MMI

METABOLIC MEDICAL

INSTITUTE

FELLOWSHIP
IN METABOLIC &
NUTRITIONAL MEDICINE

FELLOWSHIP IN METABOLIC & NUTRITIONAL MEDICINE CURRICULUM GUIDE

Educationally Partnered With:

School of Medicine
& Health Sciences
THE GEORGE WASHINGTON UNIVERSITY

A4M
AMERICAN ACADEMY OF ANTI-AGING MEDICINE
ESTABLISHED 1992, A4M REPRESENTS 26,000 PHYSICIANS & SCIENTISTS FROM 120 COUNTRIES WORLDWIDE

USF HEALTH
MORSANI COLLEGE OF MEDICINE
UNIVERSITY OF SOUTH FLORIDA

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Advanced Medical Education

Personalized • Functional • Integrative

This is The NEW Medicine.

MMI provides live and online advanced medical education in metabolic, functional, and integrative medicine for health care practitioners with the opportunity to earn advanced degrees from distinguished accredited universities including George Washington University and the University of South Florida.

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Table of Contents

MMI Chairperson Committee

Andrew Heyman, MD, MHSA, the Director of Medical Education for MMI's Integrative Medicine Fellowship Program, is an internationally recognized expert in the field of Integrative Medicine. He is currently the Program Director of Integrative & Metabolic Medicine at The George Washington University & spent 16 years at the University of Michigan building one of the largest & most successful academic-based Integrative Medicine programs in the U.S.

James LaValle, RPh, CCN, is a nationally recognized clinical pharmacist, author, Board Certified clinical nutritionist, naturopathic doctorate, founder of LaValle Metabolic Institute, an interdisciplinary medicine facility in Cincinnati where he has served thousands of patients using his metabolic model for health. He also founded Integrative Health Resources 15 years ago, which is focused as a natural products industry consulting company. Dr. LaValle has 27 years of experience integrating natural therapies into various medical & business models.

Mark Rosenberg, MD, received his doctorate from Georgetown University School of Medicine in 1988 and has been involved with drug research since 1991. With numerous certifications in several different fields of medicine, psychology and fitness, Dr. Rosenberg has a wide breadth of experience in both the public and private sector with particular expertise in the mechanisms of cancer treatment failure. Dr. Rosenberg is an innovator, constantly developing new ideas, techniques, and drugs, to combat incurable diseases. Many countries outside of the U.S. allow novel drugs that have not gone through FDA trials to be administered to terminally ill patients with no other options. Taking advantage of this option, Dr. Rosenberg intermittently travels outside of the country where he treats individuals who are considered end-stage.

Pamela W. Smith, MD, MPH, MS, spent her first twenty years of practice as a emergency room physician with the Detroit Medical Center. She is Board Certified in Anti-Aging Medicine & is an internationally known speaker & author on the subject of Metabolic, Anti-Aging & Functional Medicine. She has been featured on CNN, PBS & other television channels, has been interviewed in numerous consumer magazines & has hosted her own radio show. She is currently the Director of the Center for Healthy Living & Longevity & the Co-Director of the Master's Program in Metabolic and Nutritional Medicine at the Morsani College of Medicine at the University of South Florida.

A Conversation with the Leaders in Medical Education

Andrew Heyman, MD, MHSA
James LaValle, RPh, CCN
Mark Rosenberg, MD
Pamela W. Smith, MD, MPH, MS

1. How did you get into the field of Metabolic, Integrative, Preventative and Functional Medicine?

Heyman: I have been interested in health and wellness from an early age. I was 17 years old when I had my first introduction to integrative therapies when I learned Shiatsu. Most of my instructors were from Japan and China. I learned a new way of thinking about and caring for people who were unwell, different from a typically western perspective. After completing this training, I was invited to participate by the University of Pennsylvania in outreach efforts to underserved populations in the Philadelphia. It showed me the power of blending the old and new, conventional and unconventional, disease management and wellness-focused therapies. I saw firsthand the power of this approach in a difficult patient population. I then continued this work with Jim Gordon, MD at the Center for Mind-Body Medicine in Washington, D.C. and further explored the intersection between public health, at risk groups, and alternative therapies. These early experiences inspired me to deepen my knowledge of health services, medical care and integrative therapies. I have continued this journey since then, and am always seeking to refine my clinical skills, conduct research and teach and advocate for Integrative Medicine.

