

Craig Steingraber, DC

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SELECTED OCCUPATIONAL HISTORY

Clinic Director, Newnan Natural Pain Relief and Wellness, Newnan, Georgia, 2024-Present

Staff Chiropractor, Cancer Treatment Centers of America at Southeastern Regional Medical Center, Newnan, Georgia, 2012-2021

Developer and Moderator, Quality of Life Conference, Cancer Treatment Centers of America, Southeastern Regional Medical Center, Newnan, Georgia 2013-2014

NuLink, Health Contributor, “The Link”, Newnan, Georgia, 2010-2011

NuLink, Developer/TV Host/Presenter, Naturally Healthy, Newnan, Georgia, 2008-2011

NuLink, Developer/TV Host/Presenter, View from the Summit, Newnan, Georgia, 2005-2008

Team Chiropractor, Northgate High School Football, 2005-2011

Board of Directors, Summit Center for Health and Healing, Newnan, Georgia, 2005-2006

Clinic Director, Georgia Chiropractic Associates, Newnan, Georgia, 2004-present

Clinic Director, Craig Steingraber, DC, PA, Houston, Texas, 2002-2004

Referral Chiropractor for National Football League’s Houston Texans, 2002-2004

Medical Advisory Board, Memorial Hermann Hospital Houston Baptist University Wellness Center, Houston, Texas, 2000-2001

Staff Chiropractor, Memorial Hermann Hospital Houston Baptist University Wellness Center, 2000-2004

Designated Doctor, Texas Workers Compensation Commission, 1998-2002

Clinic Director, Professional Chiropractic Group, Houston, Texas, 1992-2002

Associate, Becker Clinic of Chiropractic, Roanoke, Virginia, 1991-1992

EDUCATION AND LICENSURE

Doctor of Chiropractic, licensed in the State of Georgia, license number, 7629, 2004-Present

Doctor of Chiropractic, licensed in the State of Texas, 1991-2004

Doctor of Chiropractic, Texas Chiropractic College, Pasadena, Texas, 1991

Bachelor of Science, Human Biology, Texas Chiropractic College, Pasadena, Texas, 1991

Undergraduate Studies, Chiropractic Prerequisites, San Jacinto College, Pasadena, Texas, 1985-1987

Associate of Liberal Arts, Mount Saint Clare College, Clinton, Iowa, 1983

SELECTED POST GRADUATE EDUCATION, CERTIFICATIONS

Certified Functional Medicine Clinician. Kharrazian Institute

Primary Spine Care Qualified. Academy of Chiropractic Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island NY

Hospital Based Spine Care Qualified. Co-credentialed through the ACCME (Accreditation Council for Continuing Medical Education), Cleveland University – Kansas City and the Academy of Chiropractic, Long Island, New York

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

Advanced Certification in Whiplash Traumatology and Mild Traumatic Brain Injury. Spine Research Institute of San Diego, Coronado, California

Board Eligible; American Chiropractic Neurology Board.

Certified Chiropractic Sports Physician, American Chiropractic Association Council on Sports Injuries and Physical Fitness, 1994

T-Regulatory Cells. Key relationships of the promotion of Treg cells and their involvement in immune tolerance and improved immunological function. Discussion of function regarding Tcell activation in the thymus and Bcell activation in the bone marrow. Relationship of CTLA4, IL2, FOXP3 and RORC in processes. Tcell hybridization features and how to enhance production of Treg cells. Relationships of Vitamin D, A, fish oils, curcuminoids, resveratrol, and other natural supplements which can help assist positive Treg cell function and inhibition of the negative effects of Th17. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2026.

Essentials of Functional Medicine. This course discusses essential functional medicine principles surrounding immune, neurological, endocrine, biotransformation, bioenergetic and gastrointestinal functions. Kharrazian Institute, 2026

Cardiovascular and Neurovascular Syndromes. This course provides extensive literature review of the physiology and pathophysiology of cardiovascular and neurovascular syndromes. A detailed review was presented of evidence-based lifestyle, dietary and nutritional applications

that may impact normal vascular health. Evaluation of cardiovascular function with diagnostic imaging studies, vascular dynamic studies, laboratory tests, and physical examination was presented. This course also emphasized how to develop personalized dietary and lifestyle approaches to support vascular health. Kharrazian Institute, 2026

Structural Rehabilitation of the Thoracic Spine. This course provided references on postural and spinal distortions of the thoracic spine. Normal values for the sagittal plane of thoracic kyphosis are detailed from the literature and age-related changes of the thoracic spine are reviewed. The relationship of the thoracic spine to the lumbar and cervical regions are discussed. A major emphasis is placed on understanding the role of thoracic spine disorders to patient health and disease conditions. Examination and documentation procedures are reviewed mainly for thoracic vertebral dysfunctions but lumbar and cervical dysfunctions are also reviewed. Chiropractic adjustive and rehabilitative treatment techniques for thoracic, lumbar, and cervical dysfunction are detailed. A survey of research material was reviewed supporting the utilization and efficacy of Chiropractic Biophysics protocols for improving thoracic alignment thereby improving neurophysiology, possible organ function and potential for reducing degenerative changes. PACE for the Federation of Chiropractic Licensing Boards, 2026

Th17 Cells. Key relationships of RORC, NFKB, Stat 3 to polarization of naïve T cell to Th17 cell. High ANA can be a good marker of extent of Th17 reaction. Curcumin, resveratrol, Vitamin A, Fish Oil, Vitamin D, glutathione can be good inhibitors of STAT 3 and NFKB. Main function of Th17 cells is protection against fungi and extracellular bacteria. Significant factor in autoimmunity. Th17 tissue environment activity relationship to osteopenia and osteoporosis. Chronic infections driving Th17 production and activation. Infected apoptotic cells-dendritic cells-cytokines-polarization to Th17. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2026.

Th2 Cells. Polarization to Th2 cells. Discussion of relationship of Th2 cells to IgE, IL5 and mast cell-histamine physiology, eosinophilic activation. Relationships of IL-4 and 13 to stimulate polarization to M2 macrophages for tissue repair and fibrosis. The likelihood of sinusitis, intestinal dysbiosis, certain respiratory issues being Th2 dominant. Th2 associations with helminth infection clearance, tissue healing, antibody propagation, tissue debris formation or failure to clear. Caution of promoting T-reg cells, which could increase Th2 response further. Chronic Th2 dominance and production of too many Th17 cells which can promote autoimmunity. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2026.

Chiropractic Ethics: This course discussed personal, business, and professional ethics as they relate to chiropractic. A review of the American Chiropractic Association's and International Chiropractic Association's Code of Ethics was detailed. This course also discussed, in detail the Informed Consent Doctrine and the difference between an independent contractor and an employee. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2025

Georgia Law. *This course provided current health care law within the state of Georgia as it pertains to Chiropractic. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2025*

Advanced Principles of Upper Extremity Adjusting. This course emphasized the evaluation of the mechanics of upper extremity joint complexes. Specific emphasis given to the application of chiropractic manipulative therapy/adjustment of respective joint connective tissues to enhance sensorimotor reflexes. In addition, applications of such for the reduction of associated pain syndromes and improved function. Life University, Marietta Georgia, 2025

Th1 Cells. Polarization to Th1 cells. Th1 and Natural Killer cell production of interferon gamma with resultant increase in activity of macrophages. Macrophage expression of IL-12 for restimulation of Th1. Th1 cell as a primary immune response to bacteria and viruses. Potential for high monocytes meaning an individual is Th1 dominant. T-bet transcription factor helping drive Th1 responses. Potential relationships of glutathione, berberine, Baicalin, ginger, sulforaphane and Astragalus for enhancing Th1 ability to kill pathogens. Also, potential relationships of Perilla, Astragalus, Quercetin and N-Acetylcysteine to decrease Th2 response with those having hollow space dysfunction. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

T-Cell Polarization. Coursework discusses how antigen presenter cells differentiate into T of B cells and how each matures into respective immune cells. Discussion of timelines that this can occur based on infection or antigen presentation. Polarization differentiation scenarios are presented. How this relates to infection, food sensitivity and capacity for antigen presentation. Discussion of cell mediated immunity, humoral adaptive immunity, T and B cell stimulation, T-Cell polarization. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Hypoxia and Inflammatory Cytokines. Neutrophil production of hydrogen peroxide and its inhibition of pathogen associated molecular patterns. HIF1 alpha inhibition of the same but production of NFkB and excitation of Damage associated molecular patterns. Natural supplementation to reduce pathogens, NFkB, oxidative stress, inducible nitric oxide synthase and promote resolution. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Role of Cortisol in Inflammation. Role of cortisol on the inhibition of inflammation but if there is too much cortisol over time the promotion of inflammation it has. Effects of cortisol on phagocytosis, brain inflammation, neutrophil recruitment. Contributions of Cox inhibitors on lipopolysaccharides, prostaglandin E2. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Addressing Pathogen Evasion Strategies. Central strategies for killing pathogens, promoting Th1 polarization, innate immune responses and improved oxygenation. The importance of increasing Th1 to enhance pathogen clearance. Relationships of Naïve T cell maturation, natural killer cells, macrophages, interferon gamma, interleukin 12 to improved Th1 activation when

appropriate. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

The Extracellular Matrix. Natural methods to restore balanced neutrophil/macrophage penetration, decrease interleukin 1 beta and tumor necrosis factor alpha, diminish neutrophil tissue penetration, restore balanced lymphatic function, reduce tissue inflammation, promote successful class switching, address infections, reduce toxicity of haptens and tissue hapten binding to avoid necrosis and promote digestibility of phagocytized tissues, providing methyl donors and address pathogen evasion. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Natural Killer (NK) Cells. Their function in viral and bacterial infected cells, damaged or malignant cells. How NK cells are driven by macrophage activation and by Th1 cell polarization and antibody dependent cellular cytotoxicity. How NK cells have aspects of both innate and adaptive immunity. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Complement and Neutrophils. Three components of complement are opsonization, creation of membrane attack and inflammatory effects of complement. Neutrophils in the activation and regulation of innate and adaptive immunity. Relationships of Vitamin A and Zinc to neutrophil activation. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Monocytes and Macrophages. Molecular maturation of monocytes to macrophages and their phagocytic effects. Macrophages relationships to T cell activity and possible promotion of increased inflammation and autoimmunity. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Dendritic Cells. Discussion of variations of dendritic cells in innate and adaptive immunity. Relationships of antigen presenting cells for T and B cell production, MHC1, MHC2. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Clinical Applications in Inflammation. Discussion regarding natural substances to restore balance neutrophil/macrophage balance. Use of EPA/DHA, lactoferrin, radix angelica sinensis and fasting to promote D and E series resolving, promote neuroprotectins, reduce neutrophils and promote macrophages, increase platelets and WBC' s when low and reduce debris, respectively. Also, the benefits of curcumin and resveratrol to inhibit NFkB, diminish neutrophil penetration with her baicalin to dampens interleukin 8 mediated neutrophil chemotaxis and restore balance lymphatic system function with vinpocetine, Quercetin and Forskolin to enhance endothelial nitric oxide synthase. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Structural Rehabilitation of the Cervical Spine. Detailed literature reviews covering cervical disorders in patient populations, the role of spinal manipulative therapy and structural correction of sagittal cervical lordosis and translations were covered. Normal average and ideal

values for the cervical lordosis were reviewed as well the relationship of cervical curvatures to patient health and disease conditions. Detailed categories of cervico-thoracic postures, spine kinematics and abnormalities of the sagittal cervical lordosis were discussed. Appropriate application and timing of postural and functional exercises for the cervical spine designed to correct spinal dysfunction and strengthen the lower back tissues. Categories of sagittal and coronal cervical traction with demonstrations for structural rehabilitation of the cervical spine. Indications and contraindications were reviewed. PACE for the Federation of Chiropractic Licensing Boards, 2025

