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EDUCATION AND LICENSURE

Doctor of Chiropractic, Licensed in the State of Connecticut, License # CT00172, -

Doctorate of Chiropractic, Palmer College of Chiropractic, Summa Cum Laude, Davenport , Iowa, 1976

National Board of Chiropractic Examiners, Part I, 1976

National Board of Chiropractic Examiners, Part II, 1976

Undergraduate studies in Mechanical Engineering, Newark College of Engineering, Newark, New Jersey, 1969 - 1970

BA in Biology, Cum Laude, Rutgers University, Newark, New Jersey, 1973

SELECTED POST-GRADUATE EDUCATION, CERTIFICATIONS AND DIPLOMATES

MRI Spine Clinical Grand Rounds, *Interpretation sequencing of STIR, T1, T2, Axial and Sagittal acquisitions. Landmarks, physics, and literature-based definitions of disc and osseous pathology, Visualizing, diagnosing, and documenting cervical and lumbar anatomy vs. pathology.* Diplomate, Academy of Chiropractic Post- Doctoral Division, The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City , Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, *Visualizing, diagnosing, and documenting lumbar spine sequencing, disc herniations, neural canals, cauda equina, conus medullaris, nerve sleeves, canal stenosis grading, and vertebral width vs. height in determining segmental remodeling. Diagnosing thecal sac abutment, central canal root compression and ligamentum flava involvement.* Diplomate, Academy of Chiropractic Post- Doctoral Division, The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City , Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, *Case study visualizing, diagnosing, and documenting cervical spine sequencing, disc herniations, neural canals, cauda equina, conus medullaris, and vertebral width vs. height in determining segmental remodeling. Identifying the Pons, Occipital junction, and spinal cord to identify Chiari 1 malformations.* Diplomate, Academy of Chiropractic Post- Doctoral Division, The State

University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, *Visualizing, diagnosing, and documenting lumbar spine sequencing, disc extrusion type herniations, neural canals, cauda equina, conus medullaris, spondylolisthesis, degenerative spondylolisthesis, disc degeneration, neural canal and central root compressions, central canal stenosis. Varices vs. herniations, and multiple level disc pathology with biomechanical failures.* Diplomate, Academy of Chiropractic Post- Doctoral Division, The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, *Visualizing, diagnosing, and documenting cervical spine sequencing, disc extrusion type herniations, neural canals, disc degeneration, thecal sac compression, central canal stenosis, cord displacement, reversal of cervical curve, Chiari 1 malformation. Identifying spinal biomechanical failure in MRI sequencing, with visualizing ligamentous pathology as cause for failure. Differentially diagnosing recent vs. older trauma based upon edematous signal in T1, T2, and STIR images.* Diplomate, Academy of Chiropractic Post- Doctoral Division, The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, *Visualizing, diagnosing, and documenting cervical spine sequencing, multiple disc extrusion type herniations, vertebral remodeling, intradural tumor displacing the spinal cord visualized in T1, T2, and STIR sequences, neural canal stenosis, disc degeneration, thecal sac compression, central canal stenosis, cord displacement, reversal of cervical curve, Chiari 1 malformation, and identifying of inferior brain structures.* Diplomate, Academy of Chiropractic Post- Doctoral Division, The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, *Visualizing, diagnosing, and documenting cervical spine sequencing, cervical spondylosis, pathological spinal biomechanics, reversal of lordotic curve, and vertebral width vs. height in determining segmental remodeling, central herniation, thecal sac compression of the cord, identifying tongue, epiglottis, hyoid cartilage, pharynx, thyroid. Reviewing fat saturation sequences for osseous metastatic tumors and advanced degeneration.* Diplomate, Academy of Chiropractic Post- Doctoral Division, The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, *Visualizing, diagnosing, and documenting lumbar spine sequencing, degenerative disc disease, nerve root sleeve abutment, far lateral herniations vs. bulges, normal vs. dissected inferior vena cava aneurism, epidural fat as a space occupying lesion, facet arthropathy and edema, hypertrophy of ligamentum flava, and pseudo disc at the S1-S2 level.* Diplomate, Academy of