LaValle: I started working out for sports at age 13 so I had an active interest in nutrition from my early teens. I actually was a very sickly child, in fact I thought the pink stuff (Amoxicillin) and then the purple stuff (Dimetapp) were part of my daily diet. So by the time I was 20 years old I was struggling with allergies, eczema amongst other problems. I went to a doctor who evaluated me for adrenal function, food intolerances and gut dysbiosis back in 1984 right after pharmacy school. His work changed my life and I jumped into this field full time from that point.

Rosenberg: I became interested in preventative and herbal medicine in my teens, when I was a nationally competitive gymnast. Proper diet and appropriate supplementation were very important for peak performance. When the first Life Extension book, by Durk Pearson and Sandy Shaw was released in 1983, it became my bible. Throughout medical school and residency, while I was learning conventional approaches to management of disease, I took the time to research non-conventional and more natural treatment approaches.

Smith: While still an active emergency medicine physician, my interest in a metabolic and functional approach to healthcare was piqued when I began experiencing insomnia myself. I consulted with eleven different doctors to no avail. When all had resigned to the treatment of my symptoms by prescribing sleeping pills, I knew there had to be a better way forward. It was then that I attended the very first congress on Metabolic Medicine and heard for the first time that my symptoms could be explained by a deficiency of progesterone. Two days after starting my progesterone replacement regimen, I was sleeping like a baby. Shortly thereafter, I started my own practice focusing on a metabolic and functional approach based in a rigorous scientific foundation. This method of treatment goes beyond masking symptoms or treating to a desired lab result. Scientifically based metabolic and functional practices allow the practitioner to use the knowledge of how the human body truly works in order to not only allay symptoms, but to effect maximum wellness for the patient.

2. Can you recall a patient where the influence of Preventative, Integrative or Functional Medicine significantly altered a poor prognosis?

LaValle: I have so many cases that I could share, but I think a recent case that I have followed over the last year is a good example. An 18 year old male came to me with a history of chronic petit mal seizures over the last 8 years. He had a negative reaction to a vaccination and in addition significant accidental exposure formaldehyde. All previous attempts of nutritional and functional approaches had only aggravated his condition. He was reactive to foods, environmentally chemically sensitive, and even reacted to many dietary supplements. Through looking at detoxification pathways, applying detoxification processes including gemmotherapy (botanical) low dose homeopathy, he became seizure free over 13 months over a period. Gradually he was able to tolerate detoxification with nutritional agents. It was profound for me because of the fact that homeopathy, gemmotherapy (botanicals) and drainage complexes along with nutrition combined to resolve a very complex case. Every day I see cases that have their health transformed by applying concepts of Metabolic Medicine.

Smith: I have been truly astounded by the wonderful outcomes achieved by my patients. The journey of one patient in particular is extraordinary to say the least. This patient, who shall be called Nancy, had been admitted to a psychiatric facility in New York City. Nancy knew she struggled mightily to function in the world, but she also knew she was somehow very different from the rest of the patients around her. One day, while listening to a radio broadcast featuring an institute specializing in issues of PMS, Nancy recognized that the speaker was describing her symptoms exactly. She pleaded with her care givers to hear her out and let her go to the institute for an evaluation. This only resulted in an increase in her medications to calm her down. Medications she knew were not really helping her. One cold blustery day Nancy sneaked out of her facility wearing only the flimsy hospital gown. Exposed and shivering, she stole a purse and boarded a city bus headed for the PMS center she had heard about on the radio. Miraculously, they took her in, evaluated her, and started treatment with I.V. progesterone. Nancy has since returned to her native Michigan where she has remained under my care for the last seventeen years. She has been free from all psychiatric issues and went on to earn a PhD. in biochemistry!