The Lymphatic System. The role of endothelial and inducible nitric oxide synthase on lymphatic anatomical changes and peristalsis of lymph. Indications to increase or decrease T and B cell propagation to tissue through lymphatic flow. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Inflammation and Resolution Failure. Coursework focuses on normal inflammation resolution scenarios, infection and lack of normal inflammatory resolution, chronically inflamed and lack of normal inflammatory resolution or both. Impact of PGE2 and Cox2 in pro-anti-inflammation scenarios. Key components of neutrophil-macrophage balance, ambient inflammation, infection and timing of each with respect to interventions to enhance certain mediators. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Tissue Damage and Inflammation. Coursework introduces neutrophilic release of adenosine and how levels of adenosine can affect macrophage and dendritic cell presentation of antigen to T and B cells at the lymph node. The degree of antigen presentation and resultant T and B cell function in a tissue. The effects of T and B cell activation and tissue effects and importance of balancing such in situations of regular apoptosis, and/or infection, autoimmunity, chronically inflamed. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Apoptosis, Primary and Secondary Necrosis. Coursework covers neutrophilic expression of PGE2, TGF beta, IL-10 and their respective activations for the inflammatory process. Monocyte conversion to macrophages and dendritic cells with their respective functions relating to phagocytosis and antigen presenting cell functions. Beginning overview of pro inflammatory effects of haptens, toxins and infection and their relationships to primary necrosis and secondary necrosis. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Core Concepts of Inflammation: Coursework covers signaling from DAMPS, PAMPS and diffusion of neutrophils and monocytes into tissue. Components of balance and imbalance of neutrophils and macrophages and importance of pro resolving lipid mediators in this process. Degradation of neutrophils, secondary necrosis of neutrophils, lymphatic drainage, perpetuating neutrophilic derived inflammation. Potential importance of EPA/DHA to better ensure adequate supplies of pro resolvins as well as the importance of appropriate anti-oxidants for those individuals who may have an inability to properly metabolize DHA. Cogence Immunology.

Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Immunology of Inflammation. Discussion and references of the primary producers of inflammation and relationships to chronic pain and illness. Subject matter includes components of brain inflammation, dysbiosis, stress chemistry, autoimmunity, Th17-1-2 status, innate immunity, infection, dysglycemia, food and environment, detoxification defects, hormone dysregulation, vascular and oxygenation dysfunction. Symptoms which can result from the preceding can include; e.g., pain, asthma, allergies, sinus issues and chronic infections. Cogence Immunology. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Mapping Functional Immunology Connections. Introduction to core immune system dysfunctions of chronic pain and illness; inflammation, autoimmunity, stress chemistry and dysbiosis. Further discussion of the key immune system changes and consequences of those changes. Cogence Immunology. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Self-Tissue Response: Core Immunology and Clinical Strategies. This course discusses the associations of inflammation and immune system dysregulation. Relationships of the impact of decreased energy production, chronic stress, infections, gastrointestinal dysfunction, food reactions, detoxification issues, environmental toxins, hormones, poor sleep and overtraining to the function of Th1-2-17-regulatory T cells of the immune system. Natural supplementation that may improve the function of immune system regulation and management of lifestyle factors that improve immune system function and pain production. Cogence Immunology. Professor Samuel Yanuck, DC. University of North Carolina School of Medicine; Physical Medicine and Rehabilitation. 2025.

Structural Rehabilitation of the Lumbar Spine. Detailed literature reviews covering lumbar disorders in patient populations, the role of spinal manipulative therapy and structural correction of sagittal lumbar lordosis were covered. Normal average and ideal values for the lumbar lordosis were reviewed as well the relationship of lumbar curvatures to patient health and disease conditions. Detailed categories of lumbo-pelvic postures, spine kinematics and abnormalities of the sagittal lumbar lordosis were discussed. Appropriate application and timing of postural and functional exercises for the lumbar spine designed to correct spinal dysfunction and strengthen the lower back tissues. 17 categories of sagittal lumbar traction and 5 methods of coronal lumbar traction with demonstrations for structural rehabilitation of the lumbar spine. Indications and contraindications were reviewed. Life University, Marietta, Georgia 2024

An Introduction to Communicable Diseases. This course provides basic information regarding the transmission of Hepatitis A, B, C and HIV. In addition, the course provides the chiropractor with vital information regarding procedures to prevent the transmission of these diseases. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2024

Chiropractic Ethics: This course discussed personal, business, and professional ethics as they relate to chiropractic. A review of the American Chiropractic Association's and International Chiropractic Association's Code of Ethics was detailed. This course also discussed, in detail the Informed Consent Doctrine and the difference between an independent contractor and an employee. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2024

Georgia Law. This course provided current health care law within the state of Georgia as it pertains to Chiropractic. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2024

Low level laser applications. Low level laser therapy is based on the science of photochemical reaction with light in the visible spectrum. Subject matter discussed pertained to the violet-green-red low-level laser therapy (380-700nm). More specifically, discussion relative wavelength, frequency, hertz, pulses, amplitude, monochromaticity, coherence, ionization, role of heat in relation to biological systems, calcium ion channels in cellular signaling, mitochondrial processes, Krebs Cycle, electron transport chain (complexes I-V). The class also addressed the impact of inflammation as a contributing factor in chronic conditions and numerous published studies pertaining to the effectiveness use in numerous conditions, e.g., pain management, anti-inflammatory effects, tissue healing. Northwestern Health Sciences University, Bloomington, Minnesota, 2024

Mirror Image Drop Table Adjusting, Leg Length Inequality and Sacroiliac Joint Mechanics; Chiropractic Biophysics. This course provided permutations of abnormal posture using formulas from probability theory and a literature review on postural displacements as they correlate to patient conditions. Details of objective postural assessment and measurement are reviewed. Instruction in corrective global postural alterations and their set-ups for the head, thoracic cage, & pelvis chiropractic adjustments on a drop table. Diagnosis, analysis and course of care for short leg syndrome are reviewed. A survey of research material supporting the utilization and efficacy of Chiropractic Biophysics drop table technique treatment methods across a population of patients with chronic pain conditions were reviewed. Sacroiliac anatomy, degrees of motion and methods of stabilization provided by ligamentous structures with indirect contribution from relevant musculature. PACE for the Federation of Chiropractic Licensing Boards, 2024

X-ray, Posture and Spine; Chiropractic Biophysics. This course defines two types of structural based models for assessment, interventions and outcomes. The first is a set of average and ideal alignment values for the upright spinal column and the second is an optimum static equilibrium upright postural model; detailed validation utilizing published studies are presented. Six biomechanical types of subluxations are delineated. Emphasis was placed on abnormal posture and segmental spinal coupling patterns as rotations and translations in 3-D as well as alterations of the sagittal plane curvatures. The validity, reliability, projection geometry of Chiropractic Biophysics analysis methods was presented. Basic definitions and theorems from mechanical engineering governing rigid body motion were reviewed and applied to the spine and posture. PACE for the Federation of Chiropractic Licensing Boards, 2023

Advanced Principles of Lower Extremity Adjusting. This course emphasized the evaluation of the mechanics of lower extremity joint complexes. Specific emphasis given to the application of chiropractic manipulative therapy/adjustment of respective joint connective tissues to enhance

sensorimotor reflexes. In addition, applications of such for the reduction of associated pain syndromes and improved function. Life University, Marietta Georgia, 2023

Low Level Laser Therapy and Brain Waves. The Impact of Erchonia Low-Level Laser Therapy on qEEG and sLoreta Imaging. Discussion of non-thermal biphasic laser photon therapy (red, violet, green) and the effect on alpha, beta, delta, theta brain waves and improved brain function and health. Special emphasis given to effects of low-level laser therapy on brain waves and results reported via quantitative electroencephalography and standardized low resolution brain electromagnetic tomography. Northwestern Health Sciences University, Bloomington, Minnesota, 2023

An Introduction to Communicable Diseases. This course provides basic information regarding the transmission of Hepatitis A, B, C and HIV. In addition, the course provides the chiropractor with vital information regarding procedures to prevent the transmission of these diseases. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2023

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Georgia Law. This course provided current health care law within the state of Georgia as it pertains to Chiropractic. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2023

Science and Applications of Erchonia Low Level Laser Therapy. Discussion of the biphasic nature of laser photon therapy (red, violet, green) wavelength, frequency, speed of light, fluence, penetration, secondary and primary physiological influences. Integrating the relationship between mitochondria, free radicals, adenosine triphosphate, cytochrome c oxidase. Discussion related to barrier systems (leaky gut/leaky brain), lab markers and clinical implications for central nervous system pathogens. Basic neurological bedside examination with low level laser as a diagnostic and therapeutic tool. Low level laser applications related to centralization of pain, fall prevention, balance integration, low back pain, whiplash injury, thoracic outlet syndrome, temporomandibular joint disorder, trigeminal neuralgia and tinnitus, mirror image rehab. Northwestern Health Sciences University, Bloomington, Minnesota, 2023.