Chiropractic Post- Doctoral Division, The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, *Visualizing, diagnosing, and documenting cervical spine sequencing utilizing T1 weighted images for pathology, inclusive of advanced degeneration and tumor detection. STIR in a fat saturated image for ligamentous pathology inclusive of the posterior longitudinal, ligamentous flava and interspinous ligaments. Normal clivus and odontoid for cerebellar tonsil location. Cerebral spinal fluid (CSF) flow and the utilization of the spinal cord's central canal for CSF transport.* Diplomate, Academy of Chiropractic Post- Doctoral Division, The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, *Visualizing, diagnosing, and documenting 1) improper sequence acquisitions invalidating interpretation 2) incomplete study invalidating interpretation 3) visualizing, diagnosing, and documenting lumbar spine sequencing, multiple disc extrusion type herniations, vertebral remodeling, multiple thecal sac compressions, neural canal stenosis, disc osteophyte/ridging complex, central canal stenosis, spondylolisthesis. Identifying the spleen, liver, kidneys, inferior vena cava, and psoas musculature on imaging.* Diplomate, Academy of Chiropractic Post- Doctoral Division, The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, *Visualizing, diagnosing, and documenting lumbar spine sequencing, degenerative disc disease, nerve root sleeve abutment, far lateral herniations vs. bulges, normal vs. dissected inferior vena cava aneurism, epidural fat as a space occupying lesion, facet arthropathy and edema, hypertrophy of ligamentum flava, and pseudo disc at the S1-S2 level.* Diplomate, Academy of Chiropractic Post- Doctoral Division, The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

Demonstrative Diagnosis and Documenting Spinal Pathology, *Analyzing patient records, x-rays and MRI's in determining etiology of traumatically-induced pathological lesions. Clinically correlating the history, clinical findings, imaging findings and diagnosed bodily injuries to conclude and accurate diagnosis, prognosis, and treatment plan.* Diplomate, Cleveland University - Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Demonstrative Diagnosis and Documenting Spinal Disc Injuries, *Differentially diagnosing disc vs. posterior longitudinal ligaments vs. Thecal Sac vs. spinal cord vs. Ligamentum Flava pathology and insult. Identifying the borders of lesions and discerning between anatomic structures pathologically effected demonstrably.* Diplomate, Cleveland University - Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

MRI Spinal Anatomy, Protocols and Disc Pathology, *Normal anatomy of axial and sagittal views utilizing T1, T2, gradient and STIR sequences of imaging. Degeneration and annular fissures of discs in both trauma and non-trauma patients and the biochemical properties of joints in age dating pathology. Disc bulges from degenerative and sequela to osseous issues, herniation pathology and protrusion, extrusion, migrated and sequestered variations. Clinical scenarios as sequela to disc and pre-existing pathologies* Diplomat, . Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

MRI Spine Interpretation, *Herniated, bulged, extruded, protruded, sequestered and degenerative discs. The morphology of a pathological disc vs. normal morphology and the sequences required including T1, T2 and STIR for all spinal regions. Modic 1-2-3 changes detailed and the traumatic relationship.* Diplomat, Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

MRI Interpretation Review Qualified, *Recognized by Cleveland University-Kansas City, Chiropractic and Health Sciences with courses recognized by the ACCGME in conjunction with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences. Qualification language approved by the American Chiropractic College of Radiology (ACCR) and the American Chiropractic Board of Radiology (ACBR) 2021*

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

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

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

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

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

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

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.* Diplomate, 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.* Diplomate, Academy of Chiropractic Post Doctoral Division, Federation of Chiropractic Licensure Boards, Academy of Chiropractic, 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.* Diplomate, Federation of Chiropractic Licensure Boards, Academy of Chiropractic, Academy of Chiropractic Post Doctoral Division, Long Island, NY, 2020

Accident Reconstruction: Research, Causality and Bodily Injury, *Delta V issues correlated to injury and mortality, 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.* Diplomate, Academy of Chiropractic, Federation of Chiropractic Licensure Boards, Academy of Chiropractic Post Doctoral Division, Long Island, NY, 2020

