

Dr. David Ginsberg, FSBT.CPEP, CPP

423 Williamsburg ave., Geneva, IL, 60134

Phone: 630-232-6400

Fax: 630-232-6404

Ginsbergsppc@gmail.com

<http://spinepainpc.com>

SELECTED OCCUPATIONAL HISTORY

President/Doctor Chiropractic, Spine Pain Performance Center/Ginsberg Chiropractic, GENEVA, IL, 1994 - Present

Injury Consultant, St. Charles Gymnastics Academy, St. Charles, Illinois, 2008 - 2017

Medical Staff, AVP Beach Volleyball, Chicago, Illinois, 2016 - 2016

Team Chiropractor, Fox Valley Eagles Football Team, St. Charles, Illinois, 2013 - 2013

Injury Consultant, Eclipse Select Soccer Club, Geneva, Illinois, 2011 - 2011

Team Chiropractor, Chicago Slaughter Semi Pro Indoor Football Team, Hoffman Estates, Illinois, 2009 - 2009

Chiropractic Associate Doctor, Fremont Chiropractic Group, Fremont, California, 1991 - 1993

Physical Therapy Assistant, Physiotech, Fremont, California, 1991 - 1992

Chiropractic Intern, Fremont Chiropractic Group, Fremont, California, 1989 - 1991

Teaching Assistant Gonstead Elective, Palmer West Chiropractic College, Sunnyvale, California, 1988 - 1990

Tennis Instructor, Various Clubs and Park Districts, Arlington Heights, Illinois, 1982 - 1987

EDUCATION AND LICENSURE

Doctor of Chiropractic, Licensed in the State of Illinois, License # 038-006842, 1994-Present

Doctor of Chiropractic, Licensed in the State of California, License # 21331, 1991-1994

Doctorate of Chiropractic, Palmer West Chiropractic College, cum laude, San Jose, California, 1990

Internship, Fremont Chiropractic Group, Fremont, California, 1989 - 1990

National Board of Chiropractic Examiners, Part I, 1990

National Board of Chiropractic Examiners, Part II, 1990

National Board of Chiropractic Examiners, Part III, 1994

Undergraduate studies in Pre- Med/Biology, Augustana College, Rock Island, Illinois, 1984 - 1987

SELECTED POST-GRADUATE EDUCATION, CERTIFICATIONS AND DIPLOMATES

Spine Management Grand Rounds Internet Live and recorded Regularly Scheduled Series – *Diagnosis and Management of Seronegative Spondyloarthropathies* – review of the clinical diagnosis of seronegative spondyloarthropathy was presented with attention paid to the two most common types, ankylosis spondylitis and psoriatic arthritis. Details regarding a complete physical examination assessing for swelling, redness and reduced range of motion were presented along with focus on enthesitis and spinal mobility. Overview of the HBLA-27 allele and generic risk association was presented. Details associated with radiographic evidence of seronegative spondyloarthropathies were discussed including sacroiliac joint sclerosis and vertebral hyperostosis. Interprofessional management with rheumatology was emphasized. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards – PACE, State University of New York at Buffalo Jacobs School of Medicine, and Biomedical Sciences – 2023

Spine Management Grand Rounds Internet Live and recorded Regularly Scheduled Series – *Anatomy & Biomechanics of the Sacroiliac Joint* – review of the anatomical structure of the sacroiliac joint was presented including ligamentous and cartilaginous components. Mechanical movement and restrictions were discussed and correlated to the surrounding anatomy. Review of causes of the sacroiliac joint as a source of pain was outlined. Differences in bony structure including cortical bone thickness and muscular overlay were detailed. Differentiation of different ligaments supporting the sacroiliac joint and the primary restraint of anatomical movement was presented including the posterior, sacrotuberous, sacrospinous, anterior, interosseus and iliolumbar ligaments. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards – PACE, State University of New York at Buffalo Jacobs School of Medicine, and Biomedical Sciences – 2023

Spine Management Grand Rounds Internet Live and recorded Regularly Scheduled Series – *Vertebral Artery Anatomy and Pathologic Injury* – in-depth review of the anatomical course of the vertebral artery in the cervical spine with specific emphasis on the V1, V2, V3 and V4 segments and their anatomic boundaries. Specific epidemiology of Cervical Artery Dissection (CAD) was presented and outlined. Risk factors for CAD such as atherosclerosis, inflammation, and genetic tissue disorders such as Marfans and Ehlers-Danlos Syndromes were detailed. Clinical symptoms of CAD were presented such as Horner's Syndrome, cerebral ischemia, vertigo, and nausea were presented. Detailed review of hemodynamic versus thromboembolic causes of ischemia post CAD were reviewed. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards – PACE, State University of New York at Buffalo Jacobs School of Medicine, and Biomedical Sciences – 2023

4th Annual Spine Management Summit

The Spine Management and Orthopedics Summit is a one-of-a-kind collaborative medical conference, where you'll discuss cases with providers from all different specialties: neurosurgery, physical therapy, sports medicine, chiropractic, pain management, dietary, psychology, and more. Sundance Mountain Resort Lehi UT, September 2023

2023 National Spine Management Conference South – Role of a Spine Management Physician -

Outline and overview of what a Spine Management Physician is, and the present day need in healthcare. Details relating to the Doctor of Chiropractic filling that role with specific discussion related to WHY physical therapy, nurse practitioners or physician assistants are unable to fill this position. Overview of a spine manager's role in the evaluation and triage of non-operative spine patients was presented. Introduction to the diagnosis of non-specific spine pain was outlined with focus on the needs of primary care, pain management and spinal surgeons. National Spine Management Group, LLC, Parker University, Alabama State Board of Chiropractic Examiners, Kentucky Board of Chiropractic, Louisiana State Board of Chiropractic Examiners, Texas Board of Chiropractic Examiners, Florida Board of Chiropractic Medicine, Arizona Board of Chiropractic Examiners, Federation of Chiropractic Licensing Boards – PACE, 2023.

2023 National Spine Management Conference South – Moving From a Curative Model of Spine

Care - *A comprehensive look at the history of spinal care, degenerative changes and both regional and global spinal compensation. Outline the spine as a whole organ system that must be monitored in relation to physical activity, lifestyle, and traumatic patient history was discussed and presented. Application of spine management principles mirroring internal medicine disorders was presented and reviewed. Specific peer reviewed medically index research was presented outlining initial criteria for determining medical necessity of supportive spine care. National Spine Management Group, LLC, Parker University, Alabama State Board of Chiropractic Examiners, Kentucky Board of Chiropractic, Louisiana State Board of Chiropractic Examiners, Texas Board of Chiropractic Examiners, Florida Board of Chiropractic Medicine, Arizona Board of Chiropractic Examiners, Federation of Chiropractic Licensing Boards – PACE, 2023.*

2023 National Spine Management Conference South – Interprofessional Communication with Primary Care Physicians -

Research trends and working with primary care physicians was outlined. Focus on the conservative management of spinal conditions, aiding the primary care clinic and working to prevent unnecessary escalation of care. Reduction in opioid utilization and reduced surgery trends will be discussed. Research documenting modulation of pain at the central nervous system level with the chiropractic adjustment was presented. Application to real world scenarios including evaluation and management documentation was reviewed. Details of effective communication were presented including phone call, email, fax, and text messaging within the HIPAA compliance environment was discussed. National Spine Management Group, LLC, Parker University, Alabama State Board of Chiropractic Examiners, Kentucky Board of Chiropractic, Louisiana State Board of Chiropractic Examiners, Texas Board of Chiropractic Examiners, Florida Board of Chiropractic Medicine, Arizona Board of Chiropractic Examiners, Federation of Chiropractic Licensing Boards – PACE, 2023.

2023 National Spine Management Conference South – Interprofessional Communication with Pain Management Physicians -

Chiropractic diagnosis of spinal ligament pathology will be discussed in the context of co-management with pain management specialists. Specific review of the role of a fellowship trained interventional pain management physician in your community will be presented. Review of epidural steroid injection, medial branch block and spinal ablation will be presented in the context of when and how to refer. National Spine Management Group, LLC, Parker University, Alabama State Board of Chiropractic Examiners, Kentucky Board of Chiropractic, Louisiana State Board of Chiropractic Examiners, Texas Board of Chiropractic Examiners, Florida Board of Chiropractic Medicine, Arizona Board of Chiropractic Examiners, Federation of Chiropractic Licensing Boards – PACE, 2023.

2023 National Spine Management Conference South – Interprofessional Communication with the Spine Surgeon - *Spinal sagittal balance and spine surgery research trends will be reviewed.*

Chiropractic's role in the conservative management of spinal biomechanics pre-surgery and post-surgery will be outlined. Terminology and documentation requirements will be presented. National Spine Management Group, LLC, Parker University, Alabama State Board of Chiropractic Examiners, Kentucky Board of Chiropractic, Louisiana State Board of Chiropractic Examiners, Texas Board of Chiropractic Examiners, Florida Board of Chiropractic Medicine, Arizona Board of Chiropractic Examiners, Federation of Chiropractic Licensing Boards – PACE, 2023.

2023 National Spine Management Conference South – Anatomy and Physiology of the Healthy Intervertebral Disc - *Anatomy of the healthy intervertebral disc and its nerve supply will be reviewed.*

A brief overview of the biochemical structure of the intervertebral disc will be presented. The role of the intervertebral disc as a spinal stabilizer and its influence on facet joint function will be outlined.

Specific

attention will be given to radiologic vocabulary such as intervertebral disc herniation, extrusion, sequestration, and traumatic annular tears. MRI samples will be provided demonstrating

2023 National Spine Management Conference South – Anatomy and Physiology of the Degenerated Intervertebral Disc - *Anatomy of the degenerative intervertebral disc and its nerve supply will be reviewed.*

An overview of the biochemical process of intervertebral disc degeneration will be outlined. Specific attention will be given to the Pfirrmann Scale and radiographic terms such as desiccation, intervertebral disc bulge and degenerative annular tears.

2023 National Spine Management Conference South – Basic Spinal Biomechanical Modeling –

Basic spinal biomechanical principles will be reviewed including sagittal spinal alignment and coronal positioning in relation to the spinal facet joints. Research trends including symptomatic vs asymptomatic spinal parameters will be presented in the context of the Doctor of Chiropractic as the portal of entry spine care provider.

2023 National Spine Management Conference South – Spinal Ligament Histological Structure and Function -

Histology of ligament structure and function will be presented. Microanatomy and the wound

repair process will be discussed. Structural deficits post ligament injury will be presented and reviewed.

Anatomical positioning of ligamentous structures will be outlined with specific attention to the spinal entheses and the difference between an enthesophyte and osteophyte in spinal degeneration.

2023 National Spine Management Conference South – Spinal Ligament Traumatic Pathology -

Ligament pathology as a source of persistent spinal pain and dysfunction will be outlined and reviewed. Objectifying ligament injury will be presented, and context will be provided using plain film radiographs and MRI examples. Focus on facet capsules and interspinous ligament will be central to the discussion.

2023 National Spine Management Conference South – Compliance and Documentation -

Review of federal documentation guidelines with specific focus on CPT coding for initial and re-evaluation visits. Detailed outcomes of documentation audits by insurance carriers, regulator and special

investigators will be presented in a case study format. Emphasis will be placed interprofessional communication and compliance.

2023 National Spine Management Conference South – Trends in Chiropractic Research - Review and discussion of 2022/2023 research supporting the chiropractic profession and the doctor of chiropractor as a spine care manager. Specific papers will be presented related to the pain management, corrective, and health maintenance phases of chiropractic care. Overview of current and future research trends will be demonstrated.