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employee. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2022

Georgia Law. This course provided current health care law within the state of Georgia as it pertains to Chiropractic. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2022

Structural Rehabilitation of the Lumbar Spine. Detailed literature reviews covering lumbar disorders in patient populations, the role of spinal manipulative therapy and structural correction of sagittal lumbar lordosis were covered. Normal average and ideal values for the lumbar lordosis were reviewed as well the relationship of lumbar curvatures to patient health and disease conditions. Detailed categories of lumbo-pelvic postures, spine kinematics and abnormalities of the sagittal lumbar lordosis were discussed. Appropriate application and timing of postural and functional exercises for the lumbar spine designed to correct spinal dysfunction and strengthen the lower back tissues. 17 categories of sagittal lumbar traction and 5 methods of coronal lumbar traction with demonstrations for structural rehabilitation of the lumbar spine. Indications and contraindications were reviewed. Life University, Marietta, Georgia 2022

Functional Neuroanatomy and Neurophysiology. Combining this functional system together with review of systems neuroscience, graph theory, tensiometry and complexity theory. Synopses of all Brodmann and subcortical areas and relation to specific functional networks and hubs. Review of neuroanatomy and function of each network in detail including the visual network, default mode network, salience network, executive function network (frontoparietal), dorsal and ventral attention networks, limbic network, somatic motor network. Discussion of functional neuroanatomy and laterality, as well as clinical implications of dysfunction of these networks with specific conditions. Review of specific examination findings related to Brodmann areas, lobes of the brain, subcortical areas and networks. Discussion of specific objective functional testing to quantify and isolate specific functional lesions. National University of Health Sciences, Lombard, Illinois, 2022

Functional Neuroanatomy and Neurophysiology of the Cortex and Brodmann areas. Connecting the cortex to the rest of the brain including the brainstem, cerebellum, basal ganglia and the thalamus. Discussion of the connections of Brodmann area to the direct, indirect and hyperdirect pathway. Integrating these components with specific thalamic nuclei, specific cerebellar connections to the thalamus, basal ganglia, cortex and prefrontal cortex. Tracing of the afferent and efferent connections of respective regions and discussion of various brainwave and/or resonant frequency origination. Discussion of potential root causes of cortical dysfunction, which allows for development specific treatment approaches. National University of Health Sciences, Lombard, Illinois, 2022

Cognitive Decline and Dementia Strategies using a Functional Neurology/Medicine Model. Evaluation of cognitive function and dementia risk factors with imaging studies, laboratory tests, physical examination, neurocognitive tests, and medical history were presented. Advice on the stages of cognitive decline and clinical strategies to develop lifestyle, dietary, and nutritional applications were presented. Neurology, neurochemistry, neuropathology of

cognition. Neuroendocrine-immune and vascular dementia. The role of the microbiome, immune system and neuroglia in dementia. Literature review of dietary approaches, lifestyle factors impacting cognitive decline. Pathogenic, environmental chemical association of dementia and cognitive decline. Literature review of physiological mechanisms of nutraceuticals that impact cognition. Medical history, physical examination, imaging and laboratory testing used to evaluate cognitive decline with review of cognitive questionnaires and assessment forms. How to develop dietary, lifestyle, and nutritional strategies to improve cognition and reduce risk factors for dementia. National University of Health Sciences, Lombard, Illinois, 2022

Hashimoto's Clinical Strategies using a Functional Medicine Model. Presentation of Hashimoto's, epidemiology, pathophysiology, diagnostic criteria and laboratory testing. Thyroid antibody cross-reactivity, autoimmune comorbidities, thyroid-brain axis, thyroid-gut axis, thyroid-immune axis, and physiological interactions. The role of gluten, autoimmune dietary protocols, literature review of nutraceuticals that impact Hashimoto's hypothyroidism. Review of the various types of thyroid hormone replacement, concepts of adverse reactions with thyroid replacement and drug-thyroid interactions. Associated pathogens, role of cross-reactivity and autoimmune reactivity of the thyroid gland. Endocrine disruptors associated with thyroid gland dysfunction, laboratory tests to evaluate environmental triggers. Fundamental principles of medical history, physical exam and evaluation of laboratory tests. Development of dietary, nutritional, lifestyle strategies. Case study presentations. National University of Health Sciences, Lombard, Illinois, 2021

Chronic Fatigue and Pain Syndromes Clinical Strategies and Treatment Applications. Extensive literature review of the neurology and physiology of chronic pain and fatigue syndromes. Introduction to cellular and physiological bioenergetics, review of mitochondria bioenergetics and clinical mechanisms that impact cellular mitochondria bioenergetics. The common links between chronic pain, depression, and fatigue were presented. A detailed review of lifestyle, dietary, and nutritional applications that may impact pain and fatigue syndromes were presented. A comprehensive review of the neurophysiology and neuropathology and cellular bioenergetics as well as the cellular and physiological relationships between pain, depression, fatigue and mitochondria bioenergetics. Neurology and chemistry of nociception and neurochemistry patterns of chronic pain syndromes were presented. Reviews of the scientific literature were presented with regards to nutrients, dietary approaches, and lifestyle applications that impact fatigue and pain syndromes. Clinical history and physical examination considerations and laboratory tests to evaluate fatigue and pain syndromes. Various clinical approaches to manage pain and fatigue syndromes with diet, nutrition, and lifestyle strategies were discussed. National University of Health Sciences, Lombard, Illinois, 2021

Functional Neurophysiology and Neuropathology. Discussion of each Brodmann area focusing on location, function, lateralization and the relationship to specific functions, functional deficits, clinical symptoms, syndromes and specific localizing exam findings. Detailed discussion of Brain Asymmetry, Brodmann areas and a breakdown of each into normal and abnormal functions, symptoms and laterality. Relation of all Brodmann areas to specific clinical syndromes including Attention Deficit Disorder, Dyslexia, Depression, Anxiety, OCD, Tourette's, Processing

Disorders, Language Disorders, Schizophrenia, Bipolar, Eating Disorders, Immune Disorders, Dysautonomia, Autism and others. National University of Health Sciences, Lombard, Illinois, 2021

Extremity Manipulation of the TMJ, Ribs, Shoulder. Class work included procedures of diagnosis dysfunction of the temporomandibular joint, thoracic cage and shoulder complex which may benefit from chiropractic manipulation/adjustment. Life University, Marietta, Georgia, 2021

An Introduction to Communicable Diseases. This course provides basic information regarding the transmission of Hepatitis A, B, C and HIV. In addition, the course provides the chiropractor with vital information regarding procedures to prevent the transmission of these diseases. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2021

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Georgia Law. This course provided current health care law within the state of Georgia as it pertains to Chiropractic. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2021

Functional Neuroanatomy of the Cortex. Discussion of the six layers of the human brain, occipital lobe, parietal lobe, temporal lobe, frontal lobe, limbic system and prefrontal cortex. Detailed discussion of the specific neuroanatomy of each Brodmann area in human beings and its connections to various functional cortical systems. Review of the anatomy and physiology of the subsets of the limbic system including the anterior and posterior cingulates, subicular, rhinal, retrosplenial, septal nucleus, and amygdala. The afferent and efferent connections and the relationship to resonant frequencies in each area are discussed. The different functions of respective Brodmann's regions relative to sidedness is discussed. National University of Health Sciences, Lombard, Illinois, 2021

Diabetes and Dysglycemia Clinical Strategies and Treatment Applications. Discussion of clinical presentation of diabetes and blood sugar disorders, epidemiology of diabetes and blood sugar disorders, pathophysiology of diabetes and blood sugar disorders, review the various types of dysglycemia, and diagnostic criteria for diabetes and blood sugar disorders. Discussion of dysfunctions in the physiological web of blood sugar stability, glucose-brain interactions, glucose-endocrine interactions, glucose-immune interactions, and physiological alterations with dysglycemia. The role of diet on diabetes and dysglycemia, and a literature review of diet and lifestyle factors for various hypoglycemic states, insulin resistance, metabolic syndrome, autoimmune diabetes, and type 2 diabetes and additional diabetic scenarios. Literature review of nutraceuticals for diabetes and dysglycemia. Review of pathogens associated with diabetes, role

of cross-reactivity with pathogens and autoimmune reactivity of the pancreatic islet cells, literature review of endocrine disruptors associated with diabetes and dysglycemia, laboratory tests to evaluate environmental triggers for diabetes. Fundamental principles of medical history for blood sugar disorders, physical exam for blood sugar disorders, testing to order and evaluation of laboratory tests. Developing dietary, nutritional, and lifestyle strategies for those suffering from blood sugar disorders. National University of Health Sciences, Lombard, Illinois, 2021

Clinical Grand Rounds – Facet Joint Thresholds and Alteration of Motion Segment Integrity. Discussion of the predominant mode of joint loading of the cervical facet joints during whiplash injury related to retraction tension on the facet joint capsule. Review of shear forces, translation of the inferior and superior facet joint as well as injury risk due to excessive stretching of spinal ligaments was presented. Overview and discussion of mechanical trauma to ligament tissue and subsequent microstructural damage not visibly detected was outlined. Threshold for microstructural changes during retraction, reduced ligament stiffness and unrecovered strain was discussed in detail. Individual response to facet joint capsule response supported in the medical literature was presented. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, 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. Academy of Chiropractic Post-Doctoral Division, PACE Approved for the Federation of Chiropractic Licensing Boards, 2021

Demonstrative Diagnosis and Documenting Spinal Disc Injuries. Differentially diagnosing disc vs. posterior longitudinal ligaments vs. Thecal Sac vs. spinal cord vs. Ligamentum Flavum pathology and insult. Identifying the borders of lesions and discerning between anatomic structures pathologically effected demonstrably. Academy of Chiropractic Post-Doctoral Division, PACE Approved for the Federation of Chiropractic Licensing Boards, 2021

Gastrointestinal Clinical Strategies and Treatment Applications. Coursework synopsis includes comprehensive review of how the gastrointestinal system works and how it impacts human health, the clinical mechanisms of digestive dysfunction, clinical role of intestinal permeability and endotoxemia, microbiome and its specific applications to clinical practice, clinical mechanisms for unresponsive and chronic gastrointestinal disorders, how to clinically evaluate gastrointestinal disorders, development of treatment programs for gastrointestinal dysfunction. Additional discussion regarding the basics of gut immunology, fundamental concepts of digestion, oral tolerance to food proteins, ecology of human microbiota in health and human disease, human intestinal microbiome in health and disease, role of microbiota in immunity and inflammation, influence of diet on the gut microbiome and implications for human health, identify major mechanisms of impaired digestion, identify malabsorption syndromes, identify mechanisms of intestinal permeability, clinical concepts of oral tolerance, malabsorption, presentations and prognosis of gastrointestinal disorders, examinations to identify mechanisms

of gastrointestinal disorders, choosing and interpreting gastrointestinal lab tests, how to develop specific diet, lifestyle and nutritional protocols for gastrointestinal disorders. National University of Health Sciences, Lombard, Illinois, 2021

Synapse Sessions. This coursework entailed discussing components of functional neurology and possible therapeutics with regards to the following topics; Traumatic Brain Injury and Eye Movements, Primary Metabolic Priorities in Clinical Neuroscience, Utilizing Mirror Neuron System in Rehabilitation of the Autistic Spectrum Disorder Patient, The Roll-Axis: A 3rd Dimension of Vestibular Rehabilitation, Tonotopic Maps-Using Sound to Aid in Balance Therapy, Telemedicine and Clinical Neuroscience, From Neuron to Pain, Cognitive Dissonance in Health Care, How to Properly Diagnose Migraine vs. Post Concussive/Traumatic Headaches, Anxiety- A Modern View from the Brain, Pros and Cons of Physical Exercise and the Brain, Clinical Applications of Optokinetics in Rehabilitation, Electro modulation of the Nervous System-Vagus Nerve, Effects of Ketogenic Diet on Traumatic Brain Injury, Maps Make Movements, Visions Drills with Cognitive Overlay with Concussion Rehab, Stress Pain Interactions and How Our Beliefs About what we experience can lead to fear. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2020