3. Where do you see the future of medicine heading?

Rosenberg: I believe medicine is entering a transition phase. Many healthcare practitioners, as well as the general public, have become dismayed by the inability of traditional medicine to treat disease adequately. In addition, diseases such as cancer, autoimmunity, and age-related disease continues to climb in the face of conventional practice. Preventative medicine has become an empty and meaningless phrase. Because of the lack of efficacy of standard of care practice, many practitioners and the general public are looking for alternative methods to improve health. The pendulum of medical practice is being forced back toward the middle, and away from the model of one drug for each symptom. The future of medicine will concentrate more on prevention, as well as the integration of multiple techniques and modalities to manage disease.

Heyman: I think the future of medicine is heading towards further individualizing care as we become better at collecting data, utilizing the growing role of technology, and applying high level statistical analyses to understand the complexity of the patient. It is an exciting time in that regard as we are able to peer every more deeply and understand with greater precision health-related issues. It will also allow providers and health systems to be more pro-active, preventive and wellness oriented. I think there is a revolution coming, one that will fundamentally reshape the healthcare landscape, and further embrace Integrative and Functional Medicine.

4. Why should other healthcare providers start a Fellowship in Metabolic & Nutritional Medicine?

LaValle: I believe that studying Metabolic Medicine allows you to look at the patient in a new and individualized light. It empowers you as a practitioner to become a metabolic investigator and begin to unravel the complex chemistries of the patients that you see. It becomes a lifelong journey to learn the underlying metabolic shifts that drive the progression to chronic illness or hopefully enhanced health and vitality. The other piece that is very important are the relationships that you develop meeting other healthcare professionals who have transitioned from conventional practices. You learn and mentor at the same time. My best collegial relationships have happened because of my participation in MMI/A4M.

Heyman: Metabolic and Nutritional Medicine's time has come. The future leaders of healthcare must become educated in this approach since it represents the direction of medicine in general. It is effective, satisfying to both practitioners and patients, and has the evidence base to support what the public and progressive providers have known for years – that lifestyle, diet, stress management, dietary supplements, hormone balancing - can yield incredible results, and offers many therapeutic options beyond drugs and surgery to manage complex patients.

Rosenberg: Healthcare providers should partake in the fellowship in Metabolic and Nutritional Medicine so they can be on the leading edge of medical practice. Providers who do not participate will eventually be forced to learn this information at a later time, because sooner, rather than later, this type of medicine will be the standard of care.

Smith: It is only through a metabolic and functional approach that a physician can tailor treatments to individual patient needs. The interdisciplinary nature of metabolic and functional medicine spans all medical specialties. All healthcare providers would benefit from the wealth of knowledge provided by the Fellowship in Metabolic and Nutritional Medicine. The science is here now to provide customized and individualized patient care. The Fellowship in Metabolic and Functional Medicine is the first and only one of its kind in the world and is affiliated with two highly respected American medical schools.

This is The NEW Medicine.

This is The NEW Medicine.

This Fellowship program provides advanced medical education on health promotion, wellness, prevention & management of disease with evidenced-based metabolic, functional & nutritional approaches. This Fellowship provides unparalleled content, ground-breaking research, knowledgeable speakers & valuable resources that enable today's health practitioners for sustained success & growth. True wellness is more than the absence of disease.

Module I: A Metabolic & Functional Approach to Endocrinology

This module provides an overview of the functions & interrelationships of specific hormones in the body including hormonal changes that manifest in men & women with aging. Metabolic, functional & nutritional approaches to managing hormonal deficiencies & endocrine disorders, including diabetes & obesity, are covered in this module.

Module II: A Metabolic & Functional Approach to Cardiovascular Disease

The causes, mechanisms, diagnosis & management of cardiovascular & cardiometabolic diseases including CHD, CHF, hypertension, metabolic syndrome, dyslipidemia, atherosclerosis & renal disease are covered in this module. Topics include cardiovascular pathophysiology & biology, inflammation, oxidation, hormones, adipokines, stress, nutrition & nutrigenomics, glycemic control, environmental factors & toxicology, infections & risk factor testing.

