

Whiplash Traumatology, Neurophysiology, Pain and Treatment Seminar Series: A Multidisciplinary Approach to Care.

Dr. Jason Mazzarella of the North American Spine Institute has developed a science/research-based training program designed to provide the essential knowledge to all healthcare providers on how to evaluate and treat whiplash, whiplash related disorders and chronic pain.

This program teaches the basic concepts of whiplash, chronic pain, diagnosis, evaluation, and treatment techniques to help expedite patient recovery. The program is an updated version of the 2008 Whiplash Traumatology and Treatment Seminar Series that was the first and only continuing education approved program co-sponsored by both Chiropractic and Medical professional organizations and universities on the subject of Whiplash.

Offering: 32 credit hour CE program.

Seminar Topics

Module 1: Motor Vehicle Crash Forensics

Learning Objectives:

- In depth understanding of human kinematics dependent on the crash vector and risk factors of a collision, and how this can provide an injury potential to streamline and reduce in office testing time.
- Clinical strategies to account for age, gender, and past medical history patient conditions and the potential effect on recovery outcomes.
- Understanding of Accident Reconstruction and Event Data Reorder principles, procedures and reports.

- **What is Crash Forensics** **9:00 AM**
- **Types of Collision Vectors / PDOF**
 - Roll over
- **Rear Impact** **9:30 AM**
 - Phases of Injury/Sequence of Events
 - General Crash Times – Kinematic response in msec.
 - Reverse S Curve
 - Neurophysiological consequences
 - Example Live Crash Testing
 - Common Injury Patterns Assessment and Diagnosis
 - Acceleration Deceleration Injury Patterns
- **Front Impact** **10:00 AM**
 - Phases of Injury/Sequence of Events
 - Kinematic Response
- **Side Impact** **11:00 AM**
 - Phases of Injury/Sequence of Events
 - Kinematic Response Near Side Collision
 - Kinematic Response Far Side Collision
- **Special Considerations** **12:00 PM**
 - Elastic vs. Plastic Collisions
 - Human factors affecting injury outcome

- Force loads acting on the spine

Lunch Break **12:30 PM to 1:00 PM**

- **Accident Risk Factors** **1:00 PM**
 - Acute Risk Factors
 - Late/Chronic Risk Factors
- **Accident Reconstruction and Injury** **3:00 PM**
 - ACR it's start in personal injury
 - General objective of ACR
 - ACR and Injury Analysis
 - ACR and court rulings on injury
- **Introduction to Event Data Recorders** **5:00 PM**

End Day 1 **5:30 PM**

Module 2: Physical Examination

Learning Objectives

- Utilize the most effective non-surgical methods to assess and diagnosis injuries to tendons, joints, muscles, and ligaments in Whiplash injury patients.
- Understand referred pain patterns to more accurately diagnosis Whiplash related injuries.
- Clinical strategies to account for age, gender, and past medical history patient conditions and the potential effect on recovery outcomes.
- Understanding of Whiplash Related Vestibular injuries pathophysiology including VOR, VCR, VSR, and Optokinetic reflexes.

- **History and Intake** **9:00 AM**
- **Relevant Past Medical History** **9:30 AM**
- **Physical Examination – Muscle** **10:00 AM**

Lunch Break **12:00 PM**

- **Physical Examination – Neurological** **12:30 PM**
 - Trauma Neurology
 - Spinal Cord Hypersensitivity after Trauma
 - Glia Cell Response
 - Brain fMRI studies and pain
 - Receptive Field enlargement
- **Consideration of alterations in Endocrine function** **1:50 PM**
 - Hypothalamus controls limbic system and affect on autonomic and endocrine function.
 - Hypothalamus role in regulating neuroendocrine and immune response.
- **Physical Examination – Vestibular** **2:00 PM**
- **Physical Examination – Orthopedic** **3:30 PM**
- **Types of Referred Pain** **4:00 PM**
 - Neurotome
 - Angiotome
 - Dermatome
 - Myotome
 - Sclerotome
 - Viscerotomes
- **Whiplash Traumatology Associated Common Syndromes/Disorders** **4:30 PM**
 - Thoracic Outlet Syndrome

