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SELECTED OCCUPATIONAL HISTORY

Owner/Doctor of Chiropractic, Glasgow Spine & Wellness, Newark, DE, 2001 – Present

Doctor of Chiropractic, Midway Chiropractic, Newark, DE, 2003 – 2013

Doctor of Chiropractic, Newark Chiropractic, Newark, DE, 1997 – 2001

Clinician, Life University, Marietta, GA, 1997

EDUCATION AND LICENSURE

Doctor of Chiropractic, Licensed in the State of Delaware, License # F1-0000461, 1997 – Present

Chiropractic X-Ray Theory and Practice, Life University School of Chiropractic, Marietta, GA, 1997

Doctorate of Chiropractic, Life University School of Chiropractic, Marietta, GA, 1997

Chiropractic Adjunctive Physiotherapy, New York Chiropractic College, Seneca Falls, NY, 1996

National Board of Chiropractic Examiners, Part IV, 1997

National Board of Chiropractic Examiners, Part III, 1997

National Board of Chiropractic Examiners, Part II, 1997

National Board of Chiropractic Examiners, Part I, 1997

National Board of Chiropractic Examiners, Physiotherapy, 1996

Bachelor of Science, Excelsior College, Albany, NY, 1989-1993

CERTIFICATIONS, QUALIFICATIONS AND DIPLOMATES

Trauma Team Qualified, Academy of Chiropractic, 2020 - Present

SELECTED POST-GRADUATE EDUCATION, CERTIFICATIONS AND DIPLOMATES

Trends in Spinal Healthcare, Analyzing spinal healthcare trends in both utilization and necessity and understanding the marketplace and how a level of clinical excellence is reflected in a doctors' documentation and credentials. Treatment pathways in triaging

spinal pathobiomechanics. Academy of Chiropractic Post-Doctoral Division, Cleveland University – Kansas City, Long Island NY, 2020

MRI Spine Interpretation, An evidence-based understanding of time related etiology of disc pathology considering the American Society of Neuroradiology's designation of protrusion, extrusion, and sequestration of spinal discs, Considering the signal intensity of discs in age-dating pathology and acquisition protocols for advanced spinal imaging. Academy of Chiropractic Post-Doctoral Division, Cleveland University – Kansas City, Long Island NY, 2020

Spinal Biomechanics; A Literature Perspective, An evidenced-based model for spinal biomechanical engineering and pathobiomechanics considering the pathophysiological limits in translations, angular, angular deviation, and rotational planes. Utilizing the Cartesian system in plotting vertebral points to demonstratively conclude an accurate diagnosis, prognosis and biomechanical treatment plan with the consideration of long-term care in the non-specific mechanical spine pain patient when necessary. Academy of Chiropractic Post-Doctoral Division, Cleveland University – Kansas City, Long Island NY, 2020

Case Management of Mechanical Spine Pathology, Clinical Rounds of herniated, protruded, extruded, sequestered, and bulging discs. Differentially diagnosing vascular vs. mechanical spinal lesions and the necessity for urgent vascular, neurological intervention, Collaborating in a team environment utilizing a neuroradiologist, electrophysiologist and neurosurgeon with the chiropractor as the primary spine care provider. Academy of Chiropractic Post-Doctoral Division, Cleveland University – Kansas City, Long Island NY, 2020

Diagnosing and Case Management, The requirements for diagnosing based upon in an initial evaluation and management encounter ranging from a 99202-99205 that includes comorbidities, non-musculoskeletal, and sequelae to injury to injury diagnosis. Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2020

Diagnosing and Case Management, The requirements for diagnosing imaging inclusive of static x-rays, biomechanical x-rays, and MRI. Documenting the clinical findings of disc bulge, herniation, protrusion, extrusion and fragmentation. Coding, diagnosing, and documenting individual treatment encounters in the clinical setting. Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2020

Medical-Legal Ethical Relationships, Documentation and Legal Testimony, Report writing for legal cases, the 4 corners of a narrative and documenting damages with understanding defense medical documentation and consistent reporting of bodily

injuries. Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2020

Medical-Legal Ethical Relationships, Documentation and Legal Testimony, Part 2, *Understanding report writing and the types of medical reports required for court inclusive of diagnosis, prognosis and treatment plans with requirements of reporting causality and permanency.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2020

Medical-Legal Ethical Relationships, Documentation and Direct Testimony, *Organizing your documentation and understanding all collaborative documentation and how it fits into your diagnosis, prognosis and treatment plan, Understanding the nuances of the functional losses of your patients related to their bodily injuries,* Academy of Chiropractic, Post-Doctoral Division. Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2020

Medical-Legal Ethical Relationships, Documentation and Direct Testimony Part 2, *Utilizing demonstrative documentation in direct examination and communicating the results of your care concurrently with the written documentation and reporting an accurate diagnosis for all images.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2020

Medical-Legal Ethical Relationships, Documentation and Direct Testimony Part 3, *The evaluation, interpretation and reporting of collaborative medical specialists results and concluding an accurate diagnosis inclusive of all findings and reviewing all images to ensure an accurate diagnosis.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2020

Medical-Legal Ethical Relationships, Documentation and Direct Testimony Part 4, *Determining and documenting disabilities and impairments inclusive of loss of enjoyment of life and duties under duress and the evaluation and validation of pain and suffering.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2020

Medical-Legal Ethical Relationships, Documentation and Cross Examination Testimony, *Reporting your documentation factually and staying within the 4 corners of your medical report and scope of practice inclusive of understanding how your credentials allow you to report your documentation.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2020

Medical-Legal Ethical Relationships, A Documentation Relationship Between the Doctor and Lawyer, *The level of organization required in a medical-legal case that accurately reflects the bodily injuries of your patients and the time constraints in*

rendering an accurate report. Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2020