Biomechanics and Physiology of Human Performance in Trauma and Sports, *Biomechanics of the human body and it's interrelationship to the spine and human performance. Objectifying sequella of trauma, proper and improper training and outcome assessments in neuro-musculoskeletal care.* Diplomate, College of Chiropractic, University of Bridgeport, Bridgeport, CT, 2020

OptiGate and OptiJump, *Gait analysis in human locomotion utilizing instrumentation for measuring body movements, body mechanics and the activity of muscles* Certification in Certification in OptiGate and OptiJump, Diplomate, College of Chiropractic, Microgate USA, University of Bridgeport, College of Chiropractic, Microgate USA, University of Bridgeport, Bridgeport, CT, 2020

Documentation and Triage in Trauma, *ICD-9 and CPT requirements in coding for the traumatically injured including integrating electronic health records including informed consent, evaluation and management, testing orders. The utilization of research in medical reports for both the trauma and non-trauma patients. Clinical coordination of care and reporting to healthcare and legal providers.* Diplomate, American Academy of Medical-Legal Professionals, Federation of Chiropractic Licensure Boards, Academy of Chiropractic, Hollywood, FL, 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.* Diplomate, Cleveland University – Kansas City, 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.* Diplomate, Academy of Chiropractic, Post-Doctoral Division, Cleveland University, Kansas City, 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.* Diplomate, Academy of Chiropractic, Post-Doctoral Division, Cleveland University, Kansas City, Long Island, NY, 2020

Electrodiagnostics: Electromyogram/Nerve Conduction Velocity (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. Diplomate, Academy of Chiropractic, Post-Doctoral Division, Cleveland University, Kansas City, 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. The 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.* Diplomate, Academy of Chiropractic, Post-Doctoral Division, Cleveland University, Kansas City, 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.* Diplomate, Academy of Chiropractic, Post-Doctoral Division, Cleveland University, Kansas City, Long Island, 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.* Diplomate, Academy of Chiropractic, Post-Doctoral Division, Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2020

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

Neurology of Ligament Pathology- Neurological Innervation, *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. Diplomate, Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2020

Primary Spine Care - Credentials and Knowledge Base, *The credentials and knowledge based from an academia perspective when cooperatively treating in a collaborative environment inclusive of understanding pathology and mechanical spine issues.* Diplomate, Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Primary Spine Care - Spinal Biomechanical Engineering and MRI Spine Interpretation, *Integrating Spinal Biomechanical Engineering and MRI Spine Interpretation into a primary spine care model, inclusive of necessity and acquisition protocols. A comprehensive review the latest evidence in documenting mechanical issues.* Diplomate, Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Primary Spine Care - Hospital Administration, Triage, Clinical Requirements and Collaborative Relationships with Medical Specialists, *Understanding hospital and medical specialist's care paths for mechanical spine pathology and integrating the doctor of chiropractic in the hospital and allopathic treatment protocols.* Diplomate, Cleveland University - Kansas City, Long Island, NY, 2020

Primary Spine Care 2: Spinal Trauma Pathology, *Morphology of healthy and traumatized connective tissue and the permanency implication of adhesions, spinal disc morphology in the healthy and pathological patient as sequella to trauma in relationship to bulges, herniations, protrusions, extrusions and sequestrations. Aberrant spinal biomechanics and negative sequella to trauma.* Diplomate, Cleveland University – Kansas City, Academy of Chiropractic, Setauket , NY, 2020

Primary Spine Care 2: Utilizing Research in Trauma, *The ability of your electronic health records to convey tissue pathology while documenting case studies, field experiments, randomized trials and systematic literature reviews, Introducing evidence based macros in documentation to support the literature and necessity of care.* Diplomate, Cleveland University – Kansas City, Academy of Chiropractic, Setauket , NY, 2020

Primary Spine Care 2: Chiropractic Evidence, *Analyzing segmental pathology, adjusting vs. mobilization with cervicogenic headaches, Opioid alternatives and case management of mechanical spine pain based upon outcome studies.* Diplomate, Cleveland University – Kansas City, Academy of Chiropractic, Setauket , NY, 2020