- Carpal Tunnel Syndrome
- Headaches
- Sacroiliac Joint Injury
- Vestibular Injury
- Tinnitus
- Traumatic Stress - Psychological components of Injury and Pain
- Memory Acquisition and Storage

End Day 2

5:30 PM

Module 3: Neurophysiology

Learning Objectives

- Application of, and new evidence for concussion diagnosis and treatment.
- Understanding concussion sub-types, common symptoms associated with injury patterns and best treatment options.
- Recommendations on how to use qEEG, sEMG, and Neurokinetic evaluation to assist in the diagnosis of accident-related spinal injuries, nervous system injuries and concussion.

- **Concussion Injury Mechanisms**

9:00 AM

- Coup Counter Coup Injuries
- Pressure Gradient Injuries
- Diffuse Axonal Injuries
- Closed Head Injuries

- **Concussion Sub-Types**

- Mild Traumatic Brain Injury
- Blood Brain Barrier Disruption
- White Matter Disruption
- Grey Matter Disruption
- Head Injury
- Post-Concussion Syndrome
- General Cognitive Processing Ability
- Reduced Cerebral Metabolism

Lunch Break

12:00 PM

- **Neuropathy Injury Mechanisms**

12:30 PM

- Human Factors – Steering Wheel
- Crash Factors – Offset Collision
- Vehicle Factors – Seatbelt and Airbag

- **Traumatic Stress**

- **Pain Pathophysiology**

1:00 PM

- Pain Terminology
- Pain Pathophysiology
- Pain Generators
- Pain Fiber Evaluation and Testing
- Pain Neurotransmitters
- Pain Response
 - Inflammation
 - Muscle Guarding/Splinting
 - Altered Biomechanics
- Digital Algometry Testing
- Nerve Adhesion Testing

- Biomechanics in Pain Assessment
- **Neurophysiological Special Testing** **3:00 PM**
 - Quantitative Electroencephlography (qEEG)
 - Surface Electromyography (sEMG)
 - Electromyography (EMG)
 - Nerve Conduction Velocity (NCV)
 - Motor NCV study
 - Sensory NCV study
 - AMA Guidelines 6^o Edition Impairment

End Day 3 **5:30 PM**

- **Vestibular Testing** **9:00 AM**
 - Electronystagmography (ENG)
 - Visual Evoked Potentials (VEP)
 - Somatosensory Evoked Potentials (SEP)
 - Posturography Computerized Testing
 - AMA Guidelines 6^o Edition Impairment

Module 4: Physical Medicine Treatment Options and Protocol **11:00 AM**

- Optimized approaches for interpreting special images and making decisions about conservative care management if need.
- Recommendations on how to use point-of-care ultrasound and Posturography testing to assist in the diagnosis of accident-related spinal injuries, nervous system injuries and concussion.
- Optimized approaches for interpreting special images and making decisions about conservative care management if need.
- Updates in the management of Chronic Pain including biofeedback and physical medicine and rehabilitation treatment options.
- Understanding of Medico-legal requirements with evaluation, assessment and report writing.
- **Postural Analysis**
- **Cervical Traction**
- **Alpha Stimulation**
- **Photobiomodulation**
- **Pulsed Radio Frequency**
- **Neurofeedback**
- **Biofeedback**
- **Nutrition**

Lunch Break **12:30 PM**

- **Spinal Manipulation**
- **Acupuncture**
 - **Traditional Chinses Acupuncture**
 - C-Fiber / Chronic
 - **Auricular Acupuncture**
 - **fMRI Studies**
 - **Whiplash Treatment Options**
- **Electrical Therapy**
- **Laser Therapy**
- **Exercise**
 - **Strengthening**
 - **Neurokinetic Exercises**
 - **Muscle Re-Education**