Neuroinflammation Clinical Strategies and Treatment Applications. Discussion of the role of glial cells in neuron health and neuroinflammation. How glial cells become pro inflammatory and effect human health. Further discussion includes effects of antigens in the brain and complexity of blood-brain barrier integrity, breakdown and repair. Information on how the body's immune system and gut communicate directly with glial cells to impact the brain's immune system. Literature review is presented on nutrition, dietary and lifestyle strategies regarding neuroinflammation. Methods of stimulating neurons to assist in better glial health are presented. National University of Health Sciences, Lombard, Illinois, 2020

Traumatic Brain Injuries and Concussion Claims; How to Evaluate Them. This course reviews the definitions of traumatic brain injuries, discusses the evaluation techniques for these claims and implications of current peer reviewed scientific literature and offers recommendations to evaluating doctors and other health care professionals. Objectives at the end of session are discussion of the diagnostic criteria of traumatic brain injuries. How to conduct an evaluation of claims of concussion/post concussive syndrome. Evaluation of the recovery profile following a concussion and apply this knowledge to clinical practice based on current scientific literature. American Board of Independent Medical Examiners and American College of Independent Medical Examiners, 2020

Chiropractic Ethics: This course discussed personal, business, and professional ethics as they relate to chiropractic. A review of the American Chiropractic Association's and International Chiropractic Association's Code of Ethics was detailed. This course also discussed, in detail the Informed Consent Doctrine and the difference between an independent contractor and an employee. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2020

An Introduction to Communicable Diseases. *This course provides basic information regarding the transmission of Hepatitis A, B, C and HIV. In addition, the course provides the chiropractor with vital information regarding procedures to prevent the transmission of these diseases.* Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2020

Georgia Law. *This course provided current health care law within the state of Georgia as it pertains to Chiropractic.* Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 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, PACE Recognized by the Federation of Chiropractic Licensing Boards, 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 is numerous case studies reviewed inclusive of neurosurgical intervention and postsurgical outcomes.* Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, 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.* Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, 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.* Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, 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. Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island NY, 2019

Autoimmunity Clinical Strategies and Treatment Applications. This course provided an extensive literature review of autoimmunity. An evidence-based model incorporating diet, nutrition, and lifestyle medicine was presented. Clinical applications of cross-reactivity, oral tolerance, microbiome diversity, and immune modulation were highlighted. A basic review of immunology, discussion of T-cell, B-cell, and antibody laboratory testing, physical examination findings found with autoimmunity, the role of cell-mediated and humoral immunity, complement systems, role of antibodies, role of the intestinal and blood-brain barriers, molecular mimicry/cross-reactivity, agglutination, citrullination, haptentation, immunological tolerance, principals of cross-reactivity including amino acid sequence homology and topographical antibody binding homogeneity, dietary proteins, antigens, chemicals that bind cross-reactive with target proteins, principals of antigen cross-reactivity, chemical triggers for autoimmunity, lifestyle triggers for autoimmunity, key principals of conducting a medical history and physical examination for autoimmunity, how to evaluate autoimmune laboratory tests. National University of Health Sciences, Lombard, Illinois, 2019

Professional Boundaries: This course provided discussions regarding Professional Boundaries Defined; The Basis for the Doctor / Patient Relationship, Transference / Counter-transference, Terminology Associated with Sexual Misconduct, Boundary Violation vs. Boundary Crossing, Case studies, Doctor Profiles, Caution Signs, Guidelines for Prevention. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2019

Documentation. This course provided the basic principles of documentation to establish medical necessity for treatments provided for patients. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2019

Functional Endocrinology. Review of the physiology and the key concepts in functional endocrinology. Information is provided on the effects of acute and chronic stress/environmental factors on physiology, and the healing process. Review of the scientific literature regarding how various diets, botanicals, nutrients, and lifestyle and environmental factors can impact the endocrine system directly and indirectly. Topics addressed include menopause, perimenopause, andropause, menstrual cycles, adrenal function, fertility, hormone overload and clearance, microbiome-endocrine axis, essential fatty acids and hormones, blood glucose and hormones, obesogens, endocrine disruptors, hepatic and gut microbiome-hormone biotransformation and bone health. Additional information is provided on supporting healthy endocrine balance with or without the use of aggressive hormone replacement strategies. A review of human physiology is followed by clinical applications, general review of relevant laboratory tests, differential diagnoses, and how to identify cases that may need to be referred for further consultation and/or evaluation. University of Bridgeport, Bridgeport, Connecticut, 2019

Georgia Law. *This course provided current health care law within the state of Georgia as it pertains to Chiropractic. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2019*

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 electrodiagnostics. Academy of Chiropractic, Cleveland University Kansas City, Chiropractic and Health Sciences, Long Island, New York, 2019*

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. Academy of Chiropractic, Cleveland University Kansas City, Chiropractic and Health Sciences, Long Island, New York, 2019*

Ethics and Medical Collaboration. *Having referral relationships with emergency rooms, neurosurgeons, orthopedic surgeons, pain management specialists, neurologists, neuroradiologists 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. Academy of Chiropractic, Cleveland University Kansas City, Chiropractic and Health Sciences, Long Island, New York, 2019*

Documentation in a Medical – Legal case work 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 and in the courts and ethical relationship that concurrently matches the standards of both contemporary academia requirements and a contemporary literature-based standard. Academy of Chiropractic, Cleveland University Kansas City, Chiropractic and Health Sciences, Long Island, New York, 2019*

Connective Tissue Pathology, Spinal Biomechanics as Sequela to Trauma, MRI Spine Interpretation, Ordering Protocols & Triaging the Injured. *The latest research on the 6 ways to age-date disc herniations and bulges from trauma inclusive of disc pathology nomenclature. MRI ordering protocols, inclusive of Dixon format and fat-suppressed images. The neurology and pathology of connective tissue and the sequela of trauma at the biomechanical level leading to bio-neuro-mechanical failure. Contemporary evidenced-based building blocks for triaging and in a collaborative environment. Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island NY, 2018*

Spinal Biomechanical Engineering and Digitizing, integrating automated mensuration into creating treatment plans and determining maximum medical improvement. *A literature-based study of normal vs. abnormal motor unit function. Determining ligamentous laxity, alteration of*

motion segment integrity and pathological stress units and whole person impairments based upon the literature and academic standards. Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island NY, 2018

Science of the Chiropractic Spinal Adjustment and Vertebral Subluxation. The literature-based definitions of both the mechanisms the chiropractic adjustment and how it affects the central nervous system in pain pathways and systemic issues that is the arbiter for normal vs. abnormal function. The physiological mechanisms of how the chiropractic spinal adjustment affects the peripheral and central nervous systems. Subluxation degeneration/Wolff's Law is detailed from a literature perspective combined with the mechanism of subluxation (bio-neuro-mechanical lesion). A literature perspective why long-term chiropractic care is clinically indicated as usual and customary to effectuate demonstrable biomechanical changes in the spine. An evidenced-based perspective of why physical therapy is a poor choice for spine as a first referral option for any provider inclusive of the literature. Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island NY, 2018

Documentation, Collaboration, and Primary Spine Care. An academic basis for documentation that is usual and customary across professions in collaborative care. Maintaining ethical medical-legal relationships based upon Voir Dire and Daubert standards with ensuring an inclusive report. Ensuring Primary Care Status based upon academic standards. Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island NY, 2018

Documentation. This course provided the basic principles of documentation to establish medical necessity for treatments provided for patients. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2018

An Introduction to Communicable Diseases. This course provides basic information regarding the transmission of Hepatitis A, B, C and HIV. In addition, the course provides the chiropractor with vital information regarding procedures to prevent the transmission of these diseases. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2018

Georgia Law. This course provided current health care law within the state of Georgia as it pertains to Chiropractic. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2018

Introduction to Clinical Management of Traumatic Brain Injury and Stroke. Evaluation and therapeutic intervention of the patient experiencing orthostatic intolerance, dizziness, nausea, headache and migraine, sensory disturbances, balance issues, coordination issues, speech issues, memory loss, sleep disturbances, and visual disturbances. Information conveyed includes neurological system identification, faulty processes within the system, evaluation of eye movements, diagnosis, understanding of labs associated with chronic mild, moderate, or severe traumatic brain injury, including stroke. Additional information includes diagnostics and equipment to use for evaluation and patient compliance, including visual and ocular testing, balance assessment and posturography. BTB Health Systems, 2018

Functional Endocrinology. *Review of the physiology and the key concepts in functional endocrinology. Information is provided on the effects of acute and chronic stress/environmental factors on physiology, and the healing process. Review of the scientific literature regarding how various diets, botanicals, nutrients, and lifestyle and environmental factors can impact the endocrine system directly and indirectly. Topics addressed include menopause, perimenopause, andropause, menstrual cycles, adrenal function, fertility, hormone overload and clearance, microbiome-endocrine axis, essential fatty acids and hormones, blood glucose and hormones, obesogens, endocrine disruptors, hepatic and gut microbiome-hormone biotransformation and bone health. Additional information is provided on supporting healthy endocrine balance with or without the use of aggressive hormone replacement strategies. A review of human physiology is followed by clinical applications, general review of relevant laboratory tests, differential diagnoses, and how to identify cases that may need to be referred for further consultation and/or evaluation.* University of Bridgeport, Bridgeport, Connecticut, 2018

Pain. *Pain generating mechanisms are reviewed from the receptor to central processing. Central mechanisms for pain inhibition and facilitation are reviewed including prefrontal cortices, anterior cingulate and insular contributions to chronic pain with emphasis placed on the clinical syndromes associated with pain integration. Methodology specific to physical rehabilitation modalities and additional receptor-based activations are reviewed.* Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2018

Interprofessional Hospital Based Spine Care. *Trends in hospital and emergent care in the healthcare delivery system inclusive of policies, hospital staffing and current care paths for mechanical spine issues.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

Primary Spine Care; Credentials and Knowledge Base. *The credentials and knowledge base from an academia perspective when cooperatively treating in a collaborative environment inclusive of understanding pathology and mechanical spine issues.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

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 of the latest evidence in documenting mechanical issues.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

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.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

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. Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

Primary Spine Care; Connective Tissue Spinal Disc Permanent Pathology. *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.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

Primary Spine Care; Connective Tissue Pathology and Research. *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.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

Primary Spine Care; Bio-Neuro-Mechanical Lesions and 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 hypothalamo-pituitary-adrenal axis with the chiropractic spinal adjustment.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

Primary Spine Care; Ethics, Documentation and Research. *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.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

Primary Spine Care; 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 sequela to trauma in relationship to bulges, herniations, protrusions, extrusions and sequestrations. Aberrant spinal biomechanics and negative sequela to trauma.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

Primary Spine Care; 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.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

Primary Spine Care; Chiropractic Evidence. *Analyzing segmental pathology, adjusting vs. mobilization with cervicogenic headaches, Opioid alternatives and case management of mechanical spine pain based upon outcome studies.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

Primary Spine Care; 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.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

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 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 room, chiropractic, neurological, neurosurgical, physical medicine perspective.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 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, 2018

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.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 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, 2018

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 vertebrae, Schmorl's nodes and herniations. Spinal cord and canal compromise interpretation with management.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 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, 2018

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 based herniations are defined and illustrated. Central canal and cauda equina compromise interpretation with management.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 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, 2018