2022~National Spine Management East Conference, Medical and Interprofessional Communication – detailed overview of medial legal communication in relation to patient subjective and objective clinical findings. Outline of direct and cross-examination techniques were presented. Overview of Voir Dire and Daubert hearings were outlined. Discussion of examination of proof in relation to causality, bodily injury, and persistent functional losses was reviewed. Court testimony flow, professional expectations, and court room etiquette was presented and emphasized. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, College of Chiropractic – Ft. Lauderdale, Florida 2022

2022~National Spine Management East Conference, Spine Management – discussion and outline of case management workflows related to the management of acute and chronic spine pain with a particular focus on pain of traumatic origin. Evidence-Based communication and Electronic Health Record processes were emphasized and presented. Patient management and triage based on patient history, physical examination and imaging findings was outlined. Overview of interprofessional referral options including physical therapy, interventional pain management and spine surgery was discussed in detail. Spine Management as concept was discussed by Dr. John Edwards, neurosurgeon in relation to reducing escalation of non-urgent cases as well as creating space for patients with urgent need. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, College of Chiropractic – Ft. Lauderdale, Florida 2022

2022~National Spine Management East Conference, Documentation and Communication in Spine Management – presentation of compliant healthcare documentation including E/M initial and re-evaluations, daily progress notes and medical-legal narrative reports was provided. Workflows detailing interprofessional referral language, advanced imaging requests and patient communication were detailed. Streamlined processes for creating and maintaining compliant, evidence based, patient centered clinical reporting was given. Emphasis was placed on the role of a Spine Management Physician in the processes of interprofessional communication and case management. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, College of Chiropractic – Ft. Lauderdale, Florida 2022

2022~National Spine Management East Conference, Histology and Physical Tolerance of Spinal Ligaments – presentation of the histological structural organization of spinal ligaments including analysis of tropocollagen as the basis for anatomical structure. Review of the

structural hierarchy of the spinal ligament from microscopic to macroscopic was included. Anisotropic properties of spinal ligaments were defined, and examples presented. Detailed review of spinal entheses was presented with emphasis on advanced imaging and chronic enthesopathy. New insights into the pathogenesis, diagnostic modalities, and treatment of spinal enthesitis was outlined and presented. Specific focus was on traumatic injury to the spinal entheses and the difference in formation of spinal osteophytes and enthesophytes. Biomechanics of the degenerative spine was detailed and reviewed in terms of clinical spine management. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, College of Chiropractic – Ft. Lauderdale, Florida 2022

2022~National Spine Management East Conference, Accident Reconstruction and Expert Reporting – Crash dynamics and basic physics formulas were presented and detailed. Review of biomechanical expert reports and included mathematics was discussed with context given to data collection and accuracy. Spinal injury thresholds were reviewed as well as the Law of Conservation of Energy and its relationship to crash dynamics. Specific mathematical examples were presented including workflows to review the accuracy of biomechanical expert reporting and mathematical formulas. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, College of Chiropractic – Ft. Lauderdale, Florida 2022

2022~National Spine Management East Conference, Degenerative versus Acute Ligament Laxity – an updated scientifically validated grading system for the identification of degeneration of the intervertebral disc and motion segment was presented. Details such as radiographic signs of disc degeneration including loss of disc height, osteophyte formation and diffuse sclerosis were provided. Grading examples were provided in radiographic and gross specimen form starting with Grade 0 (no degeneration) to Grade 3 (severe degeneration). Outline of the validity and interobserver agreement of this grading system was shown for both the cervical and the lumbar spine. Review and emphasis on the difference between osteophyte formation and enthesophytes was again outlined. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, College of Chiropractic – Ft. Lauderdale, Florida 2022

2022~National Spine Management East Conference, Chiropractic Science Research – review and presentation of updated peer-reviewed medically indexed research supporting chiropractic management of spine pain was detailed. Timeline of publication was emphasized with three years being the maximum timeframe for up-to-date data. Comprehensive review of evidence supporting chiropractic management of the spine pain patient in the Pain Management, Corrective, and the Health Maintenance Phases of care. Methods to communicate this evidence to the medical and legal communities was presented in the context of compliant patient centered clinical documentation. Efficiency of a Spine Management Physician versus conventional primary care was presented. Emphasis on the hierarchy of published evidence starting with Foundational Evidence up to Level 1 evidence was presented. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, College of Chiropractic – Ft. Lauderdale, Florida 2022

Clinical Grand Rounds – Chiropractic Spine Management – Role of Diagnostic Injections in Spinal Disorders, *Review and discussion of objective data derived from ordering diagnostic spinal injections. Patient triage in relation to facet joint injury, ligament laxity, radiculopathy, herniation of the intervertebral disc and sacroiliitis was outlined. Patient injury data from physical examination, provocative testing and diagnostic imaging was correlated clinically with response to diagnostic block after appropriate referral to medical specialty. The sacroiliac joint as an underdiagnosed source of chronic lower back pain was outlined. Review of gold standard for diagnosis of sacroiliitis, fluoroscopy-guided block was presented.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards – PACE, State University of New York at Buffalo Jacobs School of Medicine, and Biomedical Sciences, 2022

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Neuroradiology – radiographic evolution of a Schmorl's node – acute Schmorl's node and progression to chronic stage comparison to serial MRI. Endplate fracture and acute presentation and correlation to clinical findings and pain patterns. Presentation in plain film radiograph and MRI images were compared and contrasted in both acute and chronic stages.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Neuroradiology – syringomyelia, fluid dynamics and spinal cord motion – scoliosis curve patterns and syrinx characteristics versus Chiari I malformation. Normal MRI appearance and motion artifacts related to cerebral spinal fluid motion related phenomena and common appearances on MRI imaging. Syrinx wall and fluid motion and correlation to cardiac cycle with comparison between systolic and diastolic presentations.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Neuroradiology – Spinal Biomechanics, Thoracolumbar Deformity and Surgical Outcomes – full spine analysis, adjacent spinal biomechanics and its impact on surgical outcomes. Sagittal alignment pelvis to cervical spine and association with kyphosis and lordosis mechanical positioning.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Neuroradiology – MRI and EMG comparison in denervated muscle diagnosis – lumbar spine pathology and age in relation to paraspinal muscle size and fatty infiltration. Fatty degeneration of paraspinal*

muscle in degenerative lumbar kyphosis and CT versus MRI digital analysis. Positive correlations with edema on MRI and fibrillations, positive sharp waves, denervation and the level of reduced recruitment pattern. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Neuroradiology – association between annular tear and disc degeneration – high intensity zone (HIZ) in lumbar disc and association to annular fissure on MRI. Identification of dual HIZ and its relationship to acute inflammation and calcified tissue and its association with discogenic pain patterns. Influence of phenotype, population size and inclusion sequence. T1, T2 and STIR imaging comparison and correlation. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Neuroradiology – degenerative cervical myelopathy – paraspinal muscle morphology, clinical symptoms and functional status. Review of fatty infiltration, asymmetry findings and correlation with clinical symptoms and functional scores. Review of complex anatomical arrangement of superficial and deep muscle layers in the cervical spine, correlation to MRI findings. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Neuroradiology – MRI Neurography, Diffuse Tensor Imaging (DTI) – diagnostic accuracy and fiber tracking in spinal cord compression. Review of spinal cord structural integrity, peripheral neuropathy and correlation to diffuse tensor imaging findings. Comparison in combining DTI with T2 and T2 alone and its value in magnetic resonance neurography. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Neuroradiology – Nomenclature and Classification of Lumbar Disc Pathology – modified Pfirrmann grading system and lumbar disc degeneration. Consensus driven description of intervertebral disc nomenclature including intervertebral disc bulge, herniation, protrusion, broad based disc herniation, extrusion and sequestration. National Spine Management 5 Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Neuroradiology – MRI evaluation of intradural tumor – neuroimaging of spinal tumors and correlation to histological study. Determining method of choice for evaluation, review of numerous types of intradural-

extramedullary masses including meningioma and schwannoma. Signal intensities, contrast enhancement patterns, presence of cysts and other key differentiation findings of spinal cord tumors. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Neuroradiology – Spinal Cord Compression, Myelomalacia, MRI Imaging and Clinical Correlation – positional cervical spinal cord compression and fibromyalgia. T1 and T2 weighted images, comparison of hypo and hyperintense signals and extent of intramedullary changes on MRI. Review of MRI findings associated with myelomalacia and discussion of correlation with clinical findings. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Neuroradiology – MRI Characteristics of Lumbar Facet Synovial Cyst – formation characteristics of synovial cyst, relation to degenerative changes in spinal facet joints as demonstrated on MRI. Pre and post-surgical procedural MRI were reviewed and compared. Surgical management and subsequent resection were demonstrated. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Neuroradiology – Variability in MRI Diagnostic Error Rates – in depth review of quality of MRI imaging and comparison to consistent MRI diagnosis between facilities. Errors of interpretation in the study examinations were considered and presented. Impact of radiological diagnosis, location of MRI study and reading radiologist and impact on treatment choice and clinical outcomes. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Orthopedic Spine Surgery – Fusion Surgery and Lumbar Stenosis – efficacy of fusion and decompression surgery in patients with lumbar spinal stenosis. Review of degenerative spondylolisthesis and patient selection criteria. Discussion of correlation of MRI, CT findings and clinical evaluation. Review of sedimentation sign on MRI and indications of prognostic factors. Surgery versus nonsurgical treatment outlined and outcomes discussed. Compensation for lumbar spinal stenosis and clinical sagittal plane deformity was presented. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Orthopedic Spine Surgery – Posterior Lumbar Interbody Fusion and Adjacent Segment Degeneration (ASD) – adjacent segment degeneration as major consequence of spinal fusion. Review of occurrence and location with correlation between surgical outcomes were discussed. Discussion of age, BMI and pre-existing stenosis in cranial adjacent segment as risk factors. ASD prevalence in radiographic evidence between cranial and caudal segments were reviewed. Presentation of risk factors and pre-operative radiological features. Facet sagittalization and tropism 8 were discussed. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022*

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Orthopedic Spine Surgery – Morbidity and Mortality Predictions in Spinal Surgery – Review of the Charlson Comorbidity Index (CCI) and the American Society of Anesthesiologist (ASA) Physical Status Classification System. Review of index outcomes and relation to costs of care. Discussion of index rating and likelihood of complications. Review of classification system in cerebral spinal fluid (CSF) leaks. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022*

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Orthopedic Spine Surgery – Spondylolisthesis, clinical and radiographic classifications - classification system that considers disc space height, sagittal alignment and translation, and the absence or presence of unilateral or bilateral leg pain was discussed. Detailed review of spondylolisthesis etiology, clinical presentation and imaging findings was reviewed. Review of inter and interobserver reliabilities of radiographic and clinical criteria. Review of consensus driven treatment options for degenerative spondylolisthesis presented. Transforaminal Lumbar Interbody Fusion (TLIF) in degenerative disc disease with associated spondylolisthesis grade I was reviewed and correlated. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022*

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Orthopedic Spine Surgery – Sagittal Alignment and Spinal Surgery, Clinical Outcomes and Follow up – discussion of outcomes and sagittal alignment in single unilateral transforaminal lumbar interbody fusion (TLIF). Detailed review of surgical TLIF procedure and associated mid and long-term clinical outcomes. Discussion and presentation of influence of pelvic incidents and lumbar lordosis mismatch and post-operative residual symptoms. Analysis of adjacent segment disease following fusion. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022*

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Orthopedic Spine Surgery – Complications and Outcomes in Adult Spinal Deformity Surgery – review of surgical*

approaches and complications in correction of adult spinal deformity. Relevance of age, comorbidities, blood loss, osteoporosis and smoking were discussed. Discussion of Cobb Angle, Sagittal Vertical Axis, Pelvic Tilt, Thoracic Kyphosis were reviewed and examined in relation to transposas lateral interbody fusion (LIF), percutaneous pedicle screw (PPS), transforaminal lumbar interbody fusion (TLIF). Comparison between minimally invasive and traditionally open procedures was provided and reviewed. Discussion of minimally invasive surgery options were emphasized and outcomes reviewed with correlation to diagnosis and procedural coding. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Orthopedic Spine Surgery – Surgical Interventions in Lumbar Disc Herniation – review of differences in surgical treatment of recurrent lumbar disc herniation. Clinical correlation between plain film radiography, MRI studies and clinical presentation were reviewed. Data on frequency in management of recurrent lumbar intervertebral disc herniations presented. Duration of symptoms and influence of patient outcomes in sciatica patients undergoing micro-discectomy and decompressions. National Spine Management Group, Federation of Chiropractic Licensing Boards, 9 Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Orthopedic Spine Surgery – Length of Stay in Lumbar Spinal Surgery – discussion on epidemiology of lumbar surgery outcomes and hospital stay. Correlation to clinical presentation and comorbidities were reviewed. Outline of decompression and instrumental fusion in the lumbar spine. Review of costs of lumbar surgery, trends in hospital stay and costs both on a cumulative and daily basis. Comparison of the nationwide inpatient sample and national surgical quality improvement program databases for lumbar spine fusion procedures was reviewed and presented. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Orthopedic Spine Surgery – Pre-Surgical Planning and Implant Design – 3-D printing and surgical planning discussion a variety of historical materials in the creation of patient specific implants based on unique individual anatomy. Historical trends in the creation of prosthetics with 3-D modeling software using neuroimaging data. Review of treatment complex spinal pathologies and surgical planning was discussed. Outline of current and future barriers to global implementation and commercialization was reviewed. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Orthopedic Spine Surgery – Spine Surgery Procedures in Medical Specialty Training* – discussion of current spine surgery training including fellowship programming in the United States. Accreditation Council for Graduate Medical Education (ACGME) cases logs were reviewed and discussed. Variability of procedures within programs and between medical specialty programs were outlined. Differential utilization between orthopedic and neurosurgical fellows was reviewed. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Orthopedic Spine Surgery – Cerebral Spinal Fluid Dynamics, Central Nervous System Pathology and Intracranial Hypotension* – pathophysiology and various craniospinal disorders. Directional phase contrast MRI (4D Flow) was reviewed along with the anatomical and physiological properties of cerebral spinal fluid. Specific disorders such as Alzheimer's disease, hydrocephalus, Chiari Malformation and syringomyelia. Clinical correlation of CSF dynamics to understanding disease process was reviewed including normal and abnormal flow patterns. Recent advancements in fluid flow studies were outlined and presented. Signal intensity changes on MRI study in cervical spondylotic myelopathy was discussed and compared to normal parameters. Fluid dynamics patterns within syringomyelia and Chiari malformation was discussed and correlated to MRI findings and clinical presentations. Spinal microsurgical exploration surgery and resultant CSF leak and spontaneous intractable intracranial hypotension was reviewed and its pathoanatomical presentation outlined. Review of the natural and surgical history of Chiari malformation Type I in pediatric population and clinical correlation with MRI studies. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Neurosurgery – Anatomy and Physiology of the Blood Brain Barrier* – Review of consequences of alterations in homeostatic control of the neuronal environment. Discussion of blood flow alterations and altered vessel permeability as determinants in the pathophysiology of brain injury. Review present day literature on the anatomy, development and physiological mechanisms of the blood– brain barrier. The blood brain barrier's role in the maintenance of the extracellular environment. Vascular anatomy of the spinal cord was review in relation to the physiology of the neural environment. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Neurosurgery – Spinal Cord Anatomy, Physiology and Vascular Reactivity* – detailed review of the blood supply of the spinal cord, anatomy of the vascular system and physiology of blood flow. Pathophysiology of various conditions including Thoracic Aortic Occlusion and Spinal Cord Injury were discussed with specific relation to risk of neurological deficit. Severity and duration as an effect was reviewed and correlated clinically. Cerebral circulation and aging, discussion of effects on