Primary Spine Care 2: Chiropractic Spinal Adjustment Central Nervous System Processing, *Literature reviews of mechanoreceptor, proprioceptor and nociceptor stimulation of later horn gray matter with*

periaqueductal stimulation affecting the thalamus and cortical regions with efferent distribution in disparate regions of the body in both pain and systemic stimulation. Diplomate, Cleveland University – Kansas City, Academy of Chiropractic, Setauket , NY, 2020

Connective Tissue Spinal Disc Permanent Pathology, Primary Spine Care, *Herniated, bulged, protruded and extruded discs, etiology and morphology. Age-dating disc pathology inclusive of Modic changes, piezoelectric effect, Wolff's Law and radicular clinical presentation.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Cleveland University – Kansas City, Long Island, NY, 2020

Connective Tissue Pathology and Research, Primary Spine Care, *Utilization in spinal models considering the opioid abuse and various spinal models in contemporary health care. Care paths for mechanical spine pain and the evidence for conservative chiropractic care.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Cleveland University – Kansas City, Long Island, NY, 2020

Bio-Neuro-Mechanical Lesions and Spine Care, Primary Spine Care, *Mechanoreceptor, proprioceptor, nociceptor innervation and control of the spinal system with central nervous system action and interaction. The integration of the pain processing network and the HPA Axis (hypothalamus, adrenal and pituitary) with the chiropractic spinal adjustment.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Cleveland University – Kansas City, Long Island, NY, 2020

Ethics, Documentation and Research, Primary Spine Care, *Maintaining ethical Interprofessional relationships based upon an evidenced based practice inclusive of triage, diagnostics and reporting. Creating thorough documentation that reflects your complete findings encompassing descriptive ICD-10 codes and concludes the presence or absence of pathology.* Diplomate, 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 sequellae to injury diagnosis.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Cleveland University - Kansas City, 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.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Cleveland University - Kansas City, Long Island, NY, 2020

Orthopedic Testing: Principles, Clinical Application and Triage, *Integration of orthopedic testing in the clinical setting to develop a differential diagnosis. Utilizing radiographic and advanced imaging inclusive of MRI and CAT scan findings to verify tissue pathology suspected by orthopedic testing conclusions and*

developing a treatment plan as sequelae. Diplomate, Cleveland University Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2020

Orthopedic Testing: Cervical Spine, *Integration of cervical orthopedic testing in the clinical setting to develop a differential diagnosis. Utilizing radiographic and advanced imaging inclusive of MRI and CAT scan findings to verify tissue pathology suspected by orthopedic testing conclusions and developing a treatment plan as sequelae.* Diplomate, Cleveland University Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2020

Orthopedic Testing: Lumbar Spine, *Integration of lumbar orthopedic testing in the clinical setting to develop a differential diagnosis. Utilizing radiographic and advanced imaging inclusive of MRI and CAT scan findings to verify tissue pathology suspected by orthopedic testing conclusions and developing a treatment plan as sequelae.* Diplomate, Cleveland University Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2020

Orthopedic Testing: Clinical Grand Rounds, *How to integrate orthopedic testing in the clinical setting utilizing both simple and complex patient scenarios. It includes potential stroke, or vertebrobasilar insufficient patients and understanding the nuances in a clinical evaluation with orthopedic testing as a critical part of the evaluation and screening process. How to integrate orthopedic testing in the clinical setting utilizing both simple and complex patient scenarios. It includes potential stroke, or vertebrobasilar insufficient patients and understanding the nuances in a clinical evaluation with orthopedic testing as a critical part of the evaluation and screening process.* Diplomate, Cleveland University Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2020

Documentation in Medical Collaborative Cases, *Concluding an E&M report in cases involving medical primary care providers of medical specialists that have complicated case histories, significant risk factors, and inconclusive findings. Triage and management of complicated cases requiring the clinical evaluation, advanced imaging and electro diagnostics.* Diplomate, Academy of Chiropractic, Cleveland University Kansas City, Chiropractic and Health Sciences, Long Island, NY, 2020