Module III: A Metabolic & Functional Approach to Neurology

This module reviews the most recent developments in the field of neurology utilizing a metabolic approach to the prevention, management & treatment of neurologic diseases. The course will cover pathophysiology & the role of neurotransmitters, inflammatory & degenerative disorders, neurovascular diseases, psychological & psychiatric syndromes, the gut-immune-brain connection & healthy brain function.

Module IV: A Metabolic & Functional Approach to Gastroenterology

Comprehensive metabolic, functional & nutritional approaches to gastrointestinal dysfunction & disease are reviewed in this module. Physiology & pathophysiology, GI microbiome & dysbiosis, gut permeability, hormones, diet, inflammatory bowel diseases, celiac disease & gluten sensitivity, the gut-immune-brain connection, irritable bowel syndrome & other digestive & glandular disorders are highlighted.

Module V: A Metabolic & Functional Approach to Nutrition & Exercise

This module focuses on the role of nutrition & exercise in metabolic medicine with an emphasis on guidelines, protocols & clinical applications. Nutritional biochemistry, aging, metabolism, diet & nutritional supplements, weight gain, weight loss & maintenance, exercise/sports & activity, nutrigenomics, proteomics & metabolomics & cancer risk are discussed.

Module VI: A Metabolic & Functional Approach to Toxicology & Detoxification

This module covers symptoms, disorders & diseases associated with exposures of heavy metals, pesticides, chemicals, drugs, nutrients, the natural environment & other toxic causes of oxidative stress. This course describes the pathophysiology of toxic exposure, methods to prevent & avoid exposure including nutritional & lifestyle approaches, early detection, lab testing & treatment protocols. Metabolic, digestive & antioxidative detoxification phases & processes are detailed.

Module VII: A Metabolic & Functional Approach to Inflammation & Autoimmune Disease

This module focuses on inflammatory disorders, autoimmune diseases, allergies, cancer & the gut-immune-brain connection. Cellular & molecular biology of immunity, the cellular stress response, oxidation, genetic damage, inflammation, etiology of disease including environmental & lifestyle factors & the risk for cancer development are reviewed. Clinical approaches to patient evaluations, testing & disease management are provided.

Clinical Practice Review

This review course examines patient case histories with a range of metabolic symptoms, disorders, or diseases that are covered in Modules I-VII. This clinical intensive course provides the tools to prevent, detect, diagnose, treat & manage a variety of patient conditions that are commonly & uncommonly observed in the clinical setting. The goal is to provide comprehensive metabolic, functional & nutritional approaches towards disease management that enable the Fellow to practice Metabolic Medicine confidently & effectively.

Requirements

- Modules I-VII
- Clinical Practice Review
- 40 Webcasts
- Board Certification
- Membership

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Fellowship Benefits

- Redesigned fellowship to better prepare healthcare providers to improve overall health of patients
- Network and connect with like-minded healthcare providers from around the world
- Earn Category I AMA CME Credits
- Flexible Time Completion –Complete the program at your own speed in accordance with your schedule
- Strong Community – Join over 10,000 healthcare providers who have taken the steps towards transforming their practice
- Online Education – Access a module (24 hours of education) anytime, anywhere
- Over 200 Webcasts available to access at your convenience
- Master's Degree Program – Affiliation with University of South Florida's Morsani College of Medicine & The George Washington University
- Preceptorships
- Improve patient care – embrace and support the unique expression of health and vitality for each patient; provide more specialization in their treatments and offer increased patient therapeutic options
- Increase revenue stream – offers healthcare providers a different treatment model than the traditional allopathic approach
- Easy integration into current practice either part-time or full-time
- Set yourself apart from other healthcare providers with the right credentials
- Clinical case studies to immediately implement into your practice
- Learn to treat the cause, not the symptoms – by exploring and better understanding the root cause, you move from simply managing your patient's symptoms to transforming their lives
- Prevention Focused – to navigate personalized treatment for improved patient care
- Rediscover passion for patient care
- Obtain training (and get credentialed in) advanced topics in metabolic, functional, nutritional, & integrative medicine beyond the training provided through conventional medical school and residency training
- 24 hours of dedicated education per module – participate in progressive coursework that focuses on evidenced-based medical and scientific information
- Chairperson committee of expert faculty – connect with thought leaders who are pioneering the revolution in disease prevention; gain your competitive edge and reinvigorate your practice by engaging in interactive discussions presented by world – renowned speakers
- Continued access and support to monthly "Ask The Professor" webinars with expert faculty
- Becoming the doctor your future patients would like to see
- Stay up-to-date with the ever-changing industry of healthcare with new and cutting edge information and case studies

