behavioral
- Cognitive
- Social
- Sleep

### **Physical Symptoms of Concussion**

- Headaches
- Weakness in the arms or legs
- Poor Balance
- Seizures
- Loss of libido
- Fatigue
- Weight gain or loss
- Hearing problems
- Change in sense of taste or smell
- Numbness or tingling
- Blurry vision
- High blood pressure
- Worsening of diabetes

### **Emotional Symptoms of Concussion**

- Irritability
- Sadness or tearfulness
- Mood Swings
- Nervousness
- Anxiety
- Depression
- Hopelessness
- Helplessness
- Reduced Confidence
- Apathy
- Intense Fear

### **Behavioral Symptoms of a Concussion**

- Change in exercise patterns
- Agitation
- Loss of inhibitions

### **Cognitive Symptoms of Concussion**

- Difficulty concentrating
- Disorientation to time or place
- Confusion
- Difficulty speaking
- Cannot pay attention very long
- Difficulty focusing/easily distracted
- Memory problems
- Reading comprehension problems
- Writing problems
- Difficulty learning new things
- Difficulty understanding things
- Difficulty planning or organizing

### **Social Symptoms of Concussion**

- Social withdrawal
- Relationship Difficulties
- Loss of Enjoyment of Hobbies

### **Sleep Helps Your Memory**

You wake up the every morning with a clean slate. Sleep is to your brain what deleting the cache is to your computer. Deep sleep frees up storage capacity to put more things into your brain the next day. The area of your brain that stores short cognitive memories for a little while (the hippocampus) is ready to take in new information, make new decisions and see the world more clearly because yesterday's memories were moved during the night into the large outer cortex of your brain.

Think of the hippocampus as RAM on your computer and the outer cortex as the hard drive. Your RAM is limited and temporary but your hard drive stores things forever (unless you hit the wrong button.)

### **Physiology of Sleep**

Scientists now believe that your brain cells work almost as hard while you sleep as they do while you are awake. They do a different job, though, as you sleep. They consume almost as much energy as neurons do while you are awake. We also believe that the connections between brain cells become looser and the physical space between nerve cells increases. The weakening of these synapses (connections) is done for the purpose of preventing your nerves from "getting

fried” so to speak because if this did not occur your brain cells would become oversaturated and consume too much energy.

During Stage 1 sleep, muscle activity slows as you drift off. This is when those twitches or jerks usually happen (especially the finger you have on the remote control.) Stage 2 is a deeper sleep when brainwaves slow down and your breathing and heart rate become regular. Stage 3 sleep is when your slowest brainwaves and breathing have been achieved. This is the time when your body restores and replenishes tissues, muscles and new energy is stored in your body for the next day. By the time you get to Stage 4 sleep, growth hormones are released in your body to repair and regenerate injuries. Sleepwalking can occur during Stage 4 sleep.

Ironically, Stage 5 (REM) sleep is when your brain waves most closely resemble your brainwaves when you are fully awake. This is when your brain works very hard clearing out your short term memory, organizing your thoughts and ideas, making decisions about how to catalog those ideas and where to store them in the outer cortex for future retrieval. If your brain is not permitted to get into REM sleep it is as if the indexing system that retrieves things from your computer’s hard drive is scrambled. This is called a computer “crash.”

When your computer crashes and information is unavailable from the hard drive (including the booting up information), that does not mean that all the information is lost. It only means that the indexing system is not working anymore. If you take your hard drive to a professional, most of the data on the hard drive can usually be retrieved. The information is there but your computer doesn’t know where anything is and cannot locate any of that massive quantity of data.

Similarly, when you are not getting REM sleep, all the data stored in your cerebral cortex is still there but sometimes you cannot seem to find the word for a very simple object like a watch or a pencil. Your brain’s indexing system is not working very well.

When your computer crashes, you also lose all the “unsaved” data. Whatever you are working on at that moment (that you have not saved) is lost when the computer boots back up.

Think of the short term memory in your hippocampus as the data you are “working on.” It has not yet been saved because you have not been into REM sleep yet. Once you get deeply into Stage 5 REM sleep, your brain hits the “Save” button and all those memories are saved and indexed in your cerebral cortex. If you pass completely through the night and never get into REM sleep, you wake up the next morning and all the ideas you were “working on” the day before are lost. It is as if you were never able to hit the “save” button. In your brain, it is not called the save button but you can call it the REM button since that form of deep REM sleep does for your brain and memory exactly what the save button does on your computer.