MRI Spine Interpretation and Protocols, *Contemporary acquisition protocols including slice thicknesses and sequences inclusive of the ordering process. Interpretation of axial, sagittal and coronal views in T1, T2 and stir views inclusive of the disc, spinal cord, extra-dural and intra-dural pathology.* Diplomate, Academy of Chiropractic, Cleveland University Kansas City, Chiropractic and Health Sciences, Long Island, NY, 2020

Ethics and Medical Collaboration, *Having referral relationships with emergency rooms, neurosurgeons, orthopedic surgeons, pain management specialists, neurologists, neuroradiologist and medical primary care providers based upon clinical dilemmas that processed after a thorough history, examination and imaging if clinically indicated to conclude diagnostic dilemmas. Utilizing evidence-based protocols and acquisition of images and treatment pathways, collaborating with medical specialists and primaries to conclude and accurate treatment plan.* Diplomate, Academy of Chiropractic, Cleveland University Kansas City, Chiropractic and Health Sciences, Long Island, NY, 2020

Documentation in a Medical – Legal and Insurances, *Constructing and concluding an E&M (99202-99205) report that accurately reflects the history, clinical findings and management of trauma cases that concurrently meets the needs of both the carriers in the courts and ethical relationship that concurrently matches the standards of both contemporary academia requirements and a contemporary literature-based standard.* Diplomate, Academy of Chiropractic, Cleveland University Kansas City, Chiropractic and Health Sciences, Long Island, NY, 2020

Pathobiomechanics and Documentation, *CPT Coding Guidelines for Initial and Established Patients with particular attention paid to Patient History, Review of Systems, Social and Family History, Physical Examination, and Medical Decision making. Specific differences in coding levels and required elements for a 99202-99203-99204-99205.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Cleveland University Kansas City, Long Island, NY, 2020

Using Documentation and Ethical Relationships, *Pathways to improve coordination of care, and interprofessional communication with collaborating physicians. Maintaining ethical relationships in the medical-legal community through documentation and communication of demonstrable diagnosis, prognosis and treatment plans.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Cleveland University Kansas City, Long Island, NY, 2020

Spinal Biomechanical Engineering Clinical Application, *History of clinical biomechanics with an emphasis on the diagnosis and management of spine pain of mechanical/functional origin. Evidence-based symptomatic vs. asymptomatic parameters using peer-reviewed medical index literature. Computerized mensuration analysis of spinal biomechanical pathology. Comparison of demonstrable spinal biomechanical failure on imaging to clinical evaluation and physical examination.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Cleveland University Kansas City, Long Island, NY, 2020

Spinal Biomechanical Engineering Clinical Grand Rounds, *Case reviews utilizing E/M, MRI, and x-ray mensuration report to conclude an accurate diagnosis, prognosis, and treatment plan. Common diagnosis requiring interprofessional collaboration with a discussion of diagnostic dilemmas and proper communication methods.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Cleveland University Kansas City, Long Island, NY, 2020

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

Case Management of Mechanical Spine Pathology, *Clinical Grand 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.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Cleveland University – Kansas City, 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.* Diplomate, Cleveland University – Kansas City Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Primary Spine Care - Contemporary Spine Research and Documentation, *Central nervous system connection and the thalamus, hypothalamus connection in both ascending and descending central pathways with neuro-endocrine implications that have the mechanisms to be a component of Schizophrenia, Dementia and Alzheimer's with a linear relationship to the chiropractic spinal adjustment and chronic pain.* Diplomate, Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Specialty Research in Innervation and Blood Supply of the Intervertebral Disc, *Discussion of the distribution of nociceptive nerve fibers in the cervical intervertebral discs. Correlation of chronic neck pain patients and the relationship to nociceptive nerve fibers and discogenic neck pain. The role of nociceptive nerve fibers in the pathogenesis of neck pain of cervical disc origin was discussed and outlined.*