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Module I(A): A Metabolic & Functional Approach to Endocrinology

This module provides an overview of the functions & interrelationships of specific hormones in the body including hormonal changes that manifest in men & women with aging. Metabolic, functional & nutritional approaches to managing hormonal deficiencies & endocrine disorders, including diabetes & obesity, are covered in this module.

Objectives:

- Discuss the functions of estrogen, progesterone, testosterone, and DHEA in the body
- Learn the risks and benefits of estrogen, progesterone, testosterone, DHEA, pregnenolone and melatonin
- Know the symptoms of estrogen, progesterone, testosterone, and DHEA loss and excess
- Recognize the hormonal changes that women manifest with aging
- Learn the average amount of estrogen, progesterone, testosterone and DHEA that men and women make daily
- Understand the differences between synthetic and bio-identical hormones
- Learn the adrenal system and its affects on other sex hormones & hormone replacement
- Understand basic guidelines for dosing hormones and reasons bio-identical hormone replacement should be considered
- Monitor treatment, adjust dosages, alleviate side effects of BHRT
- Understand the risk of over-dosing and under-dosing hormonal therapies
- Know the interplay between the hormones and their ratios
- Review case histories and learn prescribing techniques for hormonal therapies
- Know the physical examination findings present in adrenal dysfunction
- Learn the laboratory test that aid in the diagnosis of adrenal dysfunction
- Review information on safe and effective therapies to correct adrenal dysfunction
- Understand new treatments for DHEA abnormalities
- Recognize adrenal abnormalities
- Learn new therapies for abnormal cortisol levels
- Discuss the safe use of cortisol in patients with hypoadrenalism
- Understand the impact of stress on the body
- Understand the physiology of the stress response
- Differentiate between progesterone and synthetic progestins relating to structure, pharmacologic actions and risks
- Learn the symptoms and treatment modalities of PMS
- Learn the definition of PCOS and recognize the symptoms of PCOS
- Recognize that PCOS puts the patient at risk for the development of other disease processes
- Learn new therapies to treat PCOS
- Review the various male hormones and their effect on the body
- Learn replacement strategies for various male hormone deficiencies
- Understand the various dosage forms available for testosterone replacement and how to select for each patient
- Learn causes for male infertility
- Understand the effect that hormonal balance has on male fertility
- Find out how lifestyle choices affect fertility in males
- Learn nutritional therapies for male infertility

"The Fellowship has been an extremely positive experience in both my professional & personal life. It was worth the "price of admission" just to get my health & the health of my family on track. Additionally, it has given me an entirely new perspective on treating patients. I find that previously difficult clinical situations are now welcome challenges with my new skills. My interest in medicine has been renewed & I have never in my professional career wanted to study so much."

Peggy Watson, MD

Module II: A Metabolic & Functional Approach to Cardiovascular Disease

The causes, mechanisms, diagnosis & management of cardiovascular & cardiometabolic diseases including CHD, CHF, hypertension, metabolic syndrome, dyslipidemia, atherosclerosis & renal disease are covered in this module. Topics include cardiovascular pathophysiology & biology, inflammation, oxidation, hormones, adipokines, stress, nutrition & nutrigenomics, glycemic control, environmental factors & toxicology, infections & risk factor testing.