## **Emotional Memories**

Sleep also has an effect on your storage of emotional memories but, ironically, it has the opposite effect. Temporary insomnia occurs sometimes because your brain is trying to *prevent* the storage of painful emotional memories. If you experience a fight with your spouse, boss or family member, your body may give you insomnia in order to prevent that emotional trauma from being permanently stored in your brain.

While this temporary insomnia is a good thing, keep in mind that the brain is used to being exposed to slightly traumatic experiences. You may get a little insomnia from a slight emotional trauma and the next day it is forgotten (at least it is not stored permanently in your emotional trauma zone.) Your brain sacrifices a few cognitive memories that day in order to keep your emotions from being permanently damaged.

Severe traumatic life-threatening experiences such as war, car accidents and assaults can become deeply embedded in your emotional memories. These traumas are too severe to be fixed by a little insomnia. You may be afraid to sleep (hypervigilance) and your brain cannot slow down and rest during the night. Your nerve cells never get that relaxed state where the physical spaces between them increase and, thus, your cognitive functions suffer. You remain in this hormone roller coaster state of fight or flight as your nerves get fried. On the other hand, your body may be trying to protect you from storing these severe emotional memories and it is willing to sacrifice your cognitive processes in order to do that.

While scientists do not fully understand all the neurochemistry of this sleep disturbance, I would propose the theory that forcing yourself to sleep with sleeping pills after a traumatic event may have the effect of increasing your focus and improving your memory. Unfortunately, that same act of taking a sleeping pill might also deepen the traumatic memories of the car accident and might even contribute to longer recovery from PTSD.

The brain's storage of cognitive memories and unpleasant emotional memories seem to be at odds with each other based on what we currently understand about sleep. I believe your brain may be sacrificing clear thinking in favor of preventing permanent emotional scars. For now my suggestion is to get help as soon as possible to work through the emotional trauma of your car accident. Use talk therapy, EMDR and other psychology tools to "get through" and process the trauma as fast as possible. If my theory is correct, the faster you get over the PTSD, the sooner your memory and cognitive function will improve.

### **Overlapping Symptoms – PTSD and Brain Concussion**

You should have already noticed that there are a lot of symptoms common to brain concussion and PTSD. Which is which? YOUR job, as the treating chiropractor in California, is to SCREEN for these injuries and then REFER them to specialists who can sort it out. You do not need to understand everything. You MUST, however, not MISS these fairly obvious injuries or you are violating the California Chiropractic Act and putting your license in jeopardy.

### **Ethics & Personal Injury Practice**

You have learned in this course that treating a car accident patient is a LOT more than a neck or back injury that needs your adjustments. I am NOT saying they don't need your adjustments, but that is not ALL they need. **You have an ethical responsibility to your patients (and the State Board) to NOT MISS INJURIES.** You have learned some of the most common that are missed not only by Chiropractors, but Medical Doctors as well. Let's up our game and be the BEST doctors.

Personal injury is ALL about the law. The law is what allows your patient to make a claim against the person that crashed into their car and injured him or her. Lawyers and claim adjusters will scour your records line by line and word by word. Those on the defense side will look for mistakes in your records and exploit your mistakes to hurt your patient's legal case. Those on your patient's side will scour your records for the words that help them get your patient a fair and reasonable settlement. You and your record-keeping are the MOST IMPORTANT evidence that the two sides will fight over.

If your patient has a torn spine ligament and you fail to diagnose it, the result can be devastating. You have broken California law Section 317C and 317W and you can be disciplined or even sued for malpractice. Your patient's legal case can be undermined by your incompetence and poor record keeping. A garden-variety whiplash case where the patient has 3-4 months of Chiropractic care and gets 100% well is worth around \$7,000 to \$12,000 these days. Approximately half of those cases you may have thought were "garden-variety" actually have a torn spine ligament and/or PTSD and/or a brain concussion. Cases with torn ligaments or PTSD or concussions are worth \$35,000 to \$500,000 these days.

Your patient *could* get \$500,000 but ONLY if two things happen. (1) They have an injury such as torn ligaments, PTSD or concussion; and (2) YOU DIAGNOSE IT PROPERLY AND REFER IT TO THE PROPER SPECIALISTS.

Would you sleep well at night knowing that your patient SHOULD HAVE RECEIVED a half a million dollars but s/he only got \$7,000 because you messed up their case?

You have learned here that torn spine ligaments, PTSD and brain concussion patients walk into Chiropractic offices frequently after personal injuries such as care and motorcycle accidents. You have learned how to screen for all three of these very serious injuries and what your ethical and legal responsibilities are toward your patient and their legal case. It is all up to you now.