cognitive functioning and cerebrovascular disease in aging. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Neurosurgery – Upper Cervical Spine Anatomy and Cerebral Spinal Fluid Flow – MRI flow imaging and computational fluid dynamics in healthy patients with Chiari Malformations. Review of abnormal cerebral spinal fluid flow oscillations and their effects on healthy patients. Discussion of nonlaminar complex spatial and temporal variations with associated pressure waves and pressure gradients causing syringomyelia, headaches and other clinical manifestations in Chiari I malformation. Microsurgical anatomy and internal architecture of brainstem in 3D images and surgical considerations. CSF hydrodynamic changes, spinal cord injury and development of post traumatic syringomyelia (PTSM). Impact of spinal cord nerve roots and denticulate ligaments on cerebral fluid dynamics in the cervical spine was reviewed and discussed. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Neurosurgery – Compression and Degeneration in Chronic Nerve Root Entrapment – differentiation between peripheral nerves and spinal nerve roots and effects of electrostimulation. Discussion of various stimulating or recording neurosurgical implants and success vs failure rates. Review of the nerve root compression and its relation to consequences of disc herniation and acute compression during surgery. Maximum pressure level a spinal nerve root can sustain is reviewed. Discussion of microsurgical anatomy of lumbosacral nerve rootlets, Rhizotomy and chronic spinal cord injury. Review of qualitative grading of severity of lumbar spinal stenosis on morphology of dural sac on MRI studies, review of classification systems and the consideration of impingement of neural tissue. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Neurosurgery – Anatomy of Circle of Willis, Cerebral Arteries and Stroke Etiology – discussion of stroke by embolism, source and cause in diagnosis and long-term treatment. Review of complex nature of embolus transport and its relation to etiology. Image based hemodynamics II with discrete particle dynamics in relation to the distribution of emboli across the various cerebral arteries. Detailed anatomy of Circle of Willis reviewed and discussed with particular focus on size/inertia dependent trends in embolus distribution to the brain, distribution of cardiogenic versus aortogenic emboli among anterior, middle and posterior cerebral arteries, left versus right brain preference in cardio-embolus and aortic emboli transport and source-destination relationship for embolisms affecting the brain. Detailed review of the microsurgical anatomy of the posterior cerebral artery in three dimensional images. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic,

ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Neurosurgery – Stroke Therapy, Implementation and Cost-Effectiveness – review of endovascular therapy in addition to standard care in acute ischemic vessel occlusion stroke. Comparison in National Institutes of Health Stroke Score (NIHSS) score, symptom onset, Alberta Stroke Program Early CT Score (ASPECTS) and occlusion location. Considerations in acute management and revascularization of tandem occlusions in acute ischemic stroke with literature review. Discussion of Transcirculation Pipeline embolization device deployment as a rescue technique. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Neurosurgery – Surgical Approaches and Outcomes in Spine Surgery 1 – review of historical interventions, multilevel decompression and instrumented fusion in reduction of neural compression and spinal column stabilization. Discussion of morbidity and mortality in relation to surgical procedures. The use of the modified fragility index to predict 30-day morbidity and mortality from spine surgery. Differences in patient selection for minimally invasive versus open surgical procedures, and review of post-surgical outcomes. Morbidity, mortality and health care costs for patients undergoing spine surgery following ACGME resident duty-reform. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Neurosurgery – Surgical Approaches and Outcomes in Spine Surgery 2 Predisposing factors for dural tears in lumbar spine surgery including degenerative conditions, prior surgery and age related indicators were reviewed. Discussion and review of re-admission rates in spine surgery through metanalysis and systematic review. Bibliometric study of the most important minimally invasive (MIS) spine surgery papers including Level III and IV studies with focus on moving toward Level I and Level II. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Emergency Medicine – Emergency Medicine and Spine Pain – review of lack of guidelines for the management of lower back pain in the ED. Frequency of lower back pain visitation in the emergency department including environmental/sociocultural dimensions and physical/psychospiritual dimensions were reviewed. Discussion of utilization of significant healthcare resources with complete description of lower back pain characteristics, health services use in non-urgent lower back pain patients presenting to the ED. Managing spine pain in the ED using usual and customary medical intervention. Extent of appropriate CT and MRI scans in the hospital

setting, accessibility reviewed in conjunction with presented national data. National Spine Management Group, Federation of 12 Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Emergency Medicine – Medication Usage and Motor Vehicle Accidents – review of ADHD medication utilization and motor vehicle accident data and frequency of motor vehicle accident in this specific patient population. Review of the prevalent and preventable cause of morbidity and mortality among patients and concepts of restricting based on prognostic factors. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Emergency Medicine – Emergency Department Imaging Perspectives – review of imaging protocols among a spectrum of clinical indications, perspective on aging populations and clinical complexity. Review of CT, MRI, plain film imaging and ultrasound and their relationships to internal medicine and musculoskeletal disorders examined on an emergency basis through patient generated national survey data. Details of specific contexts in which imaging has become concentrated and targeted efforts for optimization of utilization. considerations of utilization of CT in the emergency department and evaluation to increasing trends. Review of quality improvements in imaging utilization. Comparison between pediatric and adult imaging protocols and trends. Discussion and analysis of “Choose Wisely” recommendations and creating of guideline/policy/clinical pathways in New England EDs. MRI utilization in pediatric ED reviewed and analyzed. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Emergency Medicine – Cauda Equina Syndrome and Other Emergent Conditions – traumatic injuries to the thoracolumbar spine and overall impact on emergency services. Discussion of exact definitions of Conus Medullaris Syndrome (CMS) and Cauda Equina Syndrome (CES). Diagnosis in acute phase and radiological findings clinically correlating with physical examination findings. Parameters for spinal regions of traumatic injury were presented and reviewed. Case presentations for neck and spine were included and reviewed with particular focus on differential diagnosis and case uniqueness. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Emergency Medicine – Emergency Medicine Residency Curriculum – review of Ohio State University Emergency Medicine Residency Program Musculoskeletal Emergencies Curriculum. Outline of the significant nature of musculoskeletal emergency presentations to ED. Details in the training

required to master clinical experience, self-directed learning and small group didactics. Case study reviews and discussion was presented with particular focus on infection vs non-infections and traumatic vs non-traumatic presentations in ED. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Emergency Medicine – Opioid vs Non-Opioid Medications in the Emergency Department – discussion of limited evidence of long-term outcomes of opioids with non-opioid medication for chronic pain. Literature review on effectiveness for opioid interventions. Discussion of alternative recommendations, evidence demonstrating lack of benefit and poor long term outcomes. Variation in physician opioid prescriptions discussed. Patterns of opioid initiation at first visits for pain in the ED in the United States including frequency and dosage. Emergency Department data concerning the persistent pain after motor vehicle accidents and comparison between opioid and NSAID prescribed 13 in the ED. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Emergency Medicine – Concussion and Repeat ED visits – review of patients presenting to ED with concussion with re-visitation within 72 hours. Mechanism of injury including closed head injury, assault, fall and motor vehicle accidents discussed. Epidemiological evidence presented regarding number of visitations, characteristics and care paths reviewed. Discussion of adoption of a more comprehensive discharge plan to further prevent repeat visits was outlined. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Emergency Medicine – CDC Epidemiology of ED Visits in the United States, Adults Over 65 and Motor Vehicle Accidents – Evaluation of data from the National Hospital Ambulatory Medical Care Survey and frequency of ED visitation. Percentage of visits requiring hospital admission was reviewed along with patterns of need for critical care. Review of imaging ordering statistics and clinical diagnosis was discussed. Details of primary and secondary ED diagnosis presented in relation to sprain/strain, contusion and spinal pathology including herniated intervertebral disc, fracture and spinal cord compression. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Emergency Medicine – National Hospital Ambulatory Medical Care Survey – a review of the current representative data on ambulatory care visits to hospital emergency departments in the United States.

Demographics, residence, insurance class, chief complaint with focus on traumatic injury, diseases of the nervous and musculoskeletal systems were outlined. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Emergency Medicine – Lower Back Pain and Emergency Room Visits – detailed analysis of impact of lower back pain on ED globally. First systematic review of the trends in the literature including lower back pain as significant complaint and the variables in its definition. Discussion of the proper diagnosis and triage of lower back pain and its current impact on ED management was reviewed. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Emergency Medicine – Spinal Cord Injury without Radiographic Abnormality (SCIWORA) in Adults – case reports – detailed review of Spinal Cord Injury without Radiographic Abnormality was presented. Syndrome of post traumatic myelopathy demonstrable on MRI with no evidence of osseous injury on plain film or CT scan. Reporting of incidence was included with detailed discussion of case presentations, accurate diagnoses and triage was reviewed. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Emergency Medicine – CDC Traumatic Brain Injury Data – Related Emergency Department Visits, Hospitalizations, Deaths – United States, 2007 and 2013 – traumatic brain injury, short and long term adverse clinical outcomes, death and disability reviewed and compared 14 based on CDC data over a 7 year period. Mechanism of causation including motor vehicle accidents, falls and assault. Public health recommendations and interpretation of data was presented. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Emergency Medicine – CDC Data, Trends in Emergency Department Visits for Ischemic Stroke and Transient Ischemic Attack – relationship between stroke and statistical cause of death, type of stroke and prognosis related to recurrence was discussed. Specific definitions of ischemic stroke, transient ischemic attack with etiology and relationship to emergency visits were outlined and presented. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Emergency Medicine – US Emergency Department Use by Children* – pediatric utilization of emergency medicine resources, description of trends on a national basis. Detailed analysis of specific demographics including race and resident status were reported and reviewed. Discussion in allocation of resources including insurance class and coverage were reviewed. Anticipated expansion of Medicaid was considered and reviewed. Estimates of nonurgent ED visits by children were presented and discussed. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Primary Care and Internal Medicine – Supply of Chiropractic Care and Visits to Primary Care Physicians for Neck and Back Pain* – discussion of primary care visits and lower back pain. Expenditures and contributions to disability data. Discussion of supply of chiropractic care in context of visits for lower back pain and primary care physicians. Estimated national impact of primary care visits and expenditures was outlined with a focus on chiropractic's assistance in managing lower back pain. Defining an "episode" of lower back pain and relationship to collection of epidemiological data. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Primary Care and Internal Medicine – Safety of Chiropractic Care in Lower Back Pain and Migraine Headaches* – review of adverse events associated with chiropractic care in the treatment of migraine. Outline of a prospective 3-armed, single-blinded, placebo RCT. Discussion of transient and mild events following chiropractic intervention. Randomized clinical trials and metaanalysis reviewed and discussed relating to the diagnosis and management of lower back pain including adverse event reporting. Risk of injury to the head, neck or trunk following an office visit for chiropractic spinal manipulation, as compared to office visit for evaluation by primary care physician. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Primary Care and Internal Medicine – Chiropractic and Pain Management in Primary Care* – evaluation of the analgesic effects of spinal manipulation on both healthy and pain inflicted patients. Discussion of evidence of increased in pressure pain thresholds in musculoskeletal 15 pain at both local and remote sites. Detailed knowledge of patient population regarding demographics and socioeconomic factors as well as disease-specific characteristics. Suggestion that lower back pain should not be seen as benign and self-limiting with focus on management. Describe the communication system surrounding the management of chronic pain from the perspectives of allopathic providers, acupuncture and chiropractor providers, and chronic musculoskeletal pain patients. Chiropractic manipulative treatment (CMT) association with lower healthcare costs among multiply-comorbid Medicare beneficiaries with an episode of chronic low back pain was reviewed. National Spine Management Group, Federation of Chiropractic Licensing

Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Primary Care and Internal Medicine – Perceptions of Chiropractic Care – demographic review of data on the perceptions of chiropractic care. Review of patient interest, trustworthiness, costs and frequency of visits was discussed. Nationally representative survey to compare characteristics and use of survey respondents with positive and negative perceptions of DCs and chiropractic care. Positive perceptions of DCs were more common than those for chiropractic care. US adults generally perceive DCs in a positive manner. Describe the preferences of older adults for low back pain co-management by MDs and DCs and identify their concerns for receiving care under such a treatment model. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Primary Care and Internal Medicine – Chiropractic and Post-Surgical Care and Care for Veterans – discussion of persistent post-surgical lower back and radicular pain response to chiropractic care. Relevant anatomy related to lower back pain and intervertebral disc injury was outlined and presented. Discussion and development of an integrated care pathway for doctors of chiropractic, primary care providers, and mental health professionals who manage veterans with low back pain, with or without mental health comorbidity, within Department of Veterans Affairs health care facilities. Support for the inclusion of chiropractic care as a component of multidisciplinary health care for low back pain, as currently recommended in existing guidelines with a focus on US Service Members. Discussion of availability of chiropractic care to military healthcare systems, referral and interprofessional communication models. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Primary Care and Internal Medicine – Effects of Chiropractic Care Combined with Medical Care, First Contact and Provider Type – differences in outcomes, patient satisfaction, and related healthcare costs in spinal, hip, and shoulder pain patients who initiated care with medical doctors (MDs) vs those who initiated care with doctors of chiropractic (DCs). Pain of musculoskeletal origin and epidemiology of reduced productivity. Comparison of data on health outcomes, patient satisfaction, and related healthcare costs in patients consulting differing first-contact care providers for musculoskeletal pain. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Primary Care and Internal Medicine – Integrating Chiropractic Care into Primary Care and Private Sector Healthcare Facilities – suggestion of a diverse role for chiropractors within conventional

health care facilities. Discussion of chiropractic's effectiveness for managing musculoskeletal disorders, particularly spine-related pain and disability. Descriptions of doctors of chiropractic who work in nongovernmental, private sector health care settings in the United States. 16 Shared electronic health records, face-to-face informal consultations methods for interprofessional communication. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Primary Care and Internal Medicine – American College of Physicians – Guideline Recommendations – Non-Invasive and Non-Pharmacological - American College of Physicians (ACP) developed this guideline to present the evidence and provide clinical recommendations on noninvasive treatment of low back pain. Systematically review the current evidence on nonpharmacologic therapies for acute or chronic non-radicular or radicular low back pain. Comparative benefits of non-pharmacological therapies in acute/subacute low back pain including exercise, spinal manipulation, lumbar supports, acupuncture, laser, ultrasound and traction. Discussion of first and second line therapies with reduction in opioid prescription. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2022

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Pain Management – Clinical and Procedural – Growth of Interventional Pain Management Techniques and Current Trends in Pharmacological Management of Neuropathic Pain. ESI comparison to gabapentin in lumbosacral radicular pain – current trends and future progress of pain management interventions. Mode of action, required dosage, advantages and side effects profiles of currently available pharmacological approaches. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Pain Management – Clinical and Procedural – Therapeutic Effects of Spinal Injection Therapy - Facet, medial branch blocks, prolotherapy and epidural interventions utilization within the Medicare population, effectiveness on lumbar central canal stenosis with and without steroids and effect on prevention of spinal surgery, herniated disc, fibromyalgia and chronic musculoskeletal pain. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Pain Management – Clinical and Procedural – Adverse Events Associated with Injection Therapy – transforaminal and interlaminar epidural steroid injections, anesthesia technical considerations, effects on cervical radiculopathy midline versus paramedian approaches and perineurial injection of

autologous conditioned serum. Review of FDA risk assessment. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Pain Management – Clinical and Procedural – Correlation of MRI Findings and Injection Outcomes - MODIC Changes on MRI and effectiveness of facet injection, facet joint signal change on MRI with fat suppression comparison with SPECT/CT. Discussion of Modic 1, 2 and 3 with correlation of clinical outcomes and patient selection criteria. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Pain Management – Clinical and Procedural – Therapeutic Effects of Botulinum Toxin and Dry-Needling in Myofascial Pain Syndrome – cost effectiveness, patient response and triage of therapeutic interventions. Physiological review of trigger point etiology and clinical presentation of acute and chronic pain. Functional response of intervention including relief and recurrence. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Pain Management – Clinical and Procedural – Systematic Review Technical Considerations in Cervical Epidural Analgesia - Chemical blockage of cervical nerve roots, review of anatomical structures and correlation with MRI imaging. Blockage effects on the respiratory, circulatory and neurological systems. Review of cervical epidural space (CES) borders and variants in patient population. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Pain Management – Clinical and Procedural – Trends in opioid analgesic abuse and mortality in the USA, Evaluation of Opioid Pain Management in Injured Children, assessment of opioid reporting in Veteran Affairs – Emergency visitation in pediatric injury, pain management and adoption of best practices. Trends in use of prescription opioid medication using RADARS (Research Abuse, Diversion and Addiction Related Surveillance System), comparison between legitimate pharmacy channels and diversion and abuse. Opioid use prevalence and incidents in Veteran Affairs, new prescriptions or long-term conversion and relationship to persistent growth in opioid use. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Pain Management – Clinical and Procedural – Electrodiagnostic Testing, Transforaminal Epidural Steroid Injection, Intra-articular Facet Joint Injection, Spinal Manipulation Post-Epidural Injection– Needle EMG, active versus chronic denervation in lumbar, cervical spinal pathologies and differential diagnosis of spinal stenosis and intervertebral disc herniation. Systematic review of facet joint injections, clinical trials and conservative therapy in lower back pain. Results of spinal manipulation post-epidural injection in the cervical spine. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021*

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Pain Management – Clinical and Procedural – Radiofrequency Ablation and outcome measures - medication, function and pain in relation to pain of spinal origin. Medial Branch Block as prognostic tool prior to lumbar facet radiofrequency denervation. Clinical comparison disc herniation, disc bulge, cervical and lumbar radiculopathy. Diagnosis and patient triage correlation to anatomical spine structures. Long, short term risk factors and outcomes in radiofrequency ablation. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021*

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Pain Management – Clinical and Procedural – Role of Cannabinoids in Pain Management – review of pharmacological, botanical or synthetic origins of cannabinoids. Mechanism of action in alleviation of pain including analgesic, anti-inflammatory effects, modular actions on neurotransmitters and interactions with prescribed or endogenous opioids. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021*

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in MRI Physics – The Hardware – magnet types including permanent, resistive and superconducting magnets. Volume RF, surface, quadrature and phase array coils and other hardware necessary for the generation of MRI imaging. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021*

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in MRI Physics – Physics of Image Generation 1 – magnetization, excitation, relaxation, acquisition, computing and display. T1 relaxation and relaxation curves, T2 relaxation, phase and phase coherence, T2 relaxation curves. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021*

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in MRI Physics – Physics of Image Generation 2 – gradient coils, signal coding including slice encoding gradient, phase encoding gradient, Frequency encoding gradient. Gradient specifications and slice thickness. Filling k-space, k-space symmetry and k-space filling technique. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021*

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in MRI Physics – Physics of Image Generation 3 – pulse sequences, spine echo sequences including multi-slicing and multi-echo sequencing. T1, T2, proton density contrast and their applications. Turbo spine echo, fast advanced spine echo (HASTE) sequence and gradient echo sequence. Inversion recovery sequence including STIR and FLAIR sequence. Choosing the right sequence pros and cons, T1, T2 and PD parameters. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021*

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in MRI Physics – Physics of Image Generation – technical parameters and artifacts – repetition time, echo time, flip angle, inversion time, number of acquisitions, matrix and field of view. Slice thickness, slice gap, phase encoding direction 1 and direction 2 and relation to bandwidth. Motion artifact, para-magnetic artifact, phase wrap artifact, susceptibility artifact, clipping artifact, spine and zebra artifacts. Effects on image quality and acquisition. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021*

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Neuroradiology – MRI evaluation of intradural tumor – neuroimaging of spinal tumors and correlation to histological study. Determining method of choice for evaluation, review of numerous types of intradural-extramedullary masses including meningioma and schwannoma. Signal intensities, contrast enhancement patterns, presence of cysts and other key differentiation findings of spinal cord tumors. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021*

Fellowship – Spinal Biomechanics and Trauma, *Specialty Research in Orthopedic Extremity Surgery – Wrist Anatomy and Osseous Kinematics – normal kinematics using biplanar radiographic model were reviewed. Discussion of extensive database of carpal bone anatomy and kinematics from a large number of healthy subjects. 3-D motion of each bone was calculated for each wrist position and discussed. Database constructed including highresolution surface models, measures of bone volume and shape, and the 3-D kinematics of each segmented bone. National Spine Management Group, Federation of Chiropractic*

Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Orthopedic Extremity Surgery – Normal Motion of the Shoulder and Glenohumeral Instability – normal motion of the shoulder joint compared with clinical implications of 6 glenohumeral joint instability including surgical recommendations. Review and overview of the anatomy of the glenohumeral joint, emphasis on instability based on the current literature. Description of detailed anatomy and anatomical variants of the glenohumeral joint associated with anterior and posterior shoulder instability. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Orthopedic Extremity Surgery – Orthopedic Testing and Shoulder Pathology Diagnosis - use of orthopedic special tests (OSTs) to diagnose shoulder pathology and clinical examination. Review OST clusters, examination of methodology and illustration of their use in arriving at a pathology-based diagnosis. Discussion of examination of the biceps tendon and clinical relevance. Review of SLAP lesion and shoulder impingement syndrome were reviewed. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Orthopedic Extremity Surgery – Electrodiagnostic Testing and Carpal Tunnel Syndrome – Review of the most common mononeuropathy in the human body. Relationship between clinical findings, neurological examination and electrodiagnostic testing in the diagnosis of carpal tunnel syndrome. Acute and chronic symptoms including progression of the disorder were reviewed. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Orthopedic Extremity Surgery – Current Concepts in Elbow Disorders – Detailed anatomy of osseous, ligamentous and muscular structure of the elbow was reviewed. Common disease of elbow disorders and their treatment was discussed. Lateral epicondylitis and medial collateral ligament injury of the elbow were outlined. Rheumatoid arthritis, posttraumatic osteoarthritis, and elderly patients with comminuted distal humeral fractures. Surgical design and technique were outlined. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Orthopedic Extremity Surgery – Differentiating Cervical Spine from Shoulder Pathology – anatomical review of

cervical spine and glenohumeral joint focus on similarities and differences. Cervical disorders masking shoulder pain, cervical radiculopathy, cervical spondylotic myelopathy, facet and discogenic pain patterns were outlined. Details of shoulder pathology parsonagetuner syndrome, subscapular neuropathy and thoracic outlet were presented. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Orthopedic Extremity Surgery – MRI of the Shoulder and Shoulder Girdle – review of MRI analysis of scapular fracture. Detailed review of scapular function rehabilitation and training on chronic pain syndromes. Reliability of magnetic resonance imaging versus arthroscopy for the diagnosis and classification of superior glenoid labrum anterior to posterior lesions. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Orthopedic Extremity Surgery -Cataloging Movements of the Ankle, Hip and Spine - Review Standardization and Terminology Committee (STC) of the International Society of Biomechanics (ISB) and classification of joint kinematics. Standard for the local axis system in each articulating bone is generated and presented. Rationale for international standards among researchers was presented. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Orthopedic Extremity Surgery -Cataloging Movements of the Shoulder, Elbow, Wrist and Hand - Review Standardization and Terminology Committee (STC) of the International Society of Biomechanics (ISB) and classification of joint kinematics. Standard for the local axis system in each articulating bone is generated and presented. Rationale for international standards among researchers was presented. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Orthopedic Extremity Surgery – MRI and Diagnosis of Shoulder Disorders – normal and abnormal shoulder anatomy as viewed on MRI was presented. Review and presentation of MRI in the diagnosis and treatment of brachial plexus injury. Discussion of preganglionic avulsions and muscular denervation. Comparison of CT myelography to MRI myelography were outlined. Enhanced three dimensional T1 high-resolution isotropic volume excitation MR in the evaluation of shoulder pathology. Comparison with two-dimensional enhanced T1 fat saturation MRI were discussed. National Spine Management Group, Federation of Chiropractic Licensing Boards,

Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Fellowship – Spinal Biomechanics and Trauma, Specialty Research in Orthopedic Extremity Surgery – Clinical Evaluation of Upper and Lower Extremity Pathology – review of relevant anatomy in shoulder, elbow, wrist, hip, knee and ankle was presented. Physical examination including orthopedic, neurological and range of motion testing was presented and compared with findings on MRI results. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2021

Impairment Rating, The understanding and utilization of the protocols and parameters of the AMA Guide to the Evaluation of Permanent Impairment 6th Edition. Spine, neurological sequelae, migraine, sexual dysfunction, sleep and arousal disorders, station and gait disorders and consciousness are detailed for impairment rating. Herniated discs, radiculopathy, fracture, dislocation and functional loss are also detailed in relation to impairment ratings. Cleveland University - Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Accident Reconstruction: Module 4: Research, Causality & Bodily Injury , 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 Diplomate, Academy of Chiropractic, Long Island, New York, 2020

Electrodiagnostics: Electromyogram/Nerve Conduction Velocity (EMG/NCV), Diagnosis & Interpretation: Anatomy and Physiology of Electrodiagnostics. Module 1: An in-depth review of basic neuroanatomy and physiology dermatomes and myotomes to both the upper and lower extremities and the neurophysiology of axons and dendrites along with the myelin and function of saltatory for conduction. The sodium and potassium pump's function in action potentials. Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Diplomate, Academy of Chiropractic, Long Island, New York, 2020

Electrodiagnostics: Electromyogram/Nerve Conduction Velocity (EMG/NCV), Diagnosis & Interpretation: Nerve Conduction Velocity (NCV) Part 1. Module 2: Nerve conduction velocity testing, the equipment required and the specifics of motor and sensory testing. This section covers the motor and sensory NCV procedures and interpretation including latency, amplitude (CMAP) physiology and interpretation including the understanding of the various nuances of the wave forms. Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Diplomate, Academy of Chiropractic, Long Island, New York, 2020

Accident Reconstruction: Module 1: Terms, Concepts & 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, Diplomat, Academy of Chiropractic, Long Island, New York, 2020

Accident Reconstruction: Module 2: Causality, Bodily Injury, Crumple Zones, Force & 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 Diplomat, Academy of Chiropractic, Long Island, New York, 2020

Accident Reconstruction: Module 3: Skid Marks, Time, Distance, Velocity & Speed Formulas, 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, Diplomat, Academy of Chiropractic, Long Island, New York, 2020

Electrodiagnostics: Electromyogram/Nerve Conduction Velocity (EMG/NCV), Diagnosis & Interpretation: Nerve Conduction Velocity (NCV) Part 2. Module 3, Compound motor action potentials (CMAP) and sensory nerve action potentials (SNAP) testing and interpretation including the analysis and diagnosis of the wave forms. It also covers compressive neuropathies of the median, ulnar and posterior tibial nerves; known as carpal tunnel, cubital tunnel and tarsal tunnel syndromes. This section offers interpretation algorithms to help understand the neurodiagnostic conclusions. Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Diplomat, Academy of Chiropractic, Long Island, New York, 2020

Electrodiagnostics: Electromyogram/Nerve Conduction Velocity (EMG/NCV), Diagnosis & Interpretation: Needle Electromyogram (EMG) Studies. Module 4:, The EMG process, inclusive of how the test is performed and the steps required in planning and electromyographic study. This covers the spontaneous activity of a motor unit action potential, positive sharp waves and fibrillations. The insertional activity (both normal and abnormal), recruitment activity in a broad polyphasic presentation and satellite potentials. This covers the diagnosing of patterns of motor unit abnormalities including neuropathic demyelinated neuropathies along with acute myopathic neuropathies. This section also covers the ruling out of false positive and false negative results. Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Diplomat, Academy of Chiropractic, Long Island, New York, 2020

Electrodiagnostics: Electromyogram/Nerve Conduction Velocity (EMG/NCV), Diagnosis & Interpretation: Overview of EMG and NCV Procedures, Results, Diagnoses and Documentation. Module 5:, The clinical incorporation of electrodiagnostic studies as part of a care plan where neuropathology is suspected. It also covers how to use electrodiagnostics in a collaborative

environment between the chiropractor as the primary spine care provider and the surgeon, when clinically indicated. This section covers sample cases and health conclude and accurate treatment plans based upon electro-neurodiagnostic findings when clinically indicated. Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Diplomate, Academy of Chiropractic, Long Island, New York, 2020

Mild Traumatic Brain Injury/Traumatic Brain Injury/Concussion, differentially diagnosing mild traumatic brain injury vs. traumatic brain injury and the clinical and imaging protocols required to conclude an accurate diagnosis for head trauma. Academy of Chiropractic Post-Doctorial Division, Cleveland University - Kansas City Long Island, NY, 2020

Spinal Disc and Ligaments; Neurology and Pathology: Module 1, Neurology of Ligament Pathology- Normal Morphology and Tissue Damage, Connective tissue morphology, embryology, and wound repair as sequelae to trauma. Full components of strain-sprain models and permanency implications with wound repair and osseous aberration with aberrant structural integrity. Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, , Long Island, New York, 2020

Spinal Disc and Ligaments; Neurology and Pathology: Module 2, Neurology of Ligament Pathology- Spinal Biomechanics and Disc Pathology, Disc pathology as sequella to trauma; herniation, extrusion, protrusion, sequestration and how the spinal unit as one system creates homeostasis to balance the pathology. Academy of Chiropractic- Post Doctoral Division, Cleveland University-Kansas City, Long Island, New York, 2020

Spinal Disc and Ligaments; Neurology and Pathology: Module 3, Neurology of Ligament Pathology- Neurological Innervation, The peripheral and central innervation of the disc and spinal ligaments of the dorsal root ganglion, spinal thalamic tracts, periaqueductal gray areas innervating the Thalamus and multiple regions of the brain. The efferent neurological distribution to disparate areas of the spine to create homeostasis until tetanus ensues creating osseous changes under the effect of Wolff's Law. Diplomate, Academy of Chiropractic, Academy of Chiropractic Post-Doctorial Division, Cleveland University- Kansas City, Long Island, New York, 2020

Traumatic Brain Injury and Concussion Overview: Module 1, 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. Diplomate, Cleveland Chiropractic University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, New York, 2020

Head Trauma and Traumatic Brain Injury Part 1: Module 2, This section discusses gross traumatic brain injuries from trauma and significant bleeding with both epidural and subdural hematomas. There are numerous case studies reviewed inclusive of neurosurgical intervention and postsurgical outcomes. Diplomate, Academy of Chiropractic, Cleveland Chiropractic University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Academy of Chiropractic, Post-Doctoral Division, Long Island, New York, 2020

Head Trauma and Traumatic Brain Injury Part 2: Module 3, This section continues with multiple case studies of gross traumatic brain injuries from trauma requiring neurosurgical intervention and also discusses recovery sequela based upon the significance of brain trauma. This module also concludes with concussion protocols in traumatic brain injury short of demonstrable bleeding on advanced imaging. Diplomate, Cleveland Chiropractic University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Academy of Chiropractic, Post-Doctoral Division, Long Island, New York, 2020

Concussion and Electroencephalogram Testing: Module 4, This this section covers concussion etiology and cognitive sequela where gross bleeding has not been identified on advanced imaging. It discusses the significance of electroencephalogram testing in determining brain function and pathology (if present). This module also covers the understanding of waveforms in electroencephalogram testing in both normal and abnormal scenarios. Diplomate, Cleveland Chiropractic University, Kansas City, Academy of Chiropractic, Post-Doctoral Division,, Long Island, New York, 2020

Concussion and Electroencephalogram Testing Pathological Results: Module 5, This module covers amplitude, conduction, and conduction delays as sequela to traumatic brain injury to diagnose concussion and traumatic brain injury in the absence of gross bleeding and advanced imaging. This section covers electroencephalograms and event-related potentials which measures the brain response that is a direct result of specific sensory or motor events. It is a stereotype electrophysiological response to a stimulus and provides a noninvasive means of evaluating brain function. In this module multiple case studies are discussed with ensuing triage protocols pending the results. Diplomate, Cleveland Chiropractic University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Academy of Chiropractic, Post-Doctoral Division, Long Island, New York, 2020

Academy of Chiropractic – Active Trauma Team Member, 2020-present, 2020

Primary Spine Care 7: Spinal Biomechanical Pathology & Collaborative Management Webinar , 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 Cleveland University Kansas, Long Island, New York, 2019

Primary Spine Care 7: Spinal Biomechanical Pathology & Collaborative Management Webinar , Documentation in a Medical – Legal and Insurances, Constructing and concluding an E&M (99202-99205) report that accurately reflects the history, clinical findings and management of trauma cases that concurrently meets the needs of both the carriers in the courts and ethical relationship that concurrently matches the standards of both contemporary academia requirements and a contemporary literature-based standard Cleveland University Kansas, Long Island, New York, 2019

Primary Spine Care 7: Spinal Biomechanical Pathology & Collaborative Management Webinar , Ethics and Medical Collaboration, Having referral relationships with emergency rooms,

neurosurgeons, orthopedic surgeons, pain management specialists, neurologists, neuroradiologist and medical primary care providers based upon clinical dilemmas that processed after a thorough history, examination and imaging if clinically indicated to conclude diagnostic dilemmas. Utilizing evidence-based protocols and acquisition of images and treatment pathways, collaborating with medical specialists and primaries to conclude and accurate treatment plan. Cleveland University Kansas, Long Island, New York, 2019

Primary Spine Care 7: Spinal Biomechanical Pathology & Collaborative Management Webinar, 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. Cleveland University Kansas, Long Island, New York, 2019

Lumbar Differential Assessment Part A, Review of clinical history, evaluation findings, radiographic, MRI and other special test findings in conditions that affect the lumbar spine. Northwestern Health Sciences University, Elgin, Illinois, 2019

MRI SPINE CREDENTIALING Part 1; Module #1: MRI History and Physics, MRI History and Physics, Magnetic fields, T1 and T2 relaxations, nuclear spins, phase encoding, spin echo, T1 and T2 contrast, magnetic properties of metals and the historical perspective of the creation of NMR and MRI. Cleveland University - Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019, Long Island, New York, 2019

MRI SPINE CREDENTIALING Part 1: Module #2: MRI Spinal Anatomy and Protocols, 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, 2019, Long Island, New York, 2019

MRI SPINE CREDENTIALING Part 1: Module #3: MRI Disc Pathology and Spinal Stenosis, 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, 2019, Long Island, New York, 2019

MRI SPINE CREDENTIALING Part 1: Module #4: MRI Spinal Pathology, MRI Spinal Pathology, MRI interpretation of bone, intradural, extradural, cord and neural sleeve lesions. Tuberculosis, drop lesions, metastasis, ependymoma, schwannoma and numerous other spinal related tumors and lesions Diplomate, , Cleveland University - Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and

Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019, Long Island, New York, 2019

MRI SPINE CREDENTIALING Part 1: Module #5: MRI Methodology of Analysis, 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. Cleveland University - Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019, Long Island, New York, 2019

MRI SPINE CREDENTIALING Part 1: Module #6: MRI Clinical Application, 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 Cleveland University - Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019, Long Island, New York, 2019

MRI SPINE CREDENTIALING Part 2: Module #1: MRI Disc Overview & Imaging Protocols, 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 Cleveland University - Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019, Long Island, New York, 2019

MRI SPINE CREDENTIALING Part 2: Module #2: MRI Interpretation of Lumbar Bulges/Degenerative Disc Disease , MRI Interpretation of Lumbar Degeneration/Bulges, MRI slices, views, T1, T2, STIR axial, stacking, FFE, FSE and sagittal images in the interpretation of lumbar degeneration. With the co-morbidities and complications of stenosis, pseudo-protrusions, cantilevered vertebrate, Schmorl's nodes and herniations. Central canal and cauda equina compromise interpretation with management Cleveland University - Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019, Long Island, New York, 2019

MRI SPINE CREDENTIALING Part 2: Module #3: MRI Interpretation of Lumbar Herniated Discs, MRI Interpretation of Lumbar Herniations, MRI slices, views, T1, T2, STIR axial, stacking, FFE, FSE and sagittal images in the interpretation of lumbar herniations. With the co-morbidities and complications of stenosis, pseudo-protrusions, cantilevered vertebrate, Schmorl's nodes and herniations. Morphology of lumbar disc pathologies of central and lateral herniations, protrusions, extrusions, sequestration, focal and broad based herniations are defined and illustrated. Central canal and cauda equina compromise interpretation with management.