Objectives:

- Understand and apply in clinical practice the pathophysiology: vascular biology, vascular aging, hypertension, dyslipidemia, cardiovascular disease, coronary heart disease and congestive heart failure
- Review cardiovascular biomarkers, CHD risk factors, blood tests and other invasive and noninvasive testing
- Learn nutrition, nutritional supplements, exercise and weight management in the treatment of hypertension, dyslipidemia, vascular disease, CHD, CHF and CVD, and vascular aging
- Discuss the clinical presentation and cardiovascular relationships of hypertension, dyslipidemia, coronary heart disease and CVD
- Review the clinical presentation and cardiovascular relationships of vascular biology and vascular aging to CVD
- Understand, review, discuss, select and apply new noninvasive diagnostic cardiovascular tests to identify CV disease early and select appropriate treatment
- Discuss traditional, new and emerging CHD risk factors to prevent and treat CHD and CVD in clinical practice
- Recognize the immune maladaptations that underlie and aggravate atherosclerosis & CHF
- Learn immune modulating effects of commonly used pharmacologic & nutritional agents
- Review immune modulating effects of commonly used pharmacologic & nutritional agents
- Explain the relationship between epidemiological cardiometabolic risk and individual risk management
- Learn how pattern recognition is a vital tool in patient risk management and prioritizing therapy
- Describe the pathophysiological triggers and mediators which drive cardiometabolic outcomes emphasizing the role of inflammation
- Summarize key lifestyle intervention studies which focus on cardiometabolic risk, weight loss or incidence of diabetes
- Learn the evidence-based information on lifestyle and natural remedies which improve insulin sensitivity
- Summarize the best evidence for nutraceutical therapies as it relates to cardiometabolic biomarker management
- Discuss the interlocking metabolic abnormalities associated with Metabolic Syndrome (MetS), illustrate how they are related to lifestyle (diet, activity, sleep, stress management) and identify the key lifestyle changes that these patients need to make
- Discuss the pivotal role that Growth Hormone(GH) plays in MetS, and provide the listener with interventions to increase endogenous GH output
- Identify laboratory tests important for diagnosis and management of MetS
- Understand the consequences of increased sugar intake to the body
- Learn the numerous diseases that are linked to a high sugar diet
- Study sugar substitutes their use and possible side effects

Module II: A Metabolic & Functional Approach to Cardiovascular Disease Objectives (continued)

- Learn the symptoms of reactive hypoglycemia
- Discuss the diseases associated with insulin resistance
- Develop early recognition of signs and symptoms as well as clinical presentations indicative of insulin resistance
- Discuss proper staging of insulin resistance and its relation to inflammation and cardiovascular disease
- Understand treatment of insulin resistance and its relationship to other related diseases
- Learn the symptoms of insulin resistance
- Recognize the causes of elevated insulin
- Learn the effect that a low glycemic insulin eating program has on insulin resistance and diabetes
- Understand how good sleep hygiene positively affects insulin levels in the body
- Recognize how important exercise is in the management of insulin resistance & diabetes
- Learn nutritional supplements that improve insulin resistance and diabetes
- Discuss botanical therapies for insulin resistance

17.3M

Cardiovascular disease is the leading global cause of death, accounting for 17.3 million deaths per year, a number that is expected to grow to more than 23.6 million by 2030.

787,000

Nearly 787,000 people in the U.S. died from heart disease, stroke & other cardiovascular diseases in 2011. That's about 1 of every 3 U.S. deaths.

$320.1B

Direct & indirect costs of cardiovascular diseases & stroke total more than $320.1 billion.

375,000

Heart disease is the No. 1 cause of death in the world & the leading cause of death in the United States, killing over 375,000 Americans a year.

Module III: A Metabolic & Functional Approach to Neurology

This module reviews the most recent developments in the field of neurology utilizing a metabolic approach to the prevention, management & treatment of neurologic diseases. The course will cover pathophysiology & the role of neurotransmitters, inflammatory & degenerative disorders, neurovascular diseases, psychological & psychiatric syndromes, the gut-immune-brain connection & healthy brain function.

