



Post Graduate Seminar Medical Curriculum – Accredited and Endorsed Topics.

Module 1: Motor Vehicle Crash Forensics

- What is Crash Forensics
- Types of Collision Vectors / PDOF
 - Roll over
- Rear Impact
 - 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
 - Phases of Injury/Sequence of Events
 - Kinematic Response
- Side Impact
 - Phases of Injury/Sequence of Events
 - Kinematic Response Near Side Collision
 - Kinematic Response Far Side Collision
- Special Considerations
 - Elastic vs. Plastic Collisions
 - Human factors affecting injury outcome
 - Force loads acting on the spine
- Accident Risk Factors
 - Acute Risk Factors
 - Late/Chronic Risk Factors
- Accident Reconstruction and Injury
 - 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

Module 2: Physical Examination

- History and Intake
- Relevant Past Medical History
- Physical Examination – Muscle
- Physical Examination – Neurological
 - Trauma Neurology
 - Spinal Cord Hypersensitivity after Trauma
 - Glia Cell Response
 - Brain fMRI studies and pain
 - Receptive Field enlargement
- Consideration of alterations in Endocrine function
 - Hypothalamus controls limbic system and affect on autonomic and endocrine function.
 - Hypothalamus role in regulating neuroendocrine and immune response.
- Physical Examination – Vestibular
- Physical Examination – Orthopedic
- Types of Referred Pain
 - Neurotome
 - Angiotome
 - Dermatome
 - Myotome
 - Sclerotome
 - Viscerotomes
- Whiplash Traumatology Associated Common Syndromes/Disorders
 - 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

Module 3: Neurophysiology

- Concussion Injury Mechanisms
 - 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
- Neuropathy Injury Mechanisms
 - Human Factors – Steering Wheel
 - Crash Factors – Offset Collision
 - Vehicle Factors – Seatbelt and Airbag
- Traumatic Stress
- Pain Pathophysiology

- 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
 - Quantitative Electroencephalography (qEEG)
 - Surface Electromyography (sEMG)
 - Electromyography (EMG)
 - Nerve Conduction Velocity (NCV)
 - Motor NCV study
 - Sensory NCV study
 - AMA Guidelines 6th Edition Impairment

Module 4: Treatment and Medicolegal Concepts

- Vestibular Testing
 - Electronystagmography (ENG)
 - Visual Evoked Potentials (VEP)
 - Somatosensory Evoked Potentials (SEP)
 - Posturography Computerized Testing
 - AMA Guidelines 6th Edition Impairment

Physical Medicine Treatment Options and Protocol

- Postural Analysis
- Cervical Traction
- Alpha Stimulation
- Photobiomodulation
- Pulsed Radio Frequency
- Neurofeedback
- Biofeedback
- Nutrition
- Spinal Manipulation
- Acupuncture
 - Traditional Chinese Acupuncture
 - C-Fiber / Chronic
 - Auricular Acupuncture
 - fMRI Studies
 - Whiplash Treatment Options
- Electrical Therapy
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- 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

- 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

- 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.
- AMA Guidelines Impairment Ratings 4th and 6th edition.

Background Reading:

1. Fox S, Croft A: Whiplash Injuries: The Cervical Acceleration / Deceleration Syndrome. Lippincott Williams & Wilkins Nov 1, 1995.

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