Medical-Legal Ethical Relationships, Report Writing and Preparing for a Legal Case, *Reviewing the facts of the case inclusive of your documentation, the defense medical examiner, medical specialists and the attorney to ensure accurate and consistent reporting.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2020

Medical-Legal Ethical Relationships, Report Writing and Preparing for a Legal Case, *Creating demonstrative evidence, visuals of your patient's bodily injuries inclusive of x-rays, MRI's, CAT Scans and electrodiagnostic findings, the spinal biomechanics of herniated disc with ipsilateral findings and contralateral symptomatology.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2020

Traumatic Brain Injury and Concussion Overview: *This section is an in-depth overview of traumatic brain injury in concussion. It discusses that all brain injuries are traumatic and dispels the myth of a "mild traumatic brain injury." Also, this covers triage protocols and the potential sequela of patients with traumatic brain injuries.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Head Trauma and Traumatic Brain Injury Part 1: *This section discusses gross traumatic brain injuries from trauma and significant bleeding with both epidural and subdural hematomas. There are numerous case studies reviewed inclusive of neurosurgical intervention and postsurgical outcomes.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Head Trauma and Traumatic Brain Injury Part 2: *This section continues with multiple case studies of gross traumatic brain injuries from trauma requiring neurosurgical intervention and also discusses recovery sequela based upon the significance of brain trauma. This module also concludes with concussion protocols in traumatic brain injury short of demonstrable bleeding on advanced imaging.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Concussion And Electroencephalogram Testing: *This this section covers concussion etiology and cognitive sequela where gross bleeding has not been identified on advanced imaging. It discusses the significance of electroencephalogram testing in determining brain function and pathology (if present). This module also covers the understanding of waveforms in electroencephalogram testing in both normal and abnormal scenarios.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Concussion And Electroencephalogram Testing Pathological Results: *This module covers amplitude, conduction and conduction delays as sequela to traumatic brain injury to diagnose concussion and traumatic brain injury in the absence of gross bleeding and advanced imaging. This section covers electroencephalograms and event-related potentials which measures the brain response that is a direct result of specific sensory or motor events. It is a stereotype electrophysiological response to a stimulus and provides a noninvasive means of evaluating brain function. In this module multiple case studies are discussed with ensuing triage protocols pending the results.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Chiropractic as the First Option for Spine, A Literature-Based Standard, *Utilizing clinical findings in conjunction with advanced imaging and electrodiagnostic findings in managing collaborative relationships with medical professionals. Applying a literature standard to care to ensure conservative care as the first option,* Cleveland University -- Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Chiropractic as the First Option for Spine, A Literature-Based Standard, *Managing spinal related cases based upon MRI findings of herniations, bulges, protrusion, extrusion (comminuted and fragmented) utilizing thin-sliced acquisition protocols. When to consider ordering T1, T2, Short Tau Inversion Radiant, proton density and Dixon sequencing for spinal related pathology.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Chiropractic as the First Option for Spine, A Literature-Based Standard, *Creating literature-based documentation inclusive of history and a clinical examination that encompasses causality, diagnosis, prognosis, and treatment plans. Ensuring the whole person impairment ratings are consistent with contemporary literature.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Chiropractic as the First Option for Spine, A Literature-Based Standard, *Spinal biomechanical engineering models related to pathobiomechanics and literature-based standards in creating an accurate diagnosis, prognosis, and treatment plan. Determining impairment ratings based upon alteration of motion segment integrity utilizing motion-imaging, and creating demonstrable evidence for continued treatment plans.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Stroke Anatomy and Physiology: Brain Vascular Anatomy. *The anatomy and physiology of the brain and how blood perfusion effects brain function. A detailed analysis of the blood supply of the brain and the physiology of ischemia.* Cleveland University – Kansas City, AACME Joint Providership with the State of New York at

Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY 2020

Stroke Anatomy and Physiology: Stroke Types and Blood Flow, *Various types of stroke identifying ischemia, hyperfusion, infarct and penumbra zones and emboli. Cardiac etiologies and clinical features as precursor to stroke with associated paradoxical emboli and thrombotic etiologies. Historical and co-morbidities that have etiology in stroke inclusive of diabetes, coagulopathy, acquired and hereditary and deficiencies.* Cleveland University – Kansas City, AACME Joint Providership with State of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY 2020

Stroke Principles of Treatment an Overview for the Primary Care Provider, *Stroke type and treatments performed by vascular specialists. The goals of treatment with physiology of the infarct and penumbra zones and the role of immediate triage in the primary care setting. Detailing the complications of stroke and future care in the chiropractic, primary care or manual medicine clinical setting.* Cleveland University – Kansas City, AACME Joint Providership with State of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY 2020

Clinical Evaluation and Protocols for Identifying Stroke Risk, *The Neurological history and examination for identifying stroke risks with a focus on supra and infratentorial regions, upper and lower motor lesions, cranial nerve signs, spinal cord pathology, motor and sensory pathology and gait abnormalities. Examining genetic and family histories along with dissection risk factors. Stroke orthopedic testing and clinical guidelines pertaining to triage for the primary care provider.* Cleveland University – Kansas City, AACME Joint Providership with State of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY 2020

Neurology of Ligament Pathology- Normal Morphology and Tissue Damage, *Connective tissue morphology, embryology and wound repair as sequelae to trauma. Full components of strain-sprain models and permanency implications with wound repair and osseous aberration with aberrant structural integrity.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University, Kansas City, College of Chiropractic, Long Island, NY, 2020