Objectives:

- Learn new treatment modalities for multiple sclerosis, stroke recovery, Parkinson's disease, ALS & Alzheimer's disease
- Evaluate the energy producing ability of the mitochondria & its role in revitalizing neurological tissue
- Learn a basic understanding of neurochemistry as it relates to mood & cognition
- Recognize common neurotransmitter imbalances & how to diagnose them
- Discuss the major neurotransmitters in brain function & their understood roles in behavior & in neurological disorders
- Learn the function of receptors for these substances & factors which impact their regulation
- Discuss the metabolism of these substances within the body, including the precursors & substrates necessary for function in the nervous system as well as how they are metabolized in the body
- Learn the limitations in measurement of the neurotransmitters & the role that the blood brain barrier plays in controlling access of substrates & cofactors to the brain
- Discuss circumstances where functional imaging techniques may aid in diagnosis & therapy of conditions related to neurotransmitter dysfunction
- Recognize some of the many interactions of neurotransmitters with hormonal function & dysfunction and treatment options to improve mood & cognition
- Recognize the parameters within the Functional Medicine Matrix that would indicate the need for attention to neurotransmitter function & identify common antecedents, triggers & mediators when an imbalance or dysfunction is suspected

"I just completed Module III. I had a truly fantastic learning experience! The tremendous faculty covered a wealth of useful material. A major highlight for me was the ample opportunity for questions & answers during the conference. The ability to interact with faculty really reinforced learning, I believe, for the whole group of attendees. I was pleased to be studying along with such a bright group of attendees from a range of medical specialties. I came back to work Monday with loads of new insights & ideas for helping patients. I'm hooked!"

Karen J. Leo, MD

Module IV: A Metabolic & Functional Approach to Gastroenterology

Comprehensive metabolic, functional & nutritional approaches to gastrointestinal dysfunction & disease are reviewed in this module. Physiology & pathophysiology, GI microbiome & dysbiosis, gut permeability, hormones, diet, inflammatory bowel diseases, celiac disease & gluten sensitivity, the gut-immune-brain connection, irritable bowel syndrome & other digestive & glandular disorders are highlighted.

Objectives:

- Learn factors associated with intestinal permeability
- Look at the effects that endocytic receptors, scavenger receptors & RAGE's have on the inflammatory response
- Learn the importance of the gastrointestinal tract's role in the immune system
- Learn the many reasons why patients have a difficult time losing weight & keeping it off
- Discuss a comprehensive understanding of the relationship between the GI tract & neurotransmitter function
- Evaluate the role of diet & antibiotics in the management of gastrointestinal dysfunction
- Demonstrate the unique biochemistry of individual patients & examine the ramifications of nutrition, medications & stress on the immune system during the first years of life
- Explain the gastrointestinal system's interface with the environment
- Discuss the role of nutrition & digestion in the balancing of gut flora
- Identify the diseases, causes, symptoms & treatments associated with yeast overgrowth
- Learn the causes and treatments of yeast overgrowth and the symptoms associated with dysbiosis
- Describe how to recognize signs of poor digestion
- Learn the common conditions associated with leaky gut syndrome and the 4R program
- Discuss the diseases, common signs and symptoms of low gastric acidity
- Learn the protocol for HCL acid supplementation
- Understand the symptoms & diseases associated with food allergies
- Ascertain the symptoms of pancreatic insufficiency
- Learn how to replace bile salts and determine the symptoms of bile salts deficiency
- Understand the causes of gas, bloating and heartburn
- Discuss new treatments for hiatal hernia
- Learn the causes and treatment for of chronic diarrhea and hemorrhoids
- Understand the risk factors and treatment for IBS & inflammatory bowel disorders
- Discuss the symptoms of acute & chronic gallbladder problems
- Learn how to treat gallbladder disease
- Understand the incidence & increased mortality associated with celiac disease
- Discuss the changes that occur in the bowel with celiac disease
- Learn testing methods to evaluate if a patient has celiac disease
- Discover the false positives & false negatives that can occur with antibody testing for celiac disease
- Learn about dermatitis herpetiformis and the treatment methods for all forms of celiac disease
- Recognize other autoimmune diseases that are associated with celiac disease
- Learn the differential diagnosis for celiac disease

60-70M

60 to 70 million Americans affected by all digestive diseases.