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. Comorbidities and complications of stenosis, pseudo-protrusions, cantilevered vertebrate, Schmorl's nodes and herniations are discussed. Central canal and cauda equina compromise interpretation with management are reviewed.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 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, 2018

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 sequelae, including bulge, herniation, protrusion, extrusion and sequestration.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 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, 2018

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.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 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, 2018

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.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, ACCME Joint Sponsorship with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, 2018

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.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY. 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, 2018

Primary Spine Care; Evidenced Based Care in a Collaborative Setting. *A literature-based model for collaborating with hospitals, medical primary care providers and specialists. Reviewing the documentation requirements to communicate the diagnosis, prognosis and treatment plans with medical entities and having the evidence as a basis for those recommendations.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

Primary Spine Care; Current Literature Standards of MRI Spine Interpretation. *Triage of trauma and non-trauma with advanced imaging and document the necessity. MRI Spine Interpretation basics inclusive of all types of herniations and bulges.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

Primary Spine Care; Spine Brain Connections with regards to Pain Pathways. *Neurological relationships of the spine and brain in managing chronic pain patients. Understanding how chronic pain negatively effects brain morphology and potential pathology. The role of chiropractic in preventing the loss of gray matter and the most recent evidence as outlined in indexed peer reviewed literature over the last 10 years verifying chiropractic's role in such.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

Primary Spine Care; Bio-Neuro-Mechanical Mechanism of the Chiropractic Spinal Adjustment. *The mechanical mechanism of the chiropractic spinal adjustment and its effects on biological and neurological pathways to the dorsal horn and brain and as well as how the brain processes the chiropractic spinal adjustment based upon the literature. The comparative effects of chiropractic and physical therapy from an outcome basis.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2018

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, 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, 2018

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, 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, 2018

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, 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, 2018

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.* 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, 2018

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 co-morbidities that have etiology in stroke inclusive of diabetes, coagulopathy, acquired and hereditary deficiencies.* 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, 2018

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.* 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, 2018

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, 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, 2018

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, 2018

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, 2018

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, 2018

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.* Cleveland University – Kansas City, Academy of Chiropractic Post Doctoral Division, Long Island, NY, 2018

Basic Case Management: *This course provided the basic principles of case management. It included discussion on evaluation, diagnosis, setting goals, treatments and outcome assessments.* Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2017

Chiropractic Ethics: *This course discussed personal, business, and professional ethics as they relate to chiropractic. A review of the American Chiropractic Association's and International Chiropractic Association's Code of Ethics was detailed. This course also discussed, in detail the Informed Consent Doctrine and the difference between an independent contractor and an employee.* Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2017

Georgia Jurisprudence: *This course provided current health care law within the state of Georgia as it pertains to Chiropractic.* Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2017

Professional Boundaries: *This course provided discussions regarding Professional Boundaries Defined; The Basis for the Doctor / Patient Relationship, Transference / Counter-transference, Terminology Associated with Sexual Misconduct, Boundary Violation vs. Boundary Crossing, Case studies, Doctor Profiles, Caution Signs, Guidelines for Prevention.* Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2017

Orthopedic Testing: *Clinical Grand Rounds, Integration of 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.* [Texas Chiropractic College or PACE Recognized by The Federation of Chiropractic Licensing Boards], 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, 2017

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.* [Texas Chiropractic College or PACE Recognized by The Federation of Chiropractic Licensing Boards], 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, 2017

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.* [Texas Chiropractic College or PACE Recognized by The Federation of Chiropractic Licensing Boards], 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, 2017

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.* [Texas Chiropractic College or PACE Recognized by The Federation of Chiropractic Licensing Boards], 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, 2017

Principles of Orthopedic Testing: *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.* [Texas Chiropractic College or PACE Recognized by The Federation of Chiropractic Licensing Boards], 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, 2017

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.* [Texas Chiropractic College or PACE Recognized by The Federation of Chiropractic Licensing Boards], 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, 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.* [Texas Chiropractic College or PACE Recognized by The Federation of Chiropractic Licensing Boards], 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, 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.* [Texas Chiropractic College or PACE Recognized by The Federation of Chiropractic Licensing Boards], 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, 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.* [Texas Chiropractic College or PACE Recognized by The Federation of Chiropractic Licensing Boards], 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, 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 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.* [Texas Chiropractic College or PACE Recognized by The Federation of Chiropractic Licensing Boards], 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, 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.* [Texas Chiropractic College or PACE Recognized by The Federation of Chiropractic Licensing Boards], 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, 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. [Texas Chiropractic College or PACE Recognized by The Federation of Chiropractic Licensing Boards], 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, 2017

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 human biomechanics. [Texas Chiropractic College or PACE Recognized by the Federation of Chiropractic Licensing Boards], 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, 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. [Texas Chiropractic College, PACE Recognized the by Federation of Chiropractic Licensing Boards,] 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, 2017

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. [Texas Chiropractic College, PACE Recognized by the Federation of Chiropractic Licensing Boards,] 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, 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. [Texas Chiropractic College, PACE Recognized by the Federation of Chiropractic Licensing Boards,] 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, 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. [Texas Chiropractic College, PACE Recognized by the Federation of Chiropractic Licensing Boards,] 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, 2017

Spinal Trauma Pathology: Triage, 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.* [Texas Chiropractic College, PACE Recognized by the Federation of Chiropractic Licensing Boards] 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, 2017

Head Trauma, Brain Injury and Concussion. *Brain and head physiology, brain mapping and pathology as a sequela to trauma. Traumatic brain injury, mild traumatic brain injury, axonal shearing, diffuse axonal injury and concussion are detailed in etiology and clinically. Clinical presentation, advanced diagnostic imaging and electrodiagnostics are detailed in analysis to create a differential diagnosis. Balance disorders that often occur as a result of trauma are also explored from clinical presentation to advanced imaging and differential diagnosis.* [Texas Chiropractic College or PACE Recognized by the Federation of Chiropractic Licensing Boards], Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2017

Patient Intake, History and Physical Examination. *Determining the etiology of the patient's complaints in a traumatic or non-traumatic scenario. Analyzing the patient's past history and review of systems along with the performance of a complete orthopedic, neurological and clinical examination to correlate both past, current and causality issues to formulate an accurate diagnosis, prognosis and treatment plan. There is an emphasis on triaging both the trauma and non-trauma patients.* [Texas Chiropractic College or PACE Recognized by the Federation of Chiropractic Licensing Boards], Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2017

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.* [Texas Chiropractic College or PACE Recognized by the Federation of Chiropractic Licensing Boards], Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2017

Neurodiagnostic Testing Protocols, Physiology and Indications for the Trauma Patient. *Electromyography (EMG), Nerve Conduction Velocity (NCV), Somatosensory Evoked Potential (SSEP), Visual Evoked Potential (VEP), Brain Stem Auditory Evoked Potential (BAER) and Visual Electronystagmography (V-ENG) interpretation, protocols and clinical indications for the trauma patient.* [Texas Chiropractic College or PACE Recognized by the Federation of Chiropractic Licensing Boards], Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2017

Mastering Brain Chemistry. *This course reviews the key concepts of brain chemistry, recognize patterns of imbalances, recognize cases that may need to be referred for further consult or evaluation, and improve overall clinical competency in neurochemical assessment. A review of brain neurochemistry, the effects of dysglycemia, reduced oxygenation and exercise on brain*

function. In addition, brain effects due to stress, essential fatty acids and gluten. Neurological autoimmunity is studied as well as effects of various environmental toxins on brain function and health. A critical evaluation of neurotransmitter testing, neurodegenerative mechanisms related to alpha-synuclein, beta-amyloid, tau proteins, etc. Review of association between mitochondrial uncoupling and neurodegenerative disorders, nitric oxide isomer expression and its role in neuroprotection and neurodegeneration. Review of blood glucose connection to brain and degeneration, brain gut axis and brain immune axis. Review of acetylcholine, dopamine, serotonin, GABA and catecholamine function and effect in brain. University of Bridgeport, Bridgeport, Connecticut, 2017

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.* [Texas Chiropractic College or PACE Recognized by the Federation of Chiropractic Licensing Boards], Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2017

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.* [Texas Chiropractic College or PACE Recognized by the Federation of Chiropractic Licensing Boards], Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2017

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.* [Texas Chiropractic College or PACE Recognized by the Federation of Chiropractic Licensing Boards], Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2017

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.* [Texas Chiropractic College or PACE Recognized by the Federation of Chiropractic Licensing Boards], Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2017

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 sequela, 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.* [Texas Chiropractic College or PACE Recognized by the Federation of Chiropractic Licensing Boards], 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, 2017

Healthcare Compliance: *This course provided protocols for the Health Insurance Portability and Accountability act that provides data privacy and security provisions for safeguarding medical information.* Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2016

Chiropractic Ethics: *This course discussed personal, business, and professional ethics as they relate to chiropractic. A review of the American Chiropractic Association's and International Chiropractic Association's Code of Ethics was detailed. This course also discussed, in detail the Informed Consent Doctrine and the difference between an independent contractor and an employee.* Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2016

Georgia Jurisprudence: *This course provided current health care law within the state of Georgia as it pertains to Chiropractic.* Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2016

OSHA Standards for Blood Borne Pathogens, Ed. 3. *This provided doctors with basic information regarding the transmission of Hepatitis B and HIV, in addition, information regarding procedures to prevent the transmission of these diseases.* Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2016

Comprehensive Examination of the Central Nervous System. *Detailed examinations of the cerebral cortex, cerebellum, and brainstem are presented in this course. Regions covered include examination of lobes of the brain, vestibular system and cerebellum, brainstem and integrative systems of the brain.* National University of Health Sciences, Lombard, Illinois. International Association of Functional Neurology and Rehabilitation, Gilbert, Arizona, 2016

Mastering Blood Chemistry. *Subjects included detailed explanations of metabolic pathways and biomarkers such as electrophoresis, peripheral blood smear, genotype testing, etc. A review of the pH bicarbonate buffering system and the role it plays with the anion gap, electrolytes, and metabolism. A comprehensive system to evaluate transaminase and liver markers, detailed understanding of acute-phase protein reactants, markers, and mechanisms of influence, how to identify intestinal permeability and understand the role it plays in other blood chemistry mechanisms and the relationship among the endocrine, hepatic, immune, and other bodily systems when evaluating blood chemistry is presented.* University of Bridgeport, Bridgeport, Connecticut, 2016

Central Vestibular Disorders and Cerebellum Disorders with Clinical Applications. *Subjects include clear clinical guidelines to distinguish peripheral versus central vestibular disorders with exam forms and flow charts. The emphasis is on the role the cerebellum plays in brain function and how to identify cerebellum dysfunction and disease. This course provides a detailed review of metabolic, autoimmune, immunological, and vascular mechanisms that promote*

disease of the cerebellum. This course also provides a clear understanding of cerebellum dysfunction symptoms; examination findings throughout a detailed neurological exam; and treatment modalities involving neurological rehabilitation and dietary, nutritional, and lifestyle applications. This course reviews central vestibular neurophysiology and anatomy, differential diagnosis of central vestibulopathy, treatment applications for central vestibulopathy, case studies and workshop. National University of Health Sciences, Lombard, Illinois. International Association of Functional Neurology and Rehabilitation, Gilbert, Arizona, 2016