Neurology of Ligament Pathology- Spinal Biomechanics and Disc Pathology, *Disc pathology as sequelae to trauma; herniation, extrusion, protrusion, sequestration and how the spinal unit as one system creates homeostasis to balance the pathology.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University, Kansas City, College of Chiropractic, Long Island, NY, 2020

Neurology of Ligament Pathology- Neurological Intervention, *The peripheral and central innervation of the disc and spinal ligaments of the dorsal root ganglion, spinal*

thalamic tracts, periaqueductal gray areas innervating the Thalamus and multiple regions of the brain. The efferent neurological distribution to disparate areas of the spine to create homeostasis until tetanus ensues creating osseous changes under the effect of Wolff's Law. Academy of Chiropractic, Post-Doctoral Division, Cleveland University, Kansas City, College of Chiropractic, Long Island, NY, 2020

Mild Traumatic Brain Injury/Traumatic Brain Injury/Concussion, Differentially diagnosing mild traumatic brain injury vs. traumatic brain injury and the clinical and imaging protocols required to conclude an accurate diagnosis for head trauma. Texas Chiropractic College, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Electrodiagnostics: Electromyogram/Nerve Conduction Velocity (EMG/NCV), Diagnosis & Interpretation: Anatomy and Physiology of Electrodiagnostics: An in-depth review of basic neuro-anatomy and physiology dermatomes and myotomes to both the upper and lower extremities and the neurophysiology of axons and dendrites along with the myelin and function of saltatory for conduction. The sodium and potassium pump's function in action potentials. Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Electrodiagnostics: Electromyogram/Nerve Conduction Velocity (EMG/NCV), Diagnosis & Interpretation: Nerve Conduction Velocity (NCV) Part 1: Nerve conduction velocity testing, the equipment required and the specifics of motor and sensory testing. This section covers the motor and sensory NCV procedures and interpretation including latency, amplitude (CMAP) physiology and interpretation including the understanding of the various nuances of the wave forms. Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Electrodiagnostics: Electromyogram/Nerve Conduction (EMG/NCV), Diagnosis & Interpretation: Nerve Conduction Velocity (NCV) Part 2: Compound motor action potentials (CMAP) and sensory nerve action potentials (SNAP) testing and interpretation including the analysis and diagnosis of the wave forms. It also covers compressive neuropathies of the median, ulnar and posterior tibial nerves; known as carpal tunnel, cubital tunnel and tarsal tunnel syndromes. This section offers interpretation algorithms to help understand the neurodiagnostic conclusions. Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Electrodiagnostics: Electromyogram/Nerve Conduction Velocity (EMG/NCV), Diagnosis & Interpretation: Needle Electromyogram (EMG) Studies: The EMG process, inclusive of how the test is performed and the steps required in planning and electromyographic study. This covers the spontaneous activity of a motor unit action potential, positive sharp waves and fibrillations. This insertional activity (both normal and abnormal), recruitment activity in a broad polyphasic presentation and satellite potentials. This covers the diagnosing of patterns of motor unit abnormalities including

neuropathic demyelinated neuropathies along with acute myopathic neuropathies. This section also covers the ruling out of false positive and false negative results. Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Electrodiagnostics: Electromyogram/Nerve Conduction Velocity (EMG/NCV), *Diagnosis & Interpretation: Overview of EMG and NCV Procedures, Results, Diagnoses and Documentation. The clinical incorporation of electrodiagnostic studies as part of a care plan where neuropathology is suspected. It also covers how to use electrodiagnostics in a collaborative environment between the chiropractor as the primary spine care provider and the surgeon, when clinically indicated. This section covers sample cases and health conclude and accurate treatment plans based upon electro-neurodiagnostic findings when clinically indicated.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Accident Reconstruction: Terms, Concepts and Definitions, *The forces in physics that prevail in accidents to cause bodily injury. Quantifying the force coefficients of vehicle mass and force vectors that can be translated to the occupant and subsequently cause serious injury.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Accident Reconstruction: Causality, Bodily Injury, Negative Acceleration Forces, Crumple Zones and Critical Documentation, *Factors that cause negative acceleration to zero and the subsequent forces created for the vehicle that get translated to the occupant. Understanding critical documentation of hospitals, ambulance reports, doctors and the legal profession in reconstructing an accident.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Accident Reconstruction: Skid Marks, Time, Distance, Velocity, Speed Formulas and Road Surfaces, *The mathematical calculations necessary utilizing time, distance, speed, coefficients of friction and acceleration in reconstructing an accident. The application of the critical documentation acquired from an accident site.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Accident Reconstruction: Research, Causality and Bodily Injury, *Delta V issues correlated to injury and morality, side impact crashes and severity of injuries, event data recorder reports correlated to injury, frontal impact kinematics, crash injury metrics with many variables and inquiries related to head restraints.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Spinal Biomechanical Engineering: Cartesian System. *The Cartesian Coordinate System from the history to the application in the human body. Explanation of the x, y, and z axes in both translation and rotations (thetas) and how they are applicable to the human biomechanics.* Cleveland University-Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and

Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Biomechanical Engineering: Cervical Pathobiomechanics, *Spinal biomechanical engineering of the cervical and upper thoracic spine. This includes the normal pathobiomechanical movement of both the anterior and posterior motor units and normal function and relationship of the intrinsic musculature to those motor units. Nomenclature in reporting normal and pathobiomechanical findings of the spine.* Cleveland University-Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Biomechanical Engineering: Lumbar Pathobiomechanics, *Spinal biomechanical engineering of the lumbar spine. This includes the normal and pathobiomechanical movement of both the anterior and posterior motor units and normal function and relationship of the intrinsic musculature to those motor units. Nomenclature in reporting normal and pathobiomechanical findings of the spine.* Cleveland University-Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Biomechanics in Trauma, *to utilize whiplash associated disorders in various vectors of impact and whiplash mechanisms in determining pathobiomechanics. To clinically correlate annular tears, disc herniations, fractures, ligament pathology and spinal segmental instability as sequelae to pathobiomechanics from trauma. The utilization of digital motion x-ray in diagnosing normal versus abnormal facet motion along with case studies to understand the clinical application.* Cleveland University-Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Biomechanical Engineering & Organizational Analysis, *Integrating spinal biomechanics and pathobiomechanics through digitalized analysis. The comparison of organized versus disorganized compensation with regional and global compensation. Correlation of the vestibular, ocular and proprioceptive neurological integration in the righting reflex as evidenced in imaging. Digital and numerical algorithm in analyzing a spine.* Cleveland University, Kansas City, AACME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Biomechanical Engineering: Cervical Digital Analysis, *Digitizing and analyzing the cervical spine in neutral, flexion and extension views to diagnose pathobiomechanics. This includes alteration of motion segment integrity (AMOSI) in both angular and transitional movement. Ligament instability/failure/pathology are identified all using numerical values and models. Review of case studies to analyze pathobiomechanics using a computerized/numerical algorithm.* Cleveland University-

Kansas City, ACCME Joint Provership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Biomechanical Engineering: Lumbar Digital Analysis, *Digitalizing and analyzing the lumbar spine images to diagnose pathobiomechanics. This includes anterior and posterior vertebral body elements in rotational analysis with neutral, left and right lateral bending in conjunction with gate analysis. Ligament instability/failure/pathology is identified all using numerical values and models. Review of case studies for analysis of pathobiomechanics using a computerized/numerical algorithm along with corrective guidelines.* Cleveland University-Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY 2020

Spinal Biomechanical Engineering: Full Spine Digital Analysis, *Digitalizing and analyzing the full spine images to diagnose pathobiomechanics as sequelae to trauma in relation to ligamentous failure and disc and vertebral pathology as sequelae. This includes anterior and posterior vertebral body elements in rotational analysis with neutral, left and right lateral bending in conjunction with gate analysis. Ligament instability/failure/pathology is identified all using numerical values and models. Review of case studies for analysis of pathobiomechanics using a computerized/numerical algorithm along with corrective guidelines.* Cleveland University-Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Trauma Pathology, Triage and Connective Tissue Injuries and Wound Repair, *Triaging the injury and differentially diagnosing both the primary and secondary complaints. Connective tissue injuries and wound repair morphology focusing on the aberrant tissue replacement and permanency prognosis potential.* Cleveland University-Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York, 2020

Spinal Trauma Pathology, Ligament Anatomy and Injury Research and Spinal Kinematics, *Spinal ligamentous anatomy and research focusing on wound repair, future negative sequelae of abnormal tissue replacement and the resultant aberrant kinematics and spinal biomechanics of the spine.* Cleveland University-Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York, 2020

Spinal Trauma Pathology, Spinal Biomechanics, Central Nervous System and Spinal Disc Nomenclature, *The application of spinal biomechanical engineering models in trauma and the negative sequelae it has on the central nervous system inclusive of the*

lateral horn, periaqueductal grey matter, thalamus and cortices involvement. Cleveland University-Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York, 2020

Spinal Trauma Pathology, Biomechanics of Traumatic Disc Bulge and Age Dating Herniated Disc Pathology, *The biomechanics of traumatic disc bulges as sequelae from trauma and the comorbidity of ligamentous pathology. Age-dating spinal disc pathology in accordance with Wolff's Law.* Cleveland University-Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Trauma Pathology, Clinical Grand Rounds, *The review of case histories of mechanical spine pathology and biomechanical failures inclusive of case histories, clinical findings and x-ray and advanced imaging studies. Assessing comorbidities in the triage and prognosis of the injured.* Cleveland University-Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Trauma Pathology, Research Perspectives, *The review of current literature standards in spinal trauma pathology and documentation review of biomechanical failure, ligamentous failure and age-dating disc pathology.* Cleveland University-Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Impairment Rating, *The understanding and utilization of the protocols and parameters of the AMA Guide to the Evaluation of Permanent Impairment 6th Edition. Spine, neurological sequelae, migraine, sexual dysfunction, sleep and arousal disorders, station and gait disorders and consciousness are detailed for impairment rating. Herniated discs, radiculopathy, fracture, dislocation and functional loss are also detailed in relation to impairment ratings.* Cleveland University-Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019

MRI History and Physics, *Magnetic fields T1 and T2 relaxations, nuclear spins, phase encoding, spin echo, T1 and T2 contrast, magnetic properties of metals and the historical perspective of the creation of NMR and MRI.* Cleveland University – Kansas City, AACME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019

MRI Spinal Anatomy and Protocols, *Normal anatomy of axial and sagittal views utilizing T1, T2, 3D gradient and STIR sequences of imaging. Standardized and desired protocols in views and sequencing of MRI examination to create an accurate diagnosis in MRI.* Cleveland University – Kansas City, AACME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019

MRI Disc Pathology and Spinal Stenosis, *MRI interpretation of bulged, herniated, protruded, extruded, sequestered and fragmented disc pathologies in etiology and neurological sequelae in relationship to the spinal cord and spinal nerve roots.* Cleveland University – Kansas City, AACME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019.