- Vestibular Exercises
- Nerve Mobilization
- **Massage Therapy**
 - Lymph Drainage
 - Trigger Point Therapy
 - Counter Rotation
- **Medical**
 - Opioid Usage
 - Pharmaceuticals
 - Injections
 - Trigger Point Injections
 - Nerve Blocks
 - Epidural Steroid Injections (ESI)
 - Botox
 - Radiofrequency Neurotomy (RFN)
 - Surgery
- **Complimentary Care Post Rehabilitation**
 - Yoga
 - Pilates
- **Consequences of Inadequate or Under Treatment**

Additional Special Testing

3:00 PM

- **Radiographic Examination**
 - Primary Views of Consideration
 - Primary Lines of Measurement
 - Standard of Care – Davis Series
- **Videofluoroscopy Examination**
- **MRI Examination**
 - Diffuse Tensor Imaging (DTI)
 - Magnetic Transfer Imaging (MTI)
 - Magnetic Resonance Spectroscopy (MRS)
 - Magnetic Source Imaging (MSI)
 - Functional MRI (fMRI)
 - BOLD fMRI (Blood Oxygen Level Dependent fMRI)
 - Contrast-Enhanced MRI
 - PET (Positron Emission Tomography)
 - Radionuclide Bone Scan
 - SPECT (Single Photon Emission Computed Tomography)
- **CT Examination**
 - Myelography
- **Discography**
- **Bone Scan**
- **Thermography**
- **Regional Cerebral Bloodflow Perfusion Examination**
- **POCUS US**
 - Angiography and Color-Coded Duplex Sonography (CCDS)
 - Muscular Evaluation

Sample Assessment and Report Writing – MedLegal

4:30 PM

- **Sample report review**
 - Documentation

- **Intake and Examination Forms**
- **Outcome Assessments**
- **Report Writing for Success**
- **Medical Review and Rebuttals**
- **Example Rebuttal Reports.**
- **What I learned as a Preferred Provider for Allstate.**

End Day 4

5:30 PM

* This program is subject to change.

Please feel free to contact this office with any questions.

Dr. Jason Mazzarella, D^C

Doctor of Chiropractic
 Director North American Spine Institute
 Medical Advisor Crawford and Company Canada
 Elected Board Member – Canadian Institute for the Relief of Pain and Disability 2013
 Elected Medical Board Peer Review – Journal of Anesthesia and Pain Management 2019
 International Post Graduate Lecturer - Medical curriculum on Crash Forensics, Whiplash Traumatology and the Biopsychosocial Model of Pain
 International Post Graduate Lecturer - Chiropractic curriculum on Crash Forensics, Whiplash Traumatology and the Biopsychosocial Model of Pain
 Graduate Lecturer Accident Reconstructionist - Occupant Kinematics, Injury Biomechanics and Crash Forensics
 Diplomate American Academy of Integrative Pain Management 2018
 Diplomate American Academy of Pain Management 2011 and 2016
 Diplomate Canadian Academy of Pain Management 2011
 Diplomate American Academy of Experts in Traumatic Stress 2010
 Fellowship International Academy of Medical Acupuncture 2006
 Registered Acupuncturist CTCMPAO 2014
 Certification Motor Vehicle Trauma 2011
 Certification Pain Management 2010
 Certification Acute Traumatic Stress Management 2011
 Certification Motor Vehicle Crash – Forensics Risk Analysis 2006
 Certification Brain Injury 2009
 Certificate Whiplash and Brain Traumatology 2005
 Advanced Certificate of Competency Whiplash and Brain Traumatology 2011
 NBCE Certified Physiotherapy Competency 2005
 BSc. Kinesiology Movement Science 2001
 BSc. Health Policy and Administration 2001
 Crash Data Retrieval System Operators (Technician) Certification 2012
 Crash Data Analysis and Application Certification 2013
 Certification Accident Investigation 2011
 Certification Accident Investigation and Reconstruction Level 2 2012
 Certification Accident Investigation and Reconstruction Level 3 2013