Identification of Most Common Neurodegenerative Diseases with Clinical Applications. This course presents neurodegenerative diseases such as Parkinsonism, dementia, and other protein aggregation disorders impact the aging population. This course teaches clinicians how to identify early patterns of neurodegenerative diseases and implement strategies to prevent progression and improve function. This course presents a detailed discussion of metabolic, immunologic, vascular, pathogenic, and toxicological mechanisms, along with clinical strategies to address these factors. National University of Health Sciences, Lombard, Illinois. International Association of Functional Neurology and Rehabilitation, Gilbert, Arizona, 2016

Updates; Initial Clinical Survey. This course presents methods of evaluating neurological function in a patient. Evaluations of handwriting from office forms, gait analysis, facial tone, eye and head position, pupil responses, speech, muscle tone, limb angulations, and other signs in combination with a medical history provide significant information to identify locations of impaired brain function. This course emphasizes determining the locus of neurological impairments when provided with a patient's chief complaint. This course teaches and reinforces strategies in identifying brain status from initial visual survey, gait analysis, from a patient's ability to provide history and speech. National University of Health Sciences, Lombard, Illinois. International Association of Functional Neurology and Rehabilitation, Gilbert, Arizona, 2016

Functional Neurology Anatomy and Central Neurological Pathways. This course presents a detailed review of key anatomical pathways associated with specific clinical findings. The goal of this course is to learn how to immediately correlate history and examination findings with specific pathways. Discussion includes gait, posture, movement, tremor, postural instability, vertigo, memory, motor learning, pupil responses, eye movements, cognitive processing, etc. There is review of brain regions and functions, brain ascending and descending pathways, review of brain central pathways, clinical presentations of each pathway. National University of Health Sciences, Lombard, Illinois. International Association of Functional Neurology and Rehabilitation, Gilbert, Arizona, 2016

Professional Boundaries: This course provided discussions regarding Professional Boundaries Defined; The Basis for the Doctor / Patient Relationship, Transference / Counter-transference, Terminology Associated with Sexual Misconduct, Boundary Violation vs. Boundary Crossing, Case studies, Doctor Profiles, Caution Signs, Guidelines for Prevention. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2015

Chiropractic Ethics: This course discussed personal, business, and professional ethics as they relate to chiropractic. A review of the American Chiropractic Association's and International Chiropractic Association's Code of Ethics was detailed. This course also discussed, in detail the Informed Consent Doctrine and the difference between an independent contractor and an employee. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2015

Georgia Jurisprudence: This course provided current health care law within the state of Georgia as it pertains to Chiropractic. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2015

Spine Research Institute of San Diego Annual Scientific Conference. A review of the entire year of scientific research and publication from clinical medicine and automotive safety engineering, as well as research coming directly from Spine Research Institute of San Diego and its research affiliate, the Center for Research into Automotive Safety and Health. In addition to the literature indexed by the National Library of Medicine, the conference reviews literature published in the Annual Association for the Advancement of Automotive Medicine (AAAM) Scientific Program, the Annual Conference of the International Research Council on the Biomechanics of Impact (IRCOBI), the Annual SAE Stapp Car Crash Conference (and SAE general publications), the Annual International Traffic Medicine Association (ITMA) Conference, and the Annual International Technical Conference on the Enhanced Safety of Vehicles (ESV). Spine Research Institute of San Diego, Coronado, California, 2015

Motor Systems. Discussion of the structure and function of the major volitional and non-volitional motor pathways. Function of the basal ganglia, cerebral cortex, cerebellum, brainstem and spinal cord are discussed in relationship to the human motor system. Applications are presented specific to the diagnosis and treatment of both central and peripheral pathology. Non pharmaceutical neurological rehabilitation procedures are presented. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2015

Head and Face Pain. The most common syndromes involving head pain from migraines to trigeminal neuralgia are reviewed. Afferent pain pathways from the face are reviewed in regards to their structure and function. Applications specific to the facial pain sufferer are presented. Non pharmaceutical neurological rehabilitation procedures are presented. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2015

Pain. Pain generating mechanisms are reviewed from the receptor to central processing. Central mechanisms for pain inhibition and facilitation are reviewed with emphasis placed on the clinical syndromes associated with pain integration. Non pharmaceutical neurological rehabilitation procedures are presented. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2015

Applying Cutting Edge Research to Everyday Practice. This course presents a compilation of research from indexed medicus regarding prevalence, causation and risk to benefit ratio of treatments regarding spinal related disorders. Life University West, San Jose, California, 2015.

Healthcare Compliance: This course provided protocols for the Health Insurance Portability and Accountability act that provides data privacy and security provisions for safeguarding medical

information. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2014

Documentation: This course provided the basic principles of documentation to establish medical necessity for patient treatment. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2014

Principles of Impairment Rating and Forensic Reporting. Essentials of documentation, record keeping, depositions, arbitrations, testifying in court, preparation for cross examination, when and how to use medical photography. Spine Research Institute of San Diego, Coronado, California, 2014

Neurology Board Review. Review of current neurological case history, central and peripheral neurological examination, diagnoses and non-pharmacological rehabilitation. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2014

Cerebellum. Review of the major afferent and efferent projections of the cerebellum as well as the central/peripheral consequences of cerebellar pathology. The relationship of labyrinthine integration to ocular movement is discussed in detail with emphasis on its clinical application. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2014

Mastering Brain Chemistry. This course reviews the key concepts of brain chemistry, recognize patterns of imbalances, recognize cases that may need to be referred for further consult or evaluation, and improve overall clinical competency in neurochemical assessment. A review of brain neurochemistry and neurodegenerative disorders along with critical evaluation of neurotransmitter testing, neurodegenerative mechanisms related to alpha-synuclein, beta-amyloid, tau proteins, etc. Review of association between mitochondrial uncoupling and neurodegenerative disorders, nitric oxide isomer expression and its role in neuroprotection and neurodegeneration. Review of blood glucose connection to brain and degeneration, brain gut axis and brain immune axis. Evaluation of dietary peptides and gluten sensitivity in neurological disorders. University of Bridgeport, Bridgeport, Connecticut, 2014

Healthcare Compliance: This course provided protocols for the Health Insurance Portability and Accountability act that provides data privacy and security provisions for safeguarding medical information. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2013

Documentation: This course provided the basic principles of documentation to establish medical necessity for patient treatment. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2013

Georgia Jurisprudence: This course provided current health care law within the state of Georgia as it pertains to Chiropractic. Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2013

Spine Research Institute of San Diego Annual Scientific Conference. A review of the entire year of scientific research and publication from clinical medicine and automotive safety engineering, as well as research coming directly from Spine Research Institute of San Diego and its research

affiliate, the Center for Research into Automotive Safety and Health. In addition to the literature indexed by the National Library of Medicine, the conference reviews literature published in the Annual Association for the Advancement of Automotive Medicine (AAAM) Scientific Program, the Annual Conference of the International Research Council on the Biomechanics of Impact (IRCOBI), the Annual SAE Stapp Car Crash Conference (and SAE general publications), the Annual International Traffic Medicine Association (ITMA) Conference, and the Annual International Technical Conference on the Enhanced Safety of Vehicles (ESV). Spine Research Institute of San Diego, Coronado, California, 2013

Autoimmune Signaling and Glucose Dysregulation. This course includes discussion of the associations between inflammatory mechanisms and autoimmunity development. Discussion also includes clinical presentations of inflammatory mechanisms and autoimmunity and non-pharmacological options for decreasing inflammatory mediators and various components of over active immune function. University of Bridgeport, Bridgeport, Connecticut, 2013

Neuroendocrine and Immune Response to Toxic Exposure. Current research and physiology is presented concerning various environmental toxins and their relationships to creating dysfunction of human neuroendocrine-immune system. Various metabolic testing is reviewed, interpretation of respective tests as well as modes of reducing toxic exposure and non-pharmacological options for enhancing neuroendocrine-immune function. University of Bridgeport, Bridgeport, Connecticut, 2013

Autonomic Nervous System. Emphasis placed on the structure and function of the ANS in relationship to respiratory, cardiovascular, gastrointestinal, and genitourinary function and pathology. Autonomic concomitants associated with central and peripheral lesions were reviewed. Clinical methodology involving diagnosis and treatment of neurological dysfunction of the ANS was reviewed. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2013

Understanding Brain Function and the Saccadic System. Topics include structural and functional anatomy and neurophysiological relationships of central and peripheral systems as it relates to saccadic eye movements. Disorders of saccadic function are reviewed and non-pharmaceutical neurological rehabilitation procedures are presented. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2013

Role of Vestibular and Optokinetic System. Topics include structural and functional anatomy and neurophysiological relationships of peripheral vestibular function, midline spinal afferentation and the integration with central systems as this neurophysiology relates to production and function of pursuits, saccades and cerebellar relationships of eye movements. Disorders of this function are reviewed and non-pharmaceutical neurological rehabilitation procedures are presented. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2013

Eye Movements and Brain Function. Topics include introduction of structural and functional anatomy and neurophysiological relationships of eye movements and related brain regions. Disorders of function are reviewed and non-pharmaceutical neurological rehabilitation procedures are presented. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2013

Introduction to the Diagnosis of Mild Traumatic Brain Injury/Concussion. *Topics include an overview of prevalence, causation and relevant structural alterations of brain tissue and chemistry and resultant functional disorders of brain injury from concussion.* Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2013

Applying Cutting Edge Research to Everyday Practice. *This course presents a compilation of research from indexed medicus regarding prevalence, causation and risk to benefit ratio of treatments regarding spinal related disorders.* Life University West, San Jose, California, 2013

Documentation: *This course provided the basic principles of documentation to establish medical necessity for patient treatment.* Providers of Approved Education through the Federation of Chiropractic Licensing Boards and Life University, Marietta, Georgia, 2012

Complexity of Gluten Sensitivity. *Topics include definition of gluten sensitivity, reasons for increased prevalence of gluten sensitivity, compare and contrast of gluten sensitivity and celiac disease, impacts of gluten sensitivity on human health, gluten immunochemistry, gluten sensitivity lab testing, gluten cross reactivity and lab testing and non-pharmacological options for reducing gluten sensitivity.* University of Bridgeport, Bridgeport, Connecticut, 2012

Brain Regulatory Systems. *Discussion includes neuroimmunology of cortisol and melatonin circadian rhythm physiology with regards to hippocampal, pineal, mesencephalic modulation. In addition, discussion of nitric oxide and glutathione contributions to autoimmunity and non-pharmacological options for enhancing human function in this regard.* University of Bridgeport, Bridgeport, Connecticut, 2012

Peripheral Nerve Disorders and Neurophysiologic Testing. *A review of peripheral nerve injury, entrapment, and diseases illustrating peripheral nerve dysfunction. Neurophysiologic testing of peripheral nerves including nerve conduction velocity, late responses, and needle electromyography. Case studies were presented correlating neurophysiologic testing with the nerve dysfunction.* Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2012