MRI Spinal Pathology, *MRI interpretation of bone, intradural, extradural, cord and neural sleeves lesions. Tuberculosis, drop lesions, metastasis, ependymoma, schwannoma and numerous other spinal related tumors and lesions.* Cleveland University – Kansas City, AACME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019

MRI Methodology of Analysis, *MRI interpretation sequencing of the cervical, thoracic and lumbar spine inclusive of T1, T2, STIR and 3D gradient studies to ensure the accurate diagnosis of the visualized.* Cleveland University – Kansas City, AACME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019

MRI Clinical Application, *The clinical application of the results of space occupying lesions. Disc and tumor pathologies and the clinical indications of manual adjustive therapies in the patient with spinal nerve root and spinal cord insult as sequelae.* Cleveland University – Kansas City, AACME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019

MRI Protocols Clinical Necessity, *MRI slices, views, T1, T2, STIF axial, stacking FFE, FSE and sagittal images. Clinical indication for the utilization of MRI and pathologies of disc in both trauma and non-trauma sequelae, including bulge, herniation, protrusion, extrusion and sequestration.* Cleveland University – Kansas City, AACME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019.

MRI Interpretation of Lumbar Degeneration/Bulges, *MRI slices, views T1, T2, STIR, axial, stacking, FFE, FSE, and sagittal images in the interpretation of lumbar degeneration. With the co-morbidities and complications of stenosis, pseudo-*

protrusions, cantilevered vertebrae, Schmorl's nodes and herniations. Central canal and cauda equina compromise interpretation with management. Cleveland University – Kansas City, AACME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019.

MRI Interpretation of Lumbar Herniations, MRI slices, views T1, T2, STIR axial, stacking, FFE, FSE and sagittal images in the interpretation of lumbar herniations. With the co-morbidities and complications of stenosis, pseudo-protrusions, cantilevered vertebrae, Schmorl's nodes and herniations. Morphology of lumbar disc pathologies of central and lateral herniations, protrusions, extrusions, sequestration, focal and broad herniations are defined and illustrated. Central canal and cauda equina compromise interpretation with management. Cleveland University – Kansas City, AACME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019.

MRI Interpretation of Cervical Degeneration/Bulges, MRI slices, views, T1, T2, STIF axial, stacking, FFE, FSE and sagittal images in the interpretation of cervical degeneration. With the co-morbidities and complications of stenosis, pseudo-protrusions, cantilevered vertebrae, Schmorl's nodes and herniations. Spinal cord and canal compromise interpretation with management. Cleveland University – Kansas City, AACME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019.

MRI Interpretation of Cervical Herniations, MRI slices, views T1, T2, STIR Axial, FFE, FSE and sagittal images in interpretation of lumbar herniations. With the co-morbidities and complications of stenosis, pseudo-protrusions, cantilevered vertebrae, Schmorl's nodes and herniations. Morphology of lumbar disc pathologies of central and lateral herniations, protrusions, extrusions, sequestrations, focal and broad based herniations are define and illustrated. Spinal cord and canal compromise interpretation with management. Cleveland University – Kansas City, AACME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019.

MRI Interpretation of Degenerative Spine and Disc Disease with Overlapping Traumatic Insult to Spine and Disc, MRI slices, views, T1, T2, STIR, Axial, FFE, FSE and sagittal images in the interpretation of degenerative spondylolisthesis, spinal canal stenosis, Modic type 3 changes, central herniations, extrusions, compressions, nerve root compressions, advanced spurring and thecal sac involvement from an orthopedic, emergency rooms, chiropractic, neurological, neurosurgical, physical medicine perspective. Cleveland University – Kansas City, AACME Joint Providership with the

State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019.

Neurodiagnostics, Imaging Protocols and Pathology of the Trauma Patient, *An in-depth understanding of the protocols in triaging and reporting the clinical findings of the trauma patient. Maintaining ethical relationships with the medical-legal community.* Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2019

Diagnostics, Risk Factors, Clinical Presentation and Triaging the Trauma Patient, *An extensive understanding of the injured with clinically coordinating the history, physical findings and when to integrate neurodiagnostics. An understanding on how to utilize emergency room records in creating an accurate diagnosis and the significance of "risk factors" in spinal injury.* Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY 2019

Crash Dynamics and Its Relationship to Causality, *An extensive understanding of the physics involved in the transference of energy from the bullet car to the target car. This includes G's of force, newtons, gravity, energy, skid marks, crumple zones, spring factors, event data recorder and the graphing of the movement of the vehicle before, during and after the crash. Determining the clinical correlation of forces and bodily injury.* Cleveland University - Academy of Chiropractic Post-Doctoral Division, Long Island, NY 2019

MRI, Bone Scan and X-Ray Protocols, Physiology and Indications for the Trauma Patient, *MRI interpretation, physiology, history and clinical indications, bone scan interpretation, physiology and clinical indications, x-ray clinical indications for the trauma patient.* Cleveland University - Kansas, City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY 2019

Neurodiagnostic Testing Protocols, Physiology and Indications for the Trauma Patient, *Electromyography (EMG), Nerve Conduction Velocity (NCV), Somato Sensory Evoked Potential (SSEP), Visual Evoked Potential (VEP), Brain Stem Auditory Evoked Potential (BAER) and Visual-Electronystagmosgraphy (V-ENG) interpretation, protocols and clinical indications for the trauma patient.* Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY 2019

Documentation and Reporting for the Trauma Victim, *Understanding the necessity for accurate documentation and diagnosis utilizing the ICD-9 and the CPT to accurately describe the injury through diagnosis. Understanding and utilizing state regulations on reimbursement issues pertaining to healthcare.* Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY 2019

Documenting Clinically Correlated Bodily Injury to Causality, *Understanding the necessity for accurate documentation, diagnosis and clinical correlation to the injury*

when reporting injuries in the medical-legal community. Documenting the kinesiopathology, myopathology, neuropathology, and pathophysiology in both a functional and structural paradigm. Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY 2019