Cleveland University - Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019, Long Island, New York, 2019

MRI SPINE CREDENTIALING Part 2:Module #4: MRI Interpretation of Cervical Bulges/Degenerative Disc Disease , MRI Interpretation of Cervical Degeneration/Bulges, MRI slices, views, T1, T2, STIR axial, stacking, FFE, FSE and sagittal images in the interpretation of cervical degeneration. With the co-morbidities and complications of stenosis, pseudo-protrusions, cantilevered vertebrate, Schmorl's nodes and herniations. Spinal cord and canal compromise interpretation with management. Cleveland University - Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019, Long Island, New York, 2019

MRI SPINE CREDENTIALING Part 2: Module #5: MRI Interpretation of Cervical Herniated Discs, 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 vertebrate, Schmorl's nodes and herniations. morphology of lumbar disc pathologies of central and lateral herniations, protrusions, extrusions, sequestration, focal and broad based herniations are defined and illustrated. Spinal cord and canal compromise interpretation with management. Cleveland University - Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019, Long Island, New York, 2019

MRI SPINE CREDENTIALING Part 2:Module #6: Virtual Grand Rounds, MRI Interpretation of Degenerative Spine and Disc Disease with Overlapping Traumatic Insult to Both Spine and Disc, MRI slices, views, T1, T2, STIR Axial, FFE, FSE and sagittal images in the interpretation of degenerative spondylolesthesis, spinal canal stenosis, Modic type 3 changes, central herniations, extrusions, compressions, nerve root compressions, advanced spurring and thecal sac involvement from an orthopedic, emergency room, chiropractic, neurological, neurosurgical, physical medicine perspective. Cleveland University - Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019, Long Island, New York, 2019

Personal Injury Bootcamp Module #1: Personal Injury Bootcamp: Crash Dynamics and the Trauma Victim, Neurodiagnostics, Imaging Protocols and Pathology of the Trauma Patient, An in-depth understanding of the protocols in triaging and reporting the clinical findings of the trauma patient. Maintaining ethical relationships with the medical-legal community. Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2019, Long Island, New York, 2019

Personal Injury Bootcamp: Module #2: Examination & Triaging the Trauma Patient, Neurodiagnostics, Imaging Protocols and Pathology of the Trauma Patient, an in-depth

understanding of the protocols in triaging and reporting the clinical findings of the trauma patient. Maintaining ethical relationships with the medical-legal community. Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2019 Long Island, New York, 2019

Personal Injury Bootcamp Module #3: Crash Dynamics and Its Relationship to Causality, Crash Dynamics and Its Relationship to Causality, an extensive understanding of the physics involved in the transference of energy from the bullet car to the target car. This includes G's of force, newtons, gravity, energy, skid marks, crumple zones, spring factors, event data recorder and the graphing of the movement of the vehicle before, during and after the crash. Determining the clinical correlation of forces and bodily injury. Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2019

Personal Injury Bootcamp Module #4: MRI, Bone Scan and X-Ray Protocols, Physiology and Indications for the Trauma Patient, MRI, Bone Scan and X-Ray Protocols, Physiology and Indications for the Trauma Patient, MRI interpretation, physiology, history and clinical indications, bone scan interpretation, physiology and clinical indications, x-ray clinical indications for the trauma patient. Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, New York, 2019

Personal Injury Bootcamp Module #5: Neurodiagnostics Testing: EMG/NCV, VEP, BAER, V-ENG and SSEP, Clinical Indications and Interpretation, Neurodiagnostic Testing Protocols, Physiology and Indications for the Trauma Patient, Electromyography (EMG), Nerve Conduction Velocity (NCV), Somato Sensory Evoked Potential (SSEP), Visual Evoked Potential (VEP), Brain Stem Auditory Evoked Potential (BAER) and Visual-Electronystagmosgraphy (V-ENG) interpretation, protocols and clinical indications for the trauma patient. Diplomate, Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, New York, 2019

Personal Injury Bootcamp Module #6: Documentation and Working within Your State Laws to Ensure Compliant Paperwork and Reimbursement, 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. Diplomate, , Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, New York, 2019

Personal Injury Bootcamp Module #7: Strategic Plan, Documenting Clinically Correlated Bodily Injury to Causality, Understanding the necessity for accurate documentation, diagnosis and clinical correlation to the injury when reporting injuries in the medical-legal community. Documenting the kinesio pathology, myopathology, neuropathology, and pathophysiology in both a functional and structural paradigm. Diplomate, Cleveland University - Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, New York, 2019

A Post-ICD-10 World, A Post-ICD-10 World Illinois Chiropractic Society, Illinois Chiropractic Society, Springfield, Illinois, 2019

Risk Management Focus: Current Topics in Chiropractic Risk Management 2019, Current Topics in Chiropractic Risk Management, Online Home Study Course OUM Chiropractic Program, 2019

Sexual Harrassment Prevention Training, Understanding and preventing sexual harassment in the workplace. Creating policy so employees understand what sexual harassment in the workplace is and how to report it. Illinois Chiropractic Society, Illinois, 2019

Spinal Biomechanical Engineering: Cartesian Coordinate System: Part 1-Module #1, 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. Cleveland University Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division Buffalo, NY, 2019

Spinal Biomechanical Engineering: Cervical Pathobiomechanics: Part 1-Module #2, 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. Cleveland University Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019

Spinal Biomechanical Engineering: Lumbar Pathobiomechanics: Part 1-Module #3, Spinal Biomechanical Engineering: Lumbar Pathobiomechanics, Spinal biomechanical engineering of the lumbar spine. This includes the normal and pathobiomechanical movement of both the anterior and posterior motor units and normal function and relationship of the intrinsic musculature to those motor units. Nomenclature in reporting normal and pathobiomechanical findings of the spine. Cleveland University Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019

Spinal Biomechanical Engineering: Spinal Biomechanics in Trauma: Part 1-Module #4, Spinal Biomechanics in Trauma, To utilize whiplash associated disorders in various vectors of impact and whiplash mechanisms in determining pathobiomechanics. To clinically correlate annular tears, disc herniations, fractures, ligament pathology and spinal segmental instability as sequelae to pathobiomechanics from trauma. The utilization of digital motion x-ray in diagnosing normal versus abnormal facet motion along with case studies to understand the clinical application. Cleveland University Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019

Spinal Biomechanical Engineering & Organizational Analysis: Part 2-Module #1, 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. Cleveland University Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019

Spinal Biomechanical Engineering: Cervical Digital Analysis: Part 2-Module #2, 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. Cleveland University Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019

Spinal Biomechanical Engineering: Lumbar Digital Analysis: Part 2-Module #3 , Spinal Biomechanical Engineering: Lumbar Digital Analysis, Digitalizing and analyzing the lumbar spine images to diagnose pathobiomechanics. This includes anterior and posterior vertebral body elements in rotational analysis with neutral, left and right lateral bending in conjunction with gate analysis. Ligament instability/failure/pathology is identified all using numerical values and models. Review of case studies for analysis of pathobiomechanics using a computerized/numerical algorithm along with corrective guidelines. Cleveland University Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019

Spinal Biomechanical Engineering: Full Spine Digital Analysis: Part 2-Module #4, Spinal Biomechanical Engineering: Full Spine Digital Analysis, Digitalizing and analyzing the full spine images to diagnose pathobiomechanics as sequellae to trauma in relation to ligamentous failure and disc and vertebral pathology as sequellae. This includes anterior and posterior vertebral body elements in rotational analysis with neutral, left and right lateral bending in conjunction with gate analysis. Ligament instability/failure/pathology is identified all using numerical values and models. Review of case studies for analysis of pathobiomechanics using a computerized/numerical algorithm along with corrective guidelines. Cleveland University Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019

Case Study Reviews: Lumbar Spine Xray Findings, Radiographic and MRI interpretation of cases that present for chiropractic care. Illinois Chiropractic Society, On line live webinar, Illinois, 2019

Stroke Anatomy and Physiology Module 1- Part 1, 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, 2019

Stroke Anatomy and Physiology Module 2- Part 2, 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 instroke 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, 2019

Stroke Principles and Treatment an Overview for the Primary Care Provider Module 3, 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, 2019

Clinical Evaluation and Protocols for Identifying Stroke Risk Module 4, 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, 2019

Spinal Trauma Pathology: Module 1: Diagnostic dilemmas and connective tissue Morphology, Spinal Trauma Pathology, Triage and Connective Tissue Injuries and Wound Repair, Triaging the injured and differentially diagnosing both the primary and secondary complaints. Connective tissue injuries and wound repair morphology focusing on the aberrant tissue replacement and permanency prognosis potential. Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York, 2019

Spinal Trauma Pathology: Module 2: Ligament anatomy and injury research and spinal kinematics, Spinal Trauma Pathology, Ligament Anatomy and Injury Research and Spinal Kinematics, Spinal ligamentous anatomy and research focusing on wound repair, future negative sequelae of abnormal tissue replacement and the resultant aberrant kinematics and spinal biomechanics of the spine. Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York, 2019

Spinal Trauma Pathology: Module 3: Spinal Biomechanics, Central Nervous System and Spinal Disc Nomenclature, Spinal Trauma Pathology, Spinal Biomechanics, Central Nervous System and Spinal Disc Nomenclature, The application of spinal biomechanical engineering models in trauma and the negative sequelae it has on the central nervous system inclusive of the lateral horn, periaqueductal grey matter, thalamus and cortices involvement. Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York, 2019

Spinal Trauma Pathology: Module 4: Biomechanics of Traumatic Disc Bulge and Age Dating Herniated Disc Pathology , Spinal Trauma Pathology, Biomechanics of Traumatic Disc Bulge and Age Dating Herniated Disc Pathology, The biomechanics of traumatic disc bulges as sequelae from trauma and the comorbidity of ligamentous pathology. Age-dating spinal disc pathology in accordance with Wolff's Law. Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York, 2019

Spinal Trauma Pathology: Module 5: Spinal trauma pathology, clinical grand rounds, Spinal Trauma Pathology, Clinical Grand Rounds, The review of case histories of mechanical spine pathology and biomechanical failures inclusive of case histories, clinical findings and x-ray and advanced imaging studies. Assessing comorbidities in the triage and prognosis of the injured. Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York, 2019

Spinal Trauma Pathology: Module 6: Spinal trauma pathology, Research and documentation Review, Spinal Trauma Pathology, Research Perspectives, The review of current literature standards in spinal trauma pathology and documentation review of biomechanical failure, ligamentous failure, and age-dating disc pathology. Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York, 2019

Traumatic Cervical Spine Seminars, Post Traumatic Cervical Spine Part B Northwestern Health Science University, Northwestern Health Science University, Bloomington, Minnesota, 2018

Documentation and Clinical Rationale, Documentation and Clinical Rationale Northwestern Health Science University, Northwestern Health Science University, Bloomington, Minnesota, 2018

Risk Management Focus: Current Topics in Chiropractic Risk Management - 2018, Current Topics in Chiropractic Risk Management - EHRs and Social Media OUM Chiropractic Program, 2018

2017 Chicago National Convention and Expo, 2017 Chicago National Convention and Expo Logan University - College of Chiropractic, Illinois Chiropractic Society, 2017

GONSTEAD MEETING OF THE MINDS, Round Table of Chiropractic Doctors in practice minimum of 10 years, most 20 or more reviewing difficult cases, case studies and the current literature as it impacts the delivery of the Gonstead Method of Chiropractic and patient care. Gonstead Clinical Studies Society, 2016

Advanced Principles of Lower Extremity Adjusting, Advanced Principles of Lower Extremity Adjusting Parker University, Chicago, IL, 2016

2016 ICS Chicago National Convention and Expo, ICS Chicago National Convention and Expo Logan University - College of Chiropractic, Naperville, IL, 2016

Practical Applications for Orthopedic Conditions, Part 1, Practical Applications for Orthopedic Conditions Chicago, IL, 2016

CE - Strong Posture Assessment and Rehabilitation Protocols for Pain, Performance and Aging, Strong Posture Assessment and Rehabilitation Protocols for Pain, Performance and Aging Certification in Certified Posture and Exercise Professional, University of Western States, Skokie, IL, 2016

Risk Management Course: OUM Home Study 2016: Avoiding Adversity, OUM Home Study for Avoiding Adversity OUM Chiropractic Program, 2016

Traumatic Lumbar Syndrome, Traumatic Lumbar Syndrome - 5 hours Northwestern Health Science University, Chicago, IL, 2015

Risk Management Course: OUM Home Study 2014: Practices and Principles, OUM Home Study 2014: Practices and Principles - 6 hours OUM Chiropractic Program, 2015

Permanent Soft Tissue Injuries, Permanent Soft Tissue Injuries - 4.5hrs Northwestern Health Science University, Chicago, IL, 2014

E/M Coding Compliance, E/M Coding Compliance - 1hr AAPC, 2014

Spinal Differential Assessment, Spinal Differential Assessment - 5.5hrs Northwestern Health Science University, Chicago, IL, 2013

OUM Chiropractic Program - Risk Management, OUM Chiropractic Program - Risk Management - Elements of Excellence Logan University - College of Chiropractic, 2013