Lesions of Extensor Mechanism and External Knee. *Orthopedic examination and testing of the knee as it pertains to injury and dysfunction of external knee complex. Diagnosis and non-pharmacological treatments are reviewed.* National University of Health Sciences, Lombard, Illinois, 2012

Neurochemistry Case Studies. *Subjects included detailed explanations of metabolic pathways and biomarkers such as electrophoresis, peripheral blood smear, genotype testing, etc. A review of the pH bicarbonate buffering system and the role it plays with the anion gap, electrolytes, and metabolism. A comprehensive system to evaluate transaminase and liver markers, detailed understanding of acute-phase protein reactants, markers, and mechanisms of influence, how to identify intestinal permeability and understand the role it plays in other blood chemistry mechanisms and the relationship among the endocrine, hepatic, immune, and other bodily systems when evaluating blood chemistry is presented.* Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2011

Movement Disorders I. *This program revealed current facts on the functional approach to the evaluation of movement disorders as well as definitions and overviews of the following; anatomy*

and physiology of the basal ganglia from a functional point of view, syndromes of hypomobility and akinesia addressing the understanding of joint position error and fixation in the axial skeleton and extremities. A functional approach to the evaluation of tremor, chorea, myoclonus, hemiballismus, myoclonic syndromes, gait disturbances, Parkinson's disease, tic syndromes. A functional approach to the evaluation of dystonia including primary and secondary dystonia as well as conditions of writer's cramp's, spasmodic torticollis and other inherited dystonia. An overview of non-pharmacological applications to reduction of certain movement disorders including, saccadic and pursuit eye movements, soft tissue manipulation, vestibular ocular responses to angular and translational movements, cerebellar based treatments, neostriatal based treatments, frontal lobe based treatments, parietal lobe based treatments, occipital lobe based treatments, substantia nigra based treatments, mesencephalic based treatments, pontine based treatments, medullary based treatments, spinal cord based treatments. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2011

Spine Research Institute of San Diego Annual Scientific Conference. A review of the entire year of scientific research and publication from clinical medicine and automotive safety engineering, as well as research coming directly from Spine Research Institute of San Diego and its research affiliate, the Center for Research into Automotive Safety and Health. In addition to the literature indexed by the National Library of Medicine, the conference reviews literature published in the Annual Association for the Advancement of Automotive Medicine (AAAM) Scientific Program, the Annual Conference of the International Research Council on the Biomechanics of Impact (IRCOBI), the Annual SAE Stapp Car Crash Conference (and SAE general publications), the Annual International Traffic Medicine Association (ITMA) Conference, and the Annual International Technical Conference on the Enhanced Safety of Vehicles (ESV). Spine Research Institute of San Diego, Coronado, California, 2011

Principles of Impairment Rating and Forensic Reporting. Specifics of documentation, fundamentals of expository scientific writing, narrative report specifics, incorporating outcomes assessment and disability instruments into reports, application of AMA guidelines in personal injury and forensic practice, rebuttal methods and special software applications for managing data, information and graphics. Spine Research Institute of San Diego, Coronado, California, 2011

Whiplash, Advanced Topics: Fundamental Science. This course discusses the physics of motion as it relates to energy transference into human tissue, analysis of brain, neck and cervical spine trauma mechanisms, current research concerning ligament, muscle, tendon, joint capsule and disc injuries due to motor vehicle collisions, clinical syndromes of whiplash associated disorders/cervical acceleration deceleration disorders, risk assessments in modern forensic practice. Spine Research Institute of San Diego, Coronado, California, 2011

Medico-legal Fundamentals for Practitioners and Forensic Experts. Essentials of documentation and records keeping, medical photography, depositions, testifying in court, using models, charts, diagrams, movies, Daubert and Frye rules, Colossus and federal rules of evidence. Spine Research Institute of San Diego, Coronado, California, 2010

Management in Personal Injury and Forensic Documentation. Auto crash reconstruction in low speed crashes, historical documentation in personal injury and forensic medicine, examination of whiplash and traumatic brain injury, special laboratory methods, radiographic examination

and analysis, CT examination, MRI examination, electro diagnostics, rendering a diagnosis and impression in the personal injury case, soft tissue healing times, designing a treatment plan, applications of daily living, chiropractic manipulation, deep tissue massage, physiological therapeutics for best outcomes. Spine Research Institute of San Diego, Coronado, California, 2010

Functional Blood Chemistry Analysis. Introduction to blood chemistry concepts and principles with compared and contrast single test versus patterns of blood chemistry. How to evaluate a complete blood count, chemistry-24 and thyroid panel and lipid profile and when to order special testing, studies and when to refer. Special focus on blood glucose, red blood cells and the cardiovascular, immune, thyroid, renal and hepatic systems. University of Bridgeport, Bridgeport, Connecticut, 2010

Functional Endocrinology. Review of the physiology and the key concepts in functional endocrinology. Information on the effects of acute and chronic stress/environmental factors on physiology, and the healing process. Review of the scientific literature regarding how various diets, botanicals, nutrients, and lifestyle and environmental factors can impact the endocrine system directly and indirectly. Additional information is provided on supporting healthy endocrine balance with or without the use of aggressive hormone replacement strategies. A review of human physiology is followed by clinical applications, general review of relevant laboratory tests, differential diagnoses, and how to identify cases that may need to be referred for further consultation and/or evaluation. University of Bridgeport, Bridgeport, Connecticut, 2010

Vestibular Rehabilitation II. Course work is presented concerning epidemiology of vertigo and imbalance, peripheral vestibular disorders, central vestibular disorders, infectious diseases in vestibular disorders, immune-mediated diseases in vestibular disorders, toxic/metabolic/vascular factors associated with vestibular disorders, tumors associated with dizziness and imbalance, vestibular associations with migraine, concussion. History of the dizzy patient, examination, laboratory testing, functional imaging of vestibular disorders and differential diagnosis is presented. Course work also includes application of vestibular rehabilitation to conditions such as musculoskeletal pain syndromes, conditions of cognition, mild traumatic brain injury and concussion. Related case studies and presented. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2010

Vestibular Rehabilitation I. Course work is presented concerning peripheral and central vestibular anatomy and physiology also including external, middle and inner ear vestibular nerve, nuclei, subnuclei, vestibulocerebellum, vestibular thalamus, vestibular cortical regions and vestibular vasculature. Fundamentals of eye movements, nystagmus, pursuits, saccades, convergence, optokinetic nystagmus, velocity storage, rotational vestibulo-ocular reflexes, translational vestibuloocular reflexes and vestibulospinal tract function. Fundamentals of extra-vestibular postural responses and vestibuloautonomic responses are covered. Course work also includes application of vestibular rehabilitation to conditions such as musculoskeletal pain syndromes, conditions of cognition, mild traumatic brain injury and concussion. Related case studies are presented. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2010

Neurological Examination. *Coursework included updates and review of established principles of obtaining medical history of the neurological challenged patient. Physical examination procedures are reviewed and practiced as it pertains to examination of the peripheral central systems.* Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2010

Neurotransmitters and Brain. *Review of relevant neuroscience, neuron theory, brain modulation, plasticity and long-term potentiation. Discussion of importance of neurotransmitters, how they are synthesized, factors that impair neurotransmitter production, the validity and non-validity of neurotransmitter testing, symptoms of neurotransmitter imbalances, the application of a neurotransmitter assessment form, and review the peer-reviewed literature regarding compounds that enhance neurotransmitter and brain function. Review of the excitotoxic model for neurodegeneration and review the multitude of variables that may stress physiology modulation as it relates to the orchestrations of adrenal, neurotransmitter, cytokine, blood glucose and immune integration. The connecting influences of the immune system on the brain, and the influences of the nervous system on the immune system. Discussion of glial cell activation, blood brain barrier infiltration, gut associated lymphoid tissue activation, and the influence of cytokines on the brain. Additionally, discussion of influences of hormones on the brain and the brain on the endocrine system. Detailed review of neurotransmitter, cytokine and hormone influences on thyroid disorders.* University of Bridgeport, Bridgeport, Connecticut, 2009

Thyroid, *Coursework in the concepts of thyroid physiology, assessment and clinical applications. Discussion of 24 common and newly highlighted patterns in thyroid imbalances, thyroid-immune-nervous system-endocrine crosstalk and its clinical implications. Impact thyroid hormones have on every major physiological process. Step by step thyroid examination exam and clinical case studies.* University of Bridgeport, Bridgeport, Connecticut, 2009

Functional Blood Chemistry Analysis. *Introduction to blood chemistry concepts and principles with compared and contrast single test versus patterns of blood chemistry. How to evaluate a complete blood count, chemistry-24 and thyroid panel and lipid profile and when to order special testing, studies and when to refer. Special focus on blood glucose, red blood cells and the cardiovascular, immune, thyroid, renal and hepatic systems.* University of Bridgeport, Bridgeport, Connecticut, 2009

Clinical Nutrition. *Presentation of biochemical and neurophysiological associations of the following; vitamin and minerals, carbohydrates, fats, proteins, hormones, digestion, neurotransmitters and their dysregulation effects on central and peripheral nervous system function.* Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2009

Diplomate Eligible, American Chiropractic Neurology Board, Temple, Texas, 2006-Present

Clinical Applications I. *Presentation of a comprehensive examination of peripheral and central nervous system and non-pharmaceutical rehabilitative procedures to enhance neurological*

function. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2006

Clinical Applications II. Presentation of a comprehensive examination of peripheral and central nervous system and non-pharmaceutical rehabilitative procedures to enhance neurological function. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2006

Motor Systems. Discussion of the structure and function of the major volitional and non-volitional motor pathways. Function of the basal ganglia, cerebral cortex, cerebellum, brainstem and spinal cord are discussed in relationship to the human motor system. Applications specific to the diagnosis and treatment of both central and peripheral pathology are covered. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2006

Pain. Pain generating mechanisms are reviewed from the receptor to central processing. Central mechanisms for pain inhibition and facilitation are reviewed with emphasis placed on the clinical syndromes associated with pain integration. Methodology specific to chiropractic modalities are reviewed. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2006

Head and Face Pain. The most common syndromes involving head pain from migraines to trigeminal neuralgia are reviewed. Afferent pain pathways from the face will be reviewed in regards to their structure and function. Applications specific to the facial pain sufferer are presented. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2006

Cerebellum. Review of the major afferent and efferent projections of the cerebellum as well as the central/peripheral consequences of cerebellar pathology. The relationship of labyrinthine integration to ocular movement is discussed in detail with emphasis on its clinical application. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2006

Neurophysiologic Testing. A review of peripheral nerve injury, entrapment, and diseases will illustrate peripheral nerve dysfunction. The neurophysiologic testing of peripheral nerves including nerve conduction velocity, late responses, and needle electromyography are presented. Case studies are presented to correlate the neurophysiologic testing with the nerve dysfunction. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2005.