Trends in Spinal Treatment, Migration of spinal care for mechanical spine issues from hospitals and medical specialists to trauma qualified chiropractors based upon published outcomes. Utilizing imaging studies in spinal biomechanics, pain models and clinical outcomes to determine a conclusive diagnosis, prognosis and treatment plan for triaging in a collaborative environment. Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island, NY 2019

Neurology of Spinal Biomechanics, Understanding the normal of spinal biomechanics and the neurotransmitters required for homeostasis. The interconnected role of Pacinian Corpuscles, Ruffini Corpuscles, Golgi Organ Receptors, Nociceptors, Proprioceptors and Mechancoreceptors in maintaining sagittal and axial alignment in the presence of mechanical pathology. Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island, NY 2019

MRI Age-Dating of Herniated Discs, The literature, academic and clinical standards to age-date herniated discs. The clinical correlation the pain patters with advanced imaging finings of bone edema, spurs based upon the Piezoelectric effect fo remodeling, high signal on T2 weighted images, Vacuum Discs and disc heights in determining the time frames of the etiology of the spinal disc pathology. Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island, NY 2019

Creating Ethical Collaborative and Medical-Legal Relationships, Understanding the timely triage necessities based upon clinical and imaging outcomes and the documentation required for collaborative physicians to continue care. Ensuring that the documentation is complete, reflective of services rendered and clear for third party consideration in an admissible format to considered in a medical-legal environment. Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island, NY 2019

Central Innervation of Spinal Biomechanical Engineering, Understanding the lateral and ventral horn's innovations of Pacinian Corpuscles, Ruffini Corpuscles, Golgi Organ Receptors, Nociceptors, Proprioceptors and Mechancoreceptors and the pathways through the spinal thalamic tracts through the periaqueductal region, the Thalamus into the Occipital, pre-frontal, sensory and motor cortexes and the efferently back through the Thalamus to disparate regions in creating spinal homeostasis, Pacinian Corpuscles, Ruffini Corpuscles, Golgi Organ Receptors, Nociceptors, Proprioceptors and Mechancoreceptors. Cleveland University Kansas City,

Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Loing Island, NY, 2019

Identifying Spinal Pathology of MRI, Utilizing T1, T2, STIR and Gradient studies in determining myelomalacia, intra and extra-dural tumors and systemic disease patterns affecting the spinal cord. When to use contrast post-operatively in identifying discal structures vs. adhesions on postoperative advanced imaging. MRI Interpretation of herniated, circumferential bulges, focal bulges, protruded, extruded, comminuted, sequestered and fragmented discs. When to consider a neurosurgical consultation based upon the correlation of imaging and clinical findings. Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Loing Island, NY, 2019

Impairment Rating, Understanding utilization of the protocols and parameters of the AMA Guide to the Evaluation of Permanent Impairment 6th Edition. Spine, neurological sequelae, migraine, sexual dysfunction, sleep and arousal disorders, station and gait disorders and consciousness are detailed for impairment rating. Herniated discs, radiculopathy, fracture, dislocation, and functional loss are also detailed in relation to impairment ratings. Cleveland University - Kansas City, ACCME Joint Providership with the State University of New York Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Buffalo, NY, 2019

Computerized Mensuration of Spinal Biomechanical Pathology, *Understanding the algorithmic interpretation of spinal biomechanical pathology in a 3-D model and creating treatment plans, impairment ratings and teaching models based upon the vertebral motor unit angles. Determining sagittal and axial alignments in creating a normative baseline for treatment goals and outcomes.* Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island NY, 2019

Neurosurgical-Chiropractic Collaboration on Spinal Pathology, *Utilizing x-ray, MRI and other modalities of advanced imaging in conjunction with spinal biomechanical failure and clinical evaluation to collaboratively create treatment protocols for patients in both the operative and non-operative cases. Determining the boundaries of scope of care for both the chiropractor and neurosurgeon based upon a definitive diagnosis of the mechanical vs. an anatomical lesion.* Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island NY, 2019

Documentation and Ethics in Medical-Legal Relationships, *Creating ethical relationships based upon accurate documentation reflective of the casually related condition of the injured. Ensuring accepted credentials of the doctor based upon Voir Dire standards reflected in an admissible curriculum vitae. How to present demonstrative documentation in the courts reflective of the patient's pathology.*

Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island NY, 2019

Coding, Documentation and Compliant Coding, *Ensuring the correct codes are utilized in an evaluation and management encounter. The correct elements are utilized to support the level of E&M coded along with a self-audit program to ensure ethical billing occurs. Guidelines for history of present illness, primary complaint, review of systems, family, social and past histories are discussed and how to document the same.* Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island NY, 2019

Certification, Instrument Assisted Soft Tissue Mobilization Certification, *Instrument Assisted Soft Tissue Mobilization (IASTM) Attendees will learn to treat Fascial Dysfunction, now a widely recognized as a pain generator and cause of many tissue extensibility problems. Through clinical research, instrument-assisted techniques have been demonstrated to have a beneficial effect on the management of pathological adhesions and in speeding up healing rates.* Vynne Education, Philadelphia, PA, 2017

Certification, Nerve Conduction Velocity and EMG Testing, Certification in Nerve Conduction Velocity and EMG Testing. Provides education regarding the performance of basic nerve conduction studies and needle EMG on patients referred for this specialty practice. **Attendees will learn** additional (technically more difficult) nerve tests that increase the depth and diagnostic power of an EMG/NCV test. AACE American Academy of Clinical Electrodiagnosis, Anthony Esposito, D.C., Mike Lescallatte, DPT, MPT, ECS, Stanton Island NY, 2017.