D.C. Tracts - Laboratory Diagnosis as an aid to Chiropractic, D.C. Tracts - Laboratory Diagnosis as an aid to Chiropractic Logan College of Chiropractic, 2013

GONSTEAD MEETING OF THE MINDS, Round Table of Chiropractic Doctors in practice minimum of 10 years, most 20 or more reviewing difficult cases, case studies and the current literature as it impacts the delivery of the Gonstead Method of Chiropractic and patient care Gonstead Clinical Studies Society, 2012

Dan Dock Seminar, Upper Cervical Syndrome - 6hrs Northwestern Health Science University, Chicago, IL, 2012

OUM Chiropractic Program - Risk Management, OUM Chiropractic Program - Risk Management - Focus on Fundamentals Logan University - College of Chiropractic, 2012

GONSTEAD MEETING OF THE MINDS, Round Table of Chiropractic Doctors in practice minimum of 10 years, most 20 or more reviewing difficult cases, case studies and the current literature as it impacts the delivery of the Gonstead Method of Chiropractic and patient care Gonstead Clinical Studies Society, 2011

SpiderTech: Basic Theory and Application, SpiderTech: Basic Theory and Application New York Chiropractic College, 2011

Complementary and Alternative Medicine Online Continuing Education Series, Complementary and Alternative Medicine Online Continuing Education Series - Mind-Body Medicine Cine-Med, 2011

Complementary and Alternative Medicine Online Continuing Education Series, Complementary and Alternative Medicine Online Continuing Education Series - Herbs and Other Dietary Supplements Cine-Med, 2011

Complementary and Alternative Medicine Online Continuing Education Series, Complementary and Alternative Medicine Online Continuing Education Series - Ten Years of Resource on Complementary and Alternative Medicine: Promising Ideas from Outside the Mainstream Cine-Med, 2011

IPSCA Fall Convention Chiropractic Unbarred, IPSCA Fall Convention Chiropractic Unbarred-4hrs Illinois Prairie State Chiropractic Association, Saint Charles, IL, 2011

Imaging for the Upper Extremities, Imaging for the Upper Extremities - 2hrs Illinois Prairie State Chiropractic Association, Saint Charles, IL, 2011

IPSCA General Membership Meeting, IPSCA General Membership Meeting - 1hr Illinois Prairie State Chiropractic Association, Saint Charles, IL, 2011

Mental Illness and Chiropractic, Mental Illness and Chiropractic - 2hrs Illinois Prairie State Chiropractic Association, Saint Charles, IL, 2011

D.C. Tracts- Knee Injuries, D.C. Tracts - Knee Injuries Logan University - College of Chiropractic, 2011

D.C. Tracts- Herbs and Homeopathy, D.C. Tracts - Herbs and Homeopathy Logan University - College of Chiropractic, 2010

D.C. Tracts- Equilibrium and Balance Disorders, D.C. Tracts - Equilibrium and Balance Disorders Logan University - College of Chiropractic, 2010

OUM Chiropractic Program - Risk Management, OUM Chiropractic Program - Risk Management Logan University - College of Chiropractic, 2010

OUM Chiropractic Program Home Study - Practical Chiropractic, OUM Chiropractic Program Home Study - Practical Chiropractic - 6hrs Logan University - College of Chiropractic, 2009

GONSTEAD MEETING OF THE MINDS, Round Table of Chiropractic Doctors in practice minimum of 10 years, most 20 or more reviewing difficult cases, case studies and the current literature as it impacts the delivery of the Gonstead Method of Chiropractic and patient care. Gonstead Clinical Studies Society, 2008

OUM Chiropractic Program - Risk Management, OUM Chiropractic Program - Risk Management Logan University - College of Chiropractic, 2008

International Pain Management Spine Disorders, International Pain Management Spine Disorders Illinois Chiropractic Society, 2007

CPATE/Clinical Posture Assessment, Therapy and Exercises, CPATE/Clinical Posture Assessment, Therapy and Exercises University of Bridgeport, Rolling Meadows, IL, 2007

Integrating Chiropractic and Postural Rehab Exercises, Integrating Chiropractic and Postural Rehab Exercises University of Bridgeport, Chicago, IL, 2007

D.C. Tracts - Healthy Aging, D.C. Tracts - Healthy Aging Logan University - College of Chiropractic, 2007

D.C. Tracts - Laboratory Diagnosis as an aid to Chiropractic, D.C. Tracts - Laboratory Diagnosis as an aid to Chiropractic Logan College of Chiropractic, 2007

D.C. Tracts- Clinical Chiropractic and The Athlete, D.C. Tracts - Clinical Chiropractic and The Athlete Logan College of Chiropractic, 2007

D.C. Tracts - Pediatrics, D.C. Tracts - Pediatrics Logan College of Chiropractic, 2007

OUM Chiropractic Program, OUM Chiropractic Program - Risk Management Logan College of Chiropractic, 2007

Daily Back Pain May Have Adverse Health Effects Elderly in Women, Daily Back Pain May Have Adverse Health Effects in Elderly Women Medscape, 2007

Zinc and Its Uses, Zinc, and Its Uses Medscape, 2007

The Choice of a Metabolic Syndrome Generation: Soft Drink Consumption Associated with Increased Metabolic Risk, The Choice of a Metabolic Syndrome Generation: Soft Drink Consumption Associated With Increased Metabolic Risk Medscape, 2007

Pediatric ADHD: Guidelines for Initiating and Monitoring Treatment, Pediatric ADHD: Guidelines for Initiating and Monitoring Treatment Medscape, 2007

Webster Technique, this course offers the skills to provide advanced techniques and evidence-based care to the perinatal patient. The course includes an in-depth approach to a physiological birth and the chiropractic relationship Certification in Webster Technique Certified, International Chiropractic Pediatric Association, 2004

Certificate in Chiropractic Pediatrics and Pregnancy: School Age Adolescents 24 HRS, the purpose of the Diplomate Program is to offer chiropractors the educational and clinical experience to care for pregnant women and children confidently and proficiently. The 120-hour certificate was the original first half leading towards Diplomate Status. The 120-hour curriculum offered techniques and protocols of care for children and pregnant women. The 10-module course covered levels of training additional to what is offered in chiropractic colleges. Certification in Certification in Pregnancy and Pediatrics 120 Hours, Diplomate, International Chiropractic Pediatric Association, Palmer Institute for Professional Advancement, California, 2004

Certificate in Chiropractic Pediatrics and Pregnancy: Final Exam 8 HRS, the purpose of the Diplomate Program is to offer chiropractors the educational and clinical experience to care for pregnant women and children confidently and proficiently. The 120-hour certificate was the original first half leading towards Diplomate Status. The 120-hour curriculum offered techniques and protocols of care for children and pregnant women. The 10-module course covered levels of training additional to what is offered in chiropractic colleges. Certification in Certification in Pregnancy and Pediatrics 120 Hours, Diplomate, International Chiropractic Pediatric Association, Palmer Institute for Professional Advancement, California, 2004

Chiropractic and The Baseball Player, Chiropractic and The Baseball Player - 3hrs Illinois Prairie State Chiropractic Association, Chicago, Illinois, 2004

Certificate in Chiropractic Pediatrics and Pregnancy: Self Study 30 hours, the purpose of the Diplomate Program is to offer chiropractors the educational and clinical experience to confidently and proficiently care for pregnant women and children. The 120 hr certificate was the original first half leading towards Diplomate Status. The 120-hour curriculum offered techniques and protocols of care for children and pregnant women. The 10-module course covered levels of training additional to what is offered in chiropractic colleges. Certification in Certification in Pregnancy and Pediatrics 120 Hours, International Chiropractic Pediatric Association, Palmer Institute for Professional Advancement, 2003

Certificate in Chiropractic Pediatrics and Pregnancy: Self Study 20 hours, the purpose of the Diplomate Program is to offer chiropractors the educational and clinical experience to confidently and proficiently care for pregnant women and children. The 120 hour certificate was

the original first half leading towards Diplomate Status. The 120-hour curriculum offered techniques and protocols of care for children and pregnant women. The 10-module course covered levels of training additional to what is offered in chiropractic colleges. Certification in Certification in Pregnancy and Pediatrics 120 Hours, Diplomate, International Chiropractic Pediatric Association, Palmer College of Chiropractic, California, 2003

Certificate in Chiropractic Pediatrics and Pregnancy: Infant and Toddler 12 HRS, the purpose of the Diplomate Program is to offer chiropractors the educational and clinical experience to care for pregnant women and children confidently and proficiently. The 120-hour certificate was the original first half leading towards Diplomate Status. The 120-hour curriculum offered techniques and protocols of care for children and pregnant women. The 10-module course covered levels of training additional to what is offered in chiropractic colleges. Certification in Certification in Pregnancy and Pediatrics 120 Hours, Diplomate, , International Chiropractic Pediatric Association, Palmer Institute for Professional Advancement , , California, 2003

Karl Parker Seminars - Workshops, Karl Parker Seminars - Workshops - 16hrs 2002

Gonstead Advanced Class, Training in the Gonstead Method including difficult case studies, x-rays analysis of Spinal Biomechanical Lesions, advanced technique, and treatment methods. Palmer College, Las Vegas, Nevada, 2001

National Conference on Chiropractic and Pediatrics: Common Childhood Conditions, Common Childhood Conditions - 2hrs Palmer College of Chiropractic, 1998

National Conference on Chiropractic and Pediatrics: Special Needs Children, Special Needs Children - 1hr 1998

National Conference on Chiropractic and Pediatrics: Extraordinary Living, Extraordinary Living - 2hrs Palmer College of Chiropractic, 1998

National Conference on Chiropractic and Pediatrics: Adjusting Workshop and Cranial Technique, Adjusting Workshop - Cranial Technique - 2hrs Palmer College of Chiropractic, 1998

National Conference on Chiropractic and Pediatrics: Torticollis and Spine Infection, Torticollis/Spine Infection - 2hrs Palmer College of Chiropractic, 1998

National Conference on Chiropractic and Pediatrics: Exam and Adjustment Cervical Spine, Exam and Adjustment Cervical Spine - 2hrs Certification in, Palmer College of Chiropractic, 1998

National Conference on Chiropractic and Pediatrics: Pediatric Posture and Gait, Pediatric Posture and Gait - 2hrs Certification in, Palmer College of Chiropractic, 1998

National Conference on Chiropractic and Pediatrics: Sports and Children, Sports and Children - 2hrs Palmer College of Chiropractic, 1998

National Conference on Chiropractic and Pediatrics: Pregnancy Management - Chiropractic Research, Pregnancy Management - Chiropractic Research - 2hrs Palmer College of Chiropractic, 1998

National Conference on Chiropractic and Pediatrics: Managing the ADHD Child, Managing the ADHD Child - 1hr Palmer College of Chiropractic, 1998

National Conference on Chiropractic and Pediatrics: Why Adjust Kids, Why Adjust Kids - 1hr Palmer College of Chiropractic, 1998

National Conference on Chiropractic and Pediatrics: Paper Presentation, Paper Presentation - 1hr Palmer College of Chiropractic, 1998

Certificate in Chiropractic Pediatrics and Pregnancy: Imaging of the Child, the purpose of the Diplomate Program is to offer chiropractors the educational and clinical experience to care for pregnant women and children confidently and proficiently. The 120-hour certificate was the original first half leading towards Diplomate Status. The 120-hour curriculum offered techniques and protocols of care for children and pregnant women. The 10-module course covered levels of training additional to what is offered in chiropractic colleges. 12 Hours Certification in Certification in Pregnancy and Pediatrics 120 Hours, Palmer College of Chiropractic, Chicago, Illinois, 1997

Certificate in Chiropractic Pediatrics and Pregnancy: Neonate Normal Considerations, the purpose of the Diplomate Program is to offer chiropractors the educational and clinical experience to care for pregnant women and children confidently and proficiently. The 120-hour certificate was the original first half leading towards Diplomate Status. The 120-hour curriculum offered techniques and protocols of care for children and pregnant women. The 10-module course covered levels of training additional to what is offered in chiropractic colleges. - 12hrs Certification in Certification in Pregnancy and Pediatrics 120 Hours, Palmer College of Chiropractic, Chicago, Illinois, 1997

Certificate in Chiropractic Pediatrics and Pregnancy: Birth, the purpose of the Diplomate Program is to offer chiropractors the educational and clinical experience to care for pregnant women and children confidently and proficiently. The 120-hour certificate was the original first half leading towards Diplomate Status. The 120-hour curriculum offered techniques and protocols of care for children and pregnant women. The 10-module course covered levels of training additional to what is offered in chiropractic colleges. - 12hrs Certification in Certification in Pregnancy and Pediatrics 120 Hours, Palmer College of Chiropractic, Chicago, IL, 1997