Diplomate, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research Rotation - Innervation and Blood Supply of the Intervertebral Disc, *Pathological mechanisms of discogenic low back pain including sensory nerve in growth into inner layers of the intervertebral disc, upregulation of neurotrophic factors and cytokines, and instability. Outline of the inhibition of these mechanisms and the treatment of discogenic low back pain. Understanding the innervation and instabilities of diseased intervertebral discs and the role of inflammatory mediators was compared with healthy intervertebral disc anatomy* Diplomate, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research Rotation - Innervation and Blood Supply of the Intervertebral Disc, – *Investigation of effects of inflammatory cytokines, IL-1b, and TNF-a, on the expression of an angiogenic factor, vascular endothelial growth factor (VEGF), and neurotrophic factors, nerve growth factor (NGF) and brain-derived neurotrophic factor (BDNF), in human IVD degeneration was presented. Outline of neurotrophins' role in the survival, growth, differentiation, and function of neurons inside and outside of the intervertebral disc. Further discussion was outlined relating to the process of IL-1B being generated during IVD degeneration and may stimulate the upregulation of VEGF, NGF, and BDNF expression, resulting in angiogenesis and nerve in-growth during intervertebral disc degeneration.* Diplomate, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 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.* Certification in Concussion & Traumatic Brain Injury , Diplomate, Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2019

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.* Certification in Concussion & Traumatic Brain Injury, Diplomate, Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2019

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

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

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

Neurology of Ligament Pathology- Normal Morphology and Tissue Damage, Connective tissue morphology, embryology and wound repair as sequela to trauma. Full components of strain-sprain models and permanency implications with wound repair and osseous aberration with aberrant structural integrity Diplomate, Cleveland University-Kansas City, College of Chiropractic, Academy of Chiropractic, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2018

MRI History and Physics, 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. Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017

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. Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017, 2017

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. Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, , 2017

MRI Spinal Pathology, , *MRI interpretation of bone, intradural, extradural, cord and neural sleeve lesions. Tuberculosis, drop lesions, metastasis, ependymoma, schwannoma and numerous other spinal related tumors and lesions.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017, 2017

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 region visualized.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017

MRI Clinical Application, *The clinical application of the results of space occupying lesions. Disc and tumor pathologies and the clinical indications of manual and adjustive therapies in the patient with spinal nerve root and spinal cord insult as sequelae.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017

MRI Protocols Clinical Necessity, *MRI slices, views, T1, T2, STIR axial, stacking, FFE, FSE and sagittal images. Clinical indication for the utilization of MRI and pathologies of disc in both trauma and non-trauma sequellae, including bulge, herniation, protrusion, extrusion and sequestration.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017

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 vertebrate, Schmorl's nodes and herniations. Central canal and cauda equina compromise interpretation with management.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017, 2017

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 vertebrate, Schmorl's nodes and herniations. Morphology of lumbar disc pathologies of central and lateral herniations, protrusions, extrusions, sequestration, focal and broad based herniations are defined and illustrated. Central canal and cauda equina compromise interpretation with management.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, , 2017

MRI Interpretation of Cervical Degeneration/Bulges, *MRI slices, views, T1, T2, STIR axial, stacking, FFE, FSE and sagittal images in the interpretation of cervical degeneration. With the co-morbidities and complications of stenosis, pseudo-protrusions, cantilevered vertebrate, Schmorl's nodes and herniations. Spinal cord and canal compromise interpretation with management.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017

MRI Interpretation of Cervical Herniations, *MRI slices, views, T1, T2, STIR Axial, 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 based herniations are defined and illustrated. Spinal cord and canal compromise interpretation with management.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017

MRI Interpretation of Degenerative Spine and Disc Disease with Overlapping Traumatic Insult to Both Spine and Disc, , *MRI slices, views, T1, T2, STIR Axial, FFE, FSE and sagittal images in the interpretation of degenerative spondylolesthesis, spinal canal stenosis, Modic type 3 changes, central herniations, extrusions, compressions, nerve root compressions, advanced spurring and thecal sac involvement from an orthopedic, emergency room, chiropractic, neurological, neurosurgical, physical medicine perspective.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017

Spinal Biomechanical Engineering: Cartesian Coordinate 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 human biomechanics.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017