Certification, Nerve Conduction Velocity and EMG Testing, Certification in Nerve Conduction Velocity and EMG Testing. An in-depth sponsorship program reviewing diagnostic procedures, how to perform upper and lower extremity nerve conduction studies and how to operate state of the art EMG equipment. All procedures and testing were taught utilizing medical guidelines and protocols. Empire Medical Training, Inc. Fort Lauderdale, Florida. January 2017

Certification, X-Ray Imaging, Granted by Matthew McIlrath DC, C.M.U.A./Pres DCS, Delaware Chiropractic Society, 2015

Certification. Doctor of the Future: The Seven Pillars of Health Dr. Stuart White, Continuing Education Seminar. 2011

Whiplash Injury BioMechanics, Accidents and Traumatology, Understanding the Biomechanics, Injury Mechanisms, Epidemiology, a study of the essentials of reconstruction of low speed rear impact crashes (LOSRIC). Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumatology, Attendees reviewed sophisticated and accurate methods currently available about the limitations of

reconstruction in this special area of low speed crash, Newton's Laws of Motion, vehicle dynamics, conservation of linear momentum methods, restitution and energy methods, barrier equivalent methods, computer methods, and the practical application of those laws to the understanding vehicle dynamics and occupant kinematics. The course also reviewed the properties of discs, ligaments, muscle and bone, as well as the normal motion of the cervical spine. Soft tissues have viscoelastic material properties which is key to understanding injury mechanisms. Reviewed the concepts of couple intersegmental and paradoxical motion. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumatology, The Attendees Learned - A study of widely adopted cervical acceleration/deceleration (CAD) or whiplash-associated or WAD) grading system which was developed more than a decade ago. This grading system, which has now been validated in numerous studies, provides the basis for effective intervention and for prognostication. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumatology, The Attendees reviewed the substantial international literature, including the latest crash data of real world crashes obtained from on-board black boxes. The instructor develops from this analysis as well as published research, a risk estimate for adults and children, incidence rates, and the prevalence of chronic pain in the U.S. attributable to motor vehicle trauma. With the confusion and misinformation that exist regarding low speed crashes, amounts of property damage and relative risk, Dr. Croft is careful to clarify these issues in detail. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumatology, Understanding the nomenclature and velocity change (ΔV), barrier velocity, and the ways in which velocity, time, and acceleration interact to affect the risk for occupant injury. Dr. Croft then takes attendees on a exploration of our current knowledge based on mathematical models, animal experiments (including porcine experiments from whence the neck injury criterion (NIC) was proposed) cadaver experiments (where many recent discoveries have been made). Dummy experiments (including those of the newest rear impact dummies or RID, which have been tested at the Spine research Institute of San Diego by Dr. Croft and others) and, finally the numerous human subject volunteer crash tests). Discuss crash vectors, the important vehicle and subject parameters which unintended effects in low speed crashes, head restraints, seat backs air bags, and other safety systems and how they modify injury risk and severity. Also, attendees will learn the general sequence of kinematic events CAD injury and their relative timing, the head injury criterion (HIC) the neck injury criterion (NIC), and other important injury assessment reference values (IARV). Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumatology, A discussion of soft and hard tissue resulting from whiplash, including data obtained from experimental animal

research and surgical and autopsy findings. Fractures (stable and unstable), dislocations, and the broad range of soft tissue lesions, Acceleration/Deceleration injuries will be discussed in the context of mechanism of injury and vectored-based occupant kinematics. This includes an explanation for most of the common components of Acceleration/Deceleration injuries including headache, various types of neck and back pain, shoulder and upper extremity pain, lower extremity pain, neurological syndromes, dizziness/lightheadness, vertigo, visual disturbances, cognitive and endocrinological disorders and explores the common phenomenon of delayed onset of symptomatology. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumology, Common syndromes associated with whiplash include cognitive disorders, usually resulting from mild traumatic brain injury (MTBI), post-concussion syndrome (PCS), thoracic outlet syndrome (TOS) joint disorder, carpal tunnel syndrome (CTS), posttraumatic headache, myofascitis, and numerous other less common conditions. Common symptoms of whiplash are explained and those conditions that remain poorly understood. Dr. Croft will discussed the relevant literature and described the best and most current hypothesis. Dr. Croft provided extensive detail on the subject of MTBI, resulting from this all too common, but poorly understood, condition. Headaches are discussed in the context of current classification systems, including that of the International Headache Society. Long-term consequences of MTBI in children and adults were also discussed. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumology, Two most common forms of posttraumatic muscle disorder: myofascittis and fibromyalgia, going into detail about their respective diagnostic methods and criteria, such as those American College of Rheumatology. Dr. Croft provided a historical account of the controversial area, beginning with Virchow in 1852, and ending with the latest research findings. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumology, Neurogenic pain, i.e., the pain that is conducted from peripheral nociceptor to dorsal root ganglion, to spinal cord and eventually to the somatosensory cortex via the lateral spinothalamic tracks and thalamus. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumology, A study of the recovery from acceleration/deceleration injuries, the preponderance of the evidence is clear and unambiguous. Dr. Croft reviewed the substantial outcome literature and statistics in detail, and presented not only a thorough meta-analysis of it, but also developed a comprehensive risk analysis methodology. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumatology, Attendees will learn to use a standardized form. In cases in which permanent residuals result, it is important to make determination concerning apportionment of any pre-existing disability that may have been present. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumatology, Attendees will review all of the important general, and special examination procedures and methods, including neurological (sensory, deep tendon and superficial reflexes, motor, visual and coordination), orthopedic and cognitive examination methods. Attendees will learn the use of the SCL-90-R and all of its dimensions, the post-concussion syndrome examination and vestibular tests. Musculoskeletal exam procedures, special tests, such as those for the TM joint, CTS, and TOS; tests to rule out malingering (including the AMA's methods of assessing repetitive ranges of motion vs. the coefficient of variation methods and the scientific way of estimating probably normal ranges of motion using published regression equations. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumatology, Attendees will learn guideline-based radiographic procedures in terms of what views to obtain and when. Discuss the sensitivity and specificity of radiography in terms of its limitations in the diagnosis of both fractures and soft tissue injury, comparing emergency department films (e.g., cross-table laterals) with clinic based-films (e.g., standing 7-view studies) Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumatology, CT Technology testing in the acute situation for conditions such as serious brain trauma. It is also still an important imaging study for fracture and other conditions. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumatology, Discuss some of the emerging applications of MRI, such as motion MRI and MRI neuropathy, as well the limitations of this technology in CAD trauma. It is now emerging that special techniques, such as proton density-weighted MRI, are required to visualize the various ligamentous components of the cervical spine and that certain cervical ligaments are better viewed using T2 weighted fast spin echo sequences, while others are better appreciated using T1-weighted sequences. Sensitivity of CT, MRI, and SPECT for brain injury. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumatology, Review the advanced diagnostic imaging modalities which are available to clinicians today, including intravenous contrast-enhanced MRI and CT, arthrography, discography, videofluoroscopy (VF), radionuclide bone duplex sonography (CCDS). The relative