National Conference on Chiropractic and Pediatrics, National Conference on Chiropractic and Pediatrics - 15.5 hours Chicago, Illinois, 1996

National Conference on Chiropractic and Pediatrics: Clinical Reports, Clinical Reports - 1hr Palmer College of Chiropractic, 1996

National Conference on Chiropractic and Pediatrics: Imaging Procedures, Imaging Procedures - 2hrs Palmer College of Chiropractic, 1996

National Conference on Chiropractic and Pediatrics: Spinal Trauma, Spinal Trauma - 2hrs Palmer College of Chiropractic, 1996

National Conference on Chiropractic and Pediatrics: Technique Workshop, Technique Workshop - 2hrs Palmer College of Chiropractic , 1996

National Conference on Chiropractic and Pediatrics: Vaccinations , Vaccinations - 2hrs Palmer College of Chiropractic , 1996

National Conference on Chiropractic and Pediatrics: Nutrition, Nutrition - 2hrs Palmer College of Chiropractic , 1996

National Conference on Chiropractic and Pediatrics: Subluxation Complex, Subluxation Complex - 1hr Palmer College of Chiropractic , 1996

National Conference on Chiropractic and Pediatrics: Grand Rounds, Grand Rounds - 2hrs Palmer College of Chiropractic , 1996

National Conference on Chiropractic and Pediatrics: Technique Options, Technique Options - 1.5hrs Palmer College of Chiropractic , 1996

National Conference on Chiropractic and Pediatrics: Panel Workshop, Panel Workshop - 1.5hrs Palmer College of Chiropractic , 1996

Gonstead Advanced Class, Training in the Gonstead Method including difficult case studies, x-rays analysis of Spinal Biomechanical Lesions, advanced technique and treatment methods. Palmer College of Chiropractic, Reno, Nevada, 1993

Gonstead Introduction to Technique, Training in the Gonstead Method includes complete patient history, static palpation, motion palpation, instrumentation of the spinal column, orthopedic and neurological testing, x-ray analysis and, if necessary, laboratory analysis. All of this information is combined to determine if your health situation is a Chiropractic case. If it is not, a referral to the appropriate health provider will be given. Palmer College, Reno, Nevada, 1990

Gonstead Introduction to Technique, Training in the Gonstead Method includes complete patient history, static palpation, motion palpation, instrumentation of the spinal column, orthopedic and neurological testing, x-ray analysis and, if necessary, laboratory analysis. All of this information is combined to determine if your health situation is a Chiropractic case. If it is not, a referral to the appropriate health provider will be given. Palmer College of Chiropractic, San Mateo, California, 1989

Gonstead Introduction to Technique, Training in the Gonstead Method includes complete patient history, static palpation, motion palpation, instrumentation of the spinal column, orthopedic and neurological testing, x-ray analysis and, if necessary, laboratory analysis. All of this information is combined to determine if your health situation is a Chiropractic case. If it is not, a referral to

the appropriate health provider will be given. Diplomate, , Palmer College of Chiropractic, , Palm Springs, California, 1989

SCHOLARLY PRESENTATIONS

Ginsberg, D. (2019, February). Chiropractic Treatment of a Trigeminal Neuralgia in a Patient with Type 1 Chiari Malformation Power Point presented at the CDI Seminar, Elgin, IL.

Ginsberg, D. (2019, November). Clinical Management of the Spine Pain Patient : Evidence-based criteria for managing spine pain of biomechanical origin Power Point presented at the Northwestern School of Medicine Family Residency Program, Geneva, Illinois.

SELECTED TEACHING/INSTRUCTING/LECTURING/CONSULTING

Lecturer NSMG LLC, Federation of Chiropractic Licensing Boards – PACE, State University of New York at Buffalo Jacobs School Medicine, Clinical Grand Rounds – Chiropractic Management of a L5-S1 Lumbar Disc Extrusion. Review of objective muscle weakness as the primary indication for surgical interventions in patients with intervertebral disc herniations and extrusions was presented. , Discussion of parameters for physical examination findings to warrant ordering advanced imaging and surgical consultation. Overview of rationale for evaluation of spinal central canal in patients with abnormal neurological findings was reviewed. , Duties of a Spine Management Physician TM in the diagnosis and co-management of patients with intervertebral disc extrusions was outlined. Clinical correlation and coordination of care was detailed including timing of advanced imaging order and surgical, 2022- 2022

Clinical Management of the Spine Pain Patient : Evidence-based criteria for managing spine pain of biomechanical origin with a specific focus on , non-opioid, non-pharmacological approaches, Northwestern School of Medicine, Geneva, Illinois, 2019- 2019

Seven Steps to Marathon Success: Part 1 Getting to the Starting Line Injury Free, Geneva Running Outfitters, Geneva , IL, 2019- Present

Seven Steps to Marathon Success: Part 1 Getting to the Starting Line Injury Free, Dick Pond Athletics , St. Charles, IL, 2018- Present

Consultant: HIred to Help Corporation Develop a Wellness Program: Including Implementation of a Wellness Team and 3 Year Plan, Developing A Corporate Wellness Strategy: A Step by Step Guide, Centa Corporation, Aurora, IL, 2016- 2017

What is Chiropractic High School Presentation, Geneva High School, GENEVA, IL, 2016-

Three Mistakes Runners Make that Lead to Injury, Fox River Trail Runners, Batavia, IL, 2016-

Seven Steps to Marathon Success: Part 2 Last Minute Tips for a Successful Marathon, Geneva Running Outfitters, GENEVA, IL, 2015- Present

Nutrition for Runners, Dick Pond Athletics Walk to RUn Group, St. Charles, IL, 2015- Present

Three Mistakes Runners Make that Lead to Injury, Dick Pond Athletics, St. Charles, IL, 2014- Present

Injury Consultant, Assisted company in evaluating employee work duties that were contributing to soft tissue injuries including Lower Back, Neck and Shoulder Pain and Carpal Tunnel Syndrome, Suter Company, Sycamore, IL, 2013- 2013

Strength Training for Runners, Fox River Trail Runners , Batavia, IL, 2013- 2015

Stress What Causes it and what you can do about it!, Centa Corporation, Aurora, IL, 2013-

What is Chiropractic High School Presentation, Naperville North HS, Naperville, IL, 2013- Present

The Time is Now and The War Within, Fona International Corporation, Batavia, IL, 2009-

The Time is Now and The War Within, DiGiovine Hnilo Jordan and Johnson, St. Charles, IL, 2009-

Stress Causes and Treatment and Self Myofascial Relief Techniques for Stress, Mitutoyo Corporation, Aurora, IL, 2009- 2010

Stress Causes and Treatment and Self Myofascial Relief Techniques for Stress, City of St Charles, St. Charles, IL, 2008-

Stress What Causes it and what you can do about it!, FONA International, Batavia, IL, 2005- 2008

Seven Steps to Marathon Success: Part 2 Last Minute Tips for a Successful Marathon, Dick Pond Athletics, St. Charles, IL, 2004- Present

Teaching Assistant, Gonstead Elective, Palmer West Chiropractic College, Sunnyvale, California, 1988- 1990

SELECTED PUBLICATIONS

Plaughter, G., Lopes, M. (2013). Textbook of Clinical Chiropractic: A Biomechanical Approach-- Chapter 16 Extra vertebral Disorders Stephen L. Collins Mitchell S. Sill David A. Ginsberg.

Ginsberg, D. (2011). Do You Use Your Foam Roller for Warming Up? Retrieved From: <http://ezinearticles.com/?Do-You-Use-Your-Foam-Roller-For-Warming-Up?&id=6060994>, (

Ginsberg, D. (2011). Three Ways to Reduce Inflammation and Pain Without Using Drugs. Retrieved From: <http://ezinearticles.com/?Three-Ways-to-Reduce-Inflammation-and-Pain-Without-Using-Drugs!&id=5>,

Ginsberg, D. (2010). Tips for Running in the Heat. Retrieved From: <http://ezinearticles.com/?Tips-For-Running-in-the-Heat&id=4849966>,

Ginsberg, D. (2010). Choosing A Marathon Training Program. Retrieved From: <http://ezinearticles.com/?Choosing-a-Marathon-Training-Program&id=4551187>,

Ginsberg, D. (2010). Overuse Injuries: What Causes Them and How to Avoid Them Part 1. Retrieved From: <http://ezinearticles.com/?Choosing-a-Marathon-Training-Program&id=4551187>,

Ginsberg, D. (2010). Overuse Injuries: What Causes Them and How to Avoid Them Part 2. Retrieved From: <http://ezinearticles.com/?Overuse-Injuries---What-Causes-Them-and-How-to-Avoid-Them---Part-2&i>,

Ginsberg, D. (2010). Overuse Injuries: What Causes Them and How to Avoid Them Part 3. Retrieved From: <http://ezinearticles.com/?Overuse-Injuries---What-Causes-Them-and-How-to-Avoid-Them---Part-2&i>,

Ginsberg, D. (2010). Do You Have to See a Chiropractor Forever? Retrieved From: <http://ezinearticles.com/?Do-You-Have-to-See-the-Chiropractor-Forever?&id=3953208>,

Ginsberg, D. (2010). Low Back Pain: How Long Will It Take to Go Away? Retrieved From: <http://ezinearticles.com/?Low-Back-Pain---How-Long-Will-it-Take-to-Go-Away?&id=3953051>,

Ginsberg, D. (2010). Probiotics: What Are They and How to Choose One. Retrieved From: <http://ezinearticles.com/?Probiotics---What-Are-They-and-How-to-Choose-One&id=3617478>,

Ginsberg, D. (2010). The Time to Do It is Now! Retrieved From: <http://ezinearticles.com/?The-Time-to-Do-it-is-Now!&id=3603682>,

Ginsberg, D. (2009). How to Get Faster And Prevent Injuries by Improving Muscle Elasticity. Retrieved From: <http://ezinearticles.com/?How-to-Get-Faster-and-Prevent-Injuries-by-Improving-Muscle-Elastici>,

Ginsberg, D. (2009). What to Do Before You Start Any New Exercise Program to Avoid Injury! Retrieved From: <http://ezinearticles.com/?What-to-Do-Before-You-Start-Any-New-Exercise-Program-to-Avoid-Injury>,

Ginsberg, D. (2009). Non-Drug Alternatives for Arthritis Pain and Inflammation. Retrieved From: <http://ezinearticles.com/?Non-Drug-Alternatives-For-Arthritis-Pain-and-Inflammation&id=3261620>,

Ginsberg, D. (2009). The Key to Preventing Chronic Ankle Sprains. Retrieved From: <http://ezinearticles.com/?The-Key-to-Preventing-Chronic-Ankle-Sprains!&id=3261482>,

Ginsberg, D. (2009). Sciatica and Leg Discomfort in Runners-Causes and Solutions. Retrieved From: <http://ezinearticles.com/?Sciatica-and-Leg-Discomfort-in-Runners---Causes-and-Solutions&id=322>,

Ginsberg, D. (2009). Foam Rolling For IT Band Problems. Retrieved From: <http://ezinearticles.com/?Foam-Rolling-For-IT-Band-Problems&id=3222779>,

Ginsberg, D. (2009). Alternative Health Care For Ear Infections in Kids. Retrieved From: <http://ezinearticles.com/?Alternative-Health-Care-For-Ear-Infections-in-Kids&id=3222916>,

Ginsberg, D. (2009). Can Chiropractic Care Actually Help People Avoid the Flu?. Retrieved From: <http://ezinearticles.com/?Can-Chiropractic-Care-Actually-Help-People-Avoid-the-Flu?&id=3223175>,

Ginsberg, D. (2009). The Importance of Core Exercises for Runners. Retrieved From: <http://ezinearticles.com/?The-Importance-of-Core-Exercises-For-Runners&id=3222823>,

Ginsberg, D. (2009). Posture Exercises, Massage and Chiropractic Adjustments as an Anti-Aging Tool. Retrieved From: <http://ezinearticles.com/?Posture-Exercises,-Massage-and-Chiropractic-Adjustments-As-an-Anti-a>,

SELECTED MEMBERSHIPS

Illinois Chiropractic Society, 1995 - Present

International Chiropractic Pediatric Association, 1993 - Present

Gonstead Clinical Studies Society, 1992 - Present

American Academy of Spine Physicians, 2008 - 2009

SELECTED HONORS AND AWARDS

2022 Golden Heart Award Recipient- Tri- City Family Services

Cum Laude Graduate, Palmer West Chiropractic College, 1990

SELECTED COMMUNITY SERVICE

Fox River Trail Runners- provide stretching, guest lecturer and writer for monthly newsletter, Geneva, Illinois, 2004 - Present

Mill Creek Elementary School-Race Director- Run of the Mill 5k and Youth Mile, Geneva, Illinois, 2004 - 2007

Rotary International, Geneva, Illinois, 1995 - 1999

Kiwanis Club, Fremont, California, 1992 - 1994