Spinal Biomechanical Engineering: Cervical Pathobiomechanics, *Spinal biomechanical engineering of the cervical and upper thoracic 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.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017

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.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017

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 sequellae 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.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017

Spinal Biomechanical Engineering & Organizational Analysis, , *Integrating spinal biomechanics and pathobiomechanics through digitized 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. Diplomate, Texas Chiropractic College, 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,, 2017

Spinal Biomechanical Engineering & Organizational Analysis, *Integrating spinal biomechanics and pathobiomechanics through digitized 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.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017

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 translational 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.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, 2017

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.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017

Spinal Biomechanical Engineering: Full Spine Digital Analysis, *Digitalizing and analyzing the full spine images to diagnose pathobiomechanics as sequellae to trauma in relation to ligamentous failure and disc and vertebral pathology as sequellae. 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.* Diplomate, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017

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 to the brain and the physiology of ischemia.* Diplomate, Academy of Chiropractic, Post-Doctoral Division, Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2017

Stroke Anatomy and Physiology: Stroke Types and Blood Flow, *Various types of stroke identifying ischemia, hypoperfusion, infarct and penumbra zones and emboli. Cardiac etiologies and clinical features as precursor to stroke with associated paradoxical emboli and thrombotic etiologies. Historical and comorbidities that have etiology in stroke inclusive of diabetes, coagulopathy, acquired and hereditary deficiencies.* Diplomate, Academy of Chiropractic, Post-Doctoral Division, Texas Chiropractic College, Buffalo, NY, 2017

Stroke Principles of Treatment an Overview for the Primary Care Provider, *Stroke type and treatments performed by vascular specialists. The goals of treatment with the 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.* Diplomate, Academy of Chiropractic, Post-Doctoral Division, Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2017

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.* Diplomate, Academy of Chiropractic, Post-Doctoral Division, Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2017

Mild Traumatic Brain Injury/Traumatic Brain Injury/Concussion, *Differentiating mild traumatic brain injury vs. traumatic brain injury and the clinical and imaging protocols required to conclude an accurate diagnosis for head trauma.* Diplomate, Academy of Chiropractic, Post-Doctoral Division, Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Long Island, NY, 2017

Spinal Trauma Pathology, Triage and Connective Tissue Injuries and Wound Repair, *Triaging the injured 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.* Diplomate, Academy of Chiropractic, Post-Doctoral Division, Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2017

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.*

Diplomate, Academy of Chiropractic, Post-Doctoral Division, Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2017

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 gray matter, thalamus and cortices involvement.* Diplomate, Academy of Chiropractic, Post-Doctoral Division, Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2017

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.* Diplomate, Academy of Chiropractic, Post-Doctoral Division, Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2017

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.* Diplomate, Academy of Chiropractic, Post-Doctoral Division, Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2017

Treating Trauma with Chinese Medicine, Diplomate, Connecticut Society of Acupuncture and Oriental Medicine, Connecticut Society of Acupuncture and Oriental Medicine, Hartford, Connecticut, 2013

MRI Essentials for the Spine Specialist: Cervical and Lumbar MRI, North American Spine Society, 2013

Whiplash Injury Biomechanics & Traumatology, Spine Research Institute of San Diego., Baltimore, Maryland, 2010

Certification in Functional Diagnostic Medicine , Functional Medicine University and Co-Sponsored by Southern California University of Health Sciences , 2009

Whiplash and Brain Injury Traumatology, Spine Research Institute of San Diego., Baltimore, Maryland, 2009

New Era in Whiplash & Spinal Trauma, Spine Research Institute of San Diego., Baltimore, Maryland, 2009

Interpreting Spine MR's and CT's, Naugatuck Valley Radiological Associates, 2009

Rehab Made Practical, University of Bridgeport College of Chiropractic, Hartford, Connecticut, 2007

Advanced Clinical Training in Biomechanics and Orthotics, New York Chiropractic College, 2006

Independent Medical Examiner, Exam Coordinators Network, 2003

Vertigo , Carrick Institute for Graduate Studies, 2003

Chiropractic Neurology Diplomate Program, *Clinical Neurology And Overview of Central And Peripheral Nervous System* Diplomate, Motion Palpation Institute, New York Chiropractic College, New York, New York, 2002