strengths, weaknesses and clinical indications of each will be described. An algorithm for choosing specific tests will be developed. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumatology, Foundational discussion of relevant neuropathophysiology which segues into an easily understood synthesis of the currently available electrodiagnostic tests which are potentially useful in CAD trauma. CROFT Institute Whiplash Injury BioMechanics, Accidents and Traumatology, These include various forms of electroencephalography (EEG), brain stem auditory evoked response (BAER), visual evoked potentials (VEP), electronystagmography (ENG), brain electrical activity mapping (BEAM), electromyography, (EMG and sEMG), nerve conduction velocity (NCV), and somatosensory evoked potentials (SSEP). Modality's relative strengths and weaknesses and clinical indications/contradictions. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011

Whiplash Injury BioMechanics, Accidents and Traumatology, Understanding of the myriad of imaging, electrodiagnostic, and other tests that are currently available on a condition-by-condition basis. Methods of developing working, differential, and final diagnosis. This will include assembling sensible and accurate diagnosis encompassing stage, causation, condition and complications. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011.

Whiplash Injury BioMechanics, Accidents and Traumatology, Various stages of healing are discussed: inflammatory, subacute, repair and remodeling. The use of spinal manipulation and its indications and contraindications. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011.

Whiplash Injury BioMechanics, Accidents and Traumatology, Utilizing modalities commonly used in CAD trauma; how they work and what they can do, therapeutically, for the patient. These modalities include ultrasound, diathermy, heat, cold, TENS, cold laser, lower and high voltage galvanism, microamperage stimulation, interferential stimulation, electroacupuncture and spinal traction. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011.

Whiplash Injury BioMechanics, Accidents and Traumatology, The Revised Oswestry, Roland-Morris, and Neck Disability Index. Learn how to implement them, how to score them, how to interpret them. Record Keeping – Physicians are custodians of medical records. In medicolegal cases, these records are subject to subpoena (for copying). The best practice guidelines for managing your files and records. Spine Research Institute of San Diego Inc. Coronado, CA., Southern California University of Health Sciences. 2011.

Certification, Manipulation Under Anesthesia, Introduction to MUA and the current trends in MUA. Detailed look into the past, present and future of MUA. Overview of the latest literature on MUA. The scientific/anatomical basis for MUA and effects on

pain management. The evaluation of the MUA. National Association of MUA, Alpine, New Jersey, 2010

Certification, Acupuncture International Academy of Medical Acupuncture, Dr. John Amaro Carefree, AZ, 2009

Certification, Functional Medicine & Nutrigenomics, A systematic approach to improve physiological, biochemical, emotional/cognitive, and structural function. Texas Chiropractic College, Fairfax, VA, 2007

Certification, Current Diagnosis and Treatment of Back Pain, Granted by Brian R. Chandler DC/Pres DCS , Delaware Technical and Community College, Delaware Chiropractic Society, 2007

Certification, Current Diagnosis and Treatment of Back Pain, *Integrating and applying best* clinical practices related to the creation of a diagnosis, prognosis, and treatment plans, Delaware Chiropractic Society, Delaware Technical and Community College, Delaware Chiropractic Society, Newark, DE, 2007

Certification, Charrette Extremity Adjusting Protocols, Foot Levelers Inc The Posture Specialists, Mark N. Charette, D.C. On adjusting the upper and lower extremities. The Attendees learned how to adjust the most common subluxation patterns found in the feet, knees, hips, wrists, elbows, and shoulders. It also reviewed the unique and effective Wrist Extension Thrust, and how stabilizing the feet can be the key to longer-lasting adjustments. Wilmington, DE, 2006

Inflammation: The Silent Epidemic, Wilmington, DE, 2006

Advanced Chiropractic Rehabilitation – Integrated Active Training Exercise for Spinal Health & Wellness, Wilmington, DE, 2004

Current Diagnosis and Treatment of Back Pain, Stanton DE, 2003

Common Injuries of the Lower Extremities, Wilmington, DE, 2002

Chiropractic Treatment in the 21st Century, Wilmington DE, 2001

Diagnosis and Treatment of Back Pain, Stanton, DE, 2000

Jurisprudence and Communicable Diseases, Newark, DE, 1998

Contact Reflex Analysis and Designed Clinical Nutrition, Harrisburg, PA, 1997

X-Ray Interpretation Seminar, Dr. Erhardt, Atlanta, GA, 1995

SELECTED MEMBERSHIPS

Delaware Chiropractic Society, Member, 1997 - Present

American Chiropractic Association, Member, 2019