Neurological Imaging. Presentation of a comprehensive inventory of diagnostic imaging specific to the neurological system. Methodology of interpretation of testing and practical applications complimentary to the neurological examination. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2005

Sensory Systems. The major sensory pathways are discussed specific to their structure and function. Central processing of sensory information is reviewed in relationship to thalamic and cortical integration. Disorders of the sensorium are reviewed and methodology introduced to aid in differentiating these disorders from central and peripheral origins. Applications specific to the treatment of the sensorium are explored. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2004

Pain. Pain generating mechanisms are reviewed from the receptor to central processing. Central mechanisms for pain inhibition and facilitation are reviewed with emphasis placed on the clinical syndromes associated with pain integration. Methodology specific to chiropractic modalities are reviewed. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2004

Head and Face Pain. The most common syndromes involving head pain from migraines to trigeminal neuralgia are reviewed. Afferent pain pathways from the face will be reviewed in regards to their structure and function. Applications specific to the facial pain sufferer are presented. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2004

Spinal Cord. Detailed review of the structure and function of the spinal cord with emphasis on clinical syndromes. Also presented is structured methodology to differentiate between various clinical syndromes directly and or indirectly involving the spinal cord. Applications in the treatment of the spinal cord injured patient is reviewed. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2004

Reflexogenic Systems. Review of the structure and function of spinal cord reflexes from monosynaptic to cross cord reflexes. Clinical applications are emphasized in relationship to the use of modalities in the treatment of central and peripheral based disorders of muscle tone. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2004

Autonomic Nervous System. Emphasis placed on the structure and function of the autonomic nervous system in relationship to respiratory, cardiovascular, gastrointestinal, and genitourinary function and pathology. Autonomic concomitants associated with central and peripheral lesions are reviewed. Clinical methodology involving diagnosis and treatment of neurological dysfunction of the ANS is reviewed. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2004

Cranial Nerves. Complete review of the structure and function of the cranial nerves with emphasis on their clinical syndromes. Applications and procedures specific to this area of the nervous system are covered in detail both didactically and practically. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2004

Lobes of the Brain. Review the basic functions and structures associated with the frontal, parietal, temporal and occipital lobes. Methodology involving the use of optokinetic stimulations and other brain based diagnostics and therapeutics are reviewed. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2004

Neurological Diagnosis. Presentation of a structured format in approaching the neurological examination. Emphasis is placed on reviewing the most common syndromes one may encounter during the practical portion of the exam as well as methodology to understand and apply non-Cartesian logic. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2004

Neuromuscular Applications. Emphasis on the structure and function of the motor system in relationship to receptor activation. The relationship between brain/muscle spindle sensitivity/gain and muscle tone is presented. Methodology concerning brain based activation of

the neuromuscular system is presented. Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2004

Peripheral Nervous System. *Structure and function of the peripheral nervous system is reviewed with emphasis on the clinical syndromes most commonly associated with lesions in the system. The central consequences of such lesions are discussed in relationship to neuronal function thus developing new methodologies of diagnosis and treatment.* Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2004

Neuron Theory and Receptor Activation. *Advanced components of neuronal structure and activity with emphasis on the relationship between environmental potentials and their effects on the central nervous system.* Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2003

Introduction to Functional Neurology and Receptor Based Rehabilitation. *Coursework included an overview of structural and functional components and associations of the peripheral and central nervous system and potential rehabilitative applications to neurological receptors. The potential effects of receptor activation on human nervous system function and health.* Carrick Institute of Clinical Neuroscience and Rehabilitation, Cape Canaveral, Florida, 2003

Nutritional Case History and Physical Exam. *Specifics of history and physical exam as it pertains to nutritional deficiencies in human kind. Examples being dietary questionnaires, digestive function, observance of sclera, integumentary system and palpatory findings.* Texas Chiropractic College, Pasadena, Texas, 2003

Developmental and Functional Neuroanatomy. *Course work includes embryological anatomy, physiology and development of the human nervous system as well as functional relationships involved.* Parker College of Chiropractic, Dallas, Texas, 2002

Peripheral Nervous System. *Structure and function of the peripheral nervous system is reviewed with emphasis on the clinical syndromes most commonly associated with lesions in the system. The central consequences of such lesions are discussed in relationship to neuronal function thus developing new methodologies of diagnosis and treatment.* Parker College of Chiropractic, Dallas, Texas, 2002

Central Nervous System. *Detailed examinations of the cerebral cortex, cerebellum, and brainstem are presented in this course. Regions covered include examination of lobes of the brain, vestibular system and cerebellum, brainstem and integrative systems of the brain.* Parker College of Chiropractic, Dallas, Texas, 2002

Neurological Examination and Technique. *Course work includes examination of the human central and peripheral nervous system and associated diagnostic imaging related to specific neurological dysfunction.* Parker College of Chiropractic, Dallas, Texas, 2002

Diagnostic Procedures. *Course work includes examination of the human central and peripheral nervous system and associated diagnostic imaging related to specific neurological dysfunction.* Parker College of Chiropractic, Dallas, Texas, 2002

Neuro-Trauma and Stroke. *Course work includes recent studies on neuro-trauma and stroke. Examination and imaging procedures relevant to these specific subjects and non-pharmacological rehabilitation strategies.* Parker College of Chiropractic, Dallas, Texas, 2002

Validating Chiropractic; Joint Neurology and Clinical Outcome Studies. *This course presents a compilation of research from indexed medicus regarding joint neurology, prevalence, causation and risk to benefit ratio of treatments regarding spinal related disorders.* Life University West, San Jose, California, 2002

Nutrition for Soft Tissue Injuries and Disorders. *Course work included anatomy, biomechanical contributions and cellular biology of ligament, tendon, muscle, joint capsule and cartilage. Common associated neuromusculoskeletal disorders and potential non pharmaceutical supplementation and dietary suggestions for enhancement of respective soft tissue dysfunction.* Texas Chiropractic College, Pasadena, Texas, 2001

Activator Methods Manipulation Technique. *Class work included procedures of diagnosis of spinal regions which may benefit from chiropractic manipulation/adjustment. Additionally specific applications of spring-loaded hand-held device in joint tissue fast stretch manipulation of which this type of hand-held device delivers.* Activator Methods, Phoenix, Arizona. Texas Chiropractic College, Pasadena Texas. 2001

Validating Chiropractic; Joint Neurology and Clinical Outcome Studies. *This course presents a compilation of research from indexed medicus regarding joint neurology, prevalence, causation and risk to benefit ratio of treatments regarding spinal related disorders.* Life University West, San Jose, California, 2000

Extremity Manipulation of the TMJ, Ribs, Shoulder. *Class work included procedures of diagnosis dysfunction of the temporomandibular joint, thoracic cage and shoulder complex which may benefit from chiropractic manipulation/adjustment.* Life University, Marietta, Georgia, 2000

New Research in Whiplash and Spinal Trauma. *This course discusses the physics of motion as it relates to energy transference into human tissue, analysis of brain, neck and cervical spine trauma mechanisms, current research concerning ligament, muscle, tendon, joint capsule and disc injuries due to motor vehicle collisions, clinical syndromes of whiplash associated disorders/cervical acceleration deceleration disorders. Also reviewed were current research on spinal trauma and the direct and indirect effects on central neurological function.* Parker College of Chiropractic, Dallas, Texas, 2000

Pain Mechanisms and Spinal Manipulation. *Class work includes anatomy and physiology of peripheral pain mechanoreceptors, central integration of pain signaling and resultant effects centrally. In addition, effects of spinal manipulation on pain processing centrally.* Texas Chiropractic College, Pasadena, Texas, 1999

Joint Dysfunction Complex. *Class work includes anatomy, neurophysiology and inflammatory mediators of external and internal joint tissues and the resultant activation of peripheral nociceptors.* Texas Chiropractic College, Pasadena, Texas, 1999

Neurophysiology/Upper Cervical Complex. *Class work includes anatomy and physiology of muscle, tendon, ligament and joint capsule and resultant neurophysiological activation of*

respective mechanoreceptors and central integration with respect to the occipital and atlantoaxial region of the spine. Texas Chiropractic College, Pasadena, Texas, 1999

Lumbar Spine. Class work includes anatomy and physiology of muscle, tendon, ligament and joint capsule and resultant neurophysiological activation of respective mechanoreceptors and central integration in producing biomechanics and pain activation regarding the lumbar spine. Texas Chiropractic College, Pasadena, Texas, 1999

Soft Tissue Injury Cases in Texas. This course discusses the physics of motion as it relates to energy transference into human tissue, analysis of cervical spine trauma mechanisms, current research concerning ligament, muscle, tendon, joint capsule and disc injuries due to motor vehicle collisions, clinical syndromes of whiplash associated disorders. Also reviewed were the current landscape of forensics, legal documentation and records keeping, medical photography, depositions, testifying in court, using models, charts, diagrams. Texas Chiropractic College, Pasadena, Texas, 1999

Updated Neurological Evaluation. Course work includes examination of the human central and peripheral nervous system and associated diagnostic imaging related to specific neurological dysfunction. Texas Chiropractic College, Pasadena, Texas, 1999

Validating Chiropractic; Joint Neurology and Clinical Outcome Studies. This course presents a compilation of research from indexed medicus regarding joint neurology, prevalence, causation and risk to benefit ratio of treatments regarding spinal related disorders. Life University West, San Jose, California, 1998

Restoring Musculoskeletal Integrity. Course work includes examination and the musculoskeletal system as it pertains to skeletal alignment, active, passive and paraphysiological space ranges of motion. In addition, various passive and active rehabilitation parameters are taught with the goal of enhancing spinal neuromusculoskeletal function. Texas Chiropractic College, Pasadena, Texas, 1997

Validating Chiropractic; Joint Neurology and Clinical Outcome Studies. This course presents a compilation of research from indexed medicus regarding joint neurology, prevalence, causation and risk to benefit ratio of treatments regarding spinal related disorders. Life University West, San Jose, California, 1996

Clinical Neurology. Class work includes anatomy and neurophysiology of muscle, tendon, ligament and joint capsules and their effect on peripheral and central neurophysiology. Texas Chiropractic College, Pasadena, Texas, 1995

Certified Chiropractic Sports Physician. Subject matter included topics such as concepts of exercise physiology, clinical biomechanics, sports nutrition, adjunctive therapies and procedures, diagnostic imaging for sports injuries, cardiopulmonary resuscitation, emergency procedures, review of spinal and extremity orthopedic testing, medico-legal considerations. American Board of Chiropractic Sports Physicians, Texas Chiropractic College, Pasadena Texas, 1994

Clinical Neurology. *Class work includes anatomy and neurophysiology of muscle, tendon, ligament and joint capsules and their effect on peripheral and central neurophysiology.* Texas Chiropractic College, Pasadena, Texas, 1994

Cox Low Back Technique. *Class work includes diagnostic procedures of evaluating spinal dysfunction and the application of flexion distraction technique to enhance spinal function, joint and disc nutrition and neurophysiology.* Texas Chiropractic College, Pasadena, Texas, 1993