Whiplash The Masters' Program, *Advanced Diagnostics & Treatment Auto Crash Injuries* Diplomate, Motion Palpation Institute, Spine Research Institute of San Diego., New York, New York, 1999

Seminar for Radiology QA, UR, Tech Assessment, Diplomate, University of Bridgeport, College of Chiropractic, Jefferson Medical College of Thomas Jefferson University, New Haven, Connecticut, 1999

Comprehensive Physicians Training Course in the Procedure and Diagnostic Interpretation of the Selected Current Perception Threshold , Neurotron, Baltimore, Maryland, 1999

New Management Strategies for Patients with Low Back & Sciatica,, Harvard Medical School, Boston, Mass, 1995

SCHOLARLY PRESENTATIONS

(2016, May). *Motor Vehicle Accidents and Chiropractic* PowerPoint presented at the St. Mary's Hospital Executive committee,

(2016, October). *Chiropractic Medicine and Acupuncture* PowerPoint presented at the Department of Internal Medicine, St. Mary's Hospital,

(2014, September). *Alar Ligament Sub -failure from Cervical Trauma* PowerPoint presented at the St. Mary's Hospital Emergency room physicians,

(2014, November). *Alar Ligament Sub -failure from Cervical Trauma* PowerPoint presented at the Naugatuck Valley Radiology,

(2013, April). *Whiplash the Epidemic* PowerPoint presented at the St. Mary's Hospital Emergency room physicians, Waterbury, CT.

(2008, May). *Benefits of Chiropractic care* Lecture presented at the St. Mary's Hospital Emergency room physicians,

(2006, April). *New Strategies for Managing Spinal Injuries* PowerPoint presented at the Webster Insurance Co,

SELECTED TEACHING/INSTRUCTING/LECTURING/CONSULTING

Adjunct Assistant Professor of Clinical Services, Clinical Supervision, University of Bridgeport, College of Chiropractic, Bridgeport, Connecticut, 1997- Present

Professor of Orthopedics, Clinical orthopedics, University of Bridgeport, College of Chiropractic, Bridgeport, Connecticut, 1992- 1996

Instructor, Rehabilitation of the Spine, New York Chiropractic College, Hartford, Connecticut, 1989- 1990

Instructor, Motion palpation of the spine and extremities, Motion Palpation Institute, New York, New York, 1983- 1990

SELECTED MEMBERSHIPS

Diplomate with the American Clinical Board of Nutrition , 2003 - Present

Greater Waterbury Chamber of Commerce, Board of Director, 1977 - Present

Connecticut Chiropractic Association, Chairman of the Board, President, District Director, Education Committee Chairman, Interprofessional Relations Committee Chairman , 1976 - Present

Medical Practice Associate, St. Mary's Hospital Department of Medicine, 2004 - 2020

Acupuncture and Oriental Medicine Alliance, 2001 - 2015

The Educational Center for Integrative Healing and Wellness, 1999 - 2015

Physical Medicine & Research, 1988 - 1999

American Academy of Chiropractic Orthopedics, Fellow, 1983 - 1995

International Association for the Study of Pain , 1982 - 1993

American Back Society, Fellow, 1988 - 1992

SELECTED HONORS AND AWARDS

10 Best Chiropractors for Client Satisfaction, The American Institute of Chiropractors , 2016

Best Alternative Health Center , Waterbury Observer, 2009, 2010, 2011, 2012, 2013, 2014, 2015

Best of Watertown Award in the Chiropractors category , U.S. Commerce Association (USCA)., 2009

Chiropractor of the Year, Connecticut Chiropractic Association, 1984

Outstanding Young Man of America, Junior Chamber of Commerce, 1983

Pi Tau Delta, International Chiropractic Honor Society, 1976

Beta,Beta,Beta, Rutgers University Bilogical Honor Society, 1973

SELECTED COMMUNITY SERVICE

Rotary Club International, Watertown, Connecticut, 1980 - 1990

Jaycees, Waterbury, Connecticut, 1976 - 1979