In 2009

In 2009 there were 6.9 million upper, 11.5 million lower, & 228,000 biliary endoscopies performed in the U.S.

$32.4B

The total cost for outpatient GI endoscopy examinations was $32.4 billion.

8.9M

Gastroesophageal reflux was the most common GI diagnosis (8.9 million).

Module IV: A Metabolic & Functional Approach to Gastroenterology Objectives (continued)

- Understand the definition of probiotics
- Recognize that gastrointestinal & vaginal flora change with age
- Learn the mechanism of action in probiotics
- Understand which bacteria that occur in the gastrointestinal tract are friendly & which are pathogens
- Learn about bacteriocins and the desirable characteristics of an effective probiotic
- Recognize what foods can be used as probiotics
- Learn the beneficial effects of normal gut flora
- Identify which disease processes can be treated with probiotics
- Learn the differential diagnosis and treatment modalities of irritable bowel disease
- Understand what an allergy elimination diet is & be able use this treatment modality with a patient
- Discuss the role of probiotics in the treatment of antibiotic-associated diarrhea
- Recognize the reasons for false positive results that can occur with biopsy when evaluating a patient for celiac disease
- Learn the extraintestinal manifestations that can occur with celiac disease besides dermatitis herpetiformis
- Understand the definition, criteria and food sources of prebiotics
- Review the medical literature on the use of prebiotics
- Recognize prebiotic substances & the organisms they work on
- Learn that protozoan infections of the gastrointestinal tract may be the cause of unrecognized systemic illnesses
- Learn conventional & natural therapies for parasitic infections
- Learn the role and importance that neurotransmitters, hormonal imbalance, food allergies, sleep deprivation, ability to detox and yeast overgrowth play in weight loss and weight gain
- Learn that weight gain creates an inflammatory response in the body
- Understand the chemistry behind why some foods are addicting
- Review the scientific literature on nutrients that can aid in weight loss

Module V: A Metabolic & Functional Approach to Nutrition & Exercise

This module focuses on the role of nutrition & exercise in metabolic medicine with an emphasis on guidelines, protocols & clinical applications. Nutritional biochemistry, aging, metabolism, diet & nutritional supplements, weight gain, weight loss & maintenance, exercise/sports & activity, nutrigenomics, proteomics & metabolomics & cancer risk are discussed.

Objectives:

- Learn the role of nutrition in maintaining optimal health as the patient ages
- Explore and understand the concept of drug induced nutrient depletion
- Understand the relationships among the biotransformation enzyme systems
- Learn the common warning signs indicating that toxicity may be a factor for the patient
- Discuss the roles of physical, psychological, & spiritual health in Metabolic & Anti-Aging Medicine
- Learn essential, conditionally essential, & non-essential amino acids & symptoms of amino acid deficiencies
- Understand the risk factors and new treatment plans for osteoporosis
- Identify pharmaceutical inhibitors of phase 1 cytochrome P450 enzymes
- Learn treatment modalities for the dietary & nutritional support of detoxification
- Understand metallothioneins & genetic polymorphisms
- Learn the function of fatty acids in the body
- Learn disease processes that have amino acid deficiencies as an antecedent & treatments
- Identify the diseases that can be treated with fatty acid replacement
- Understand that fatty acid intake can change the amount of medication that a patient may need
- Discuss new pain control options used in Metabolic & Anti-Aging Medicine
- Understand that fatty acids may have profound effects on the network of inflammatory mediators altering prostanoid synthesis, PPAR activity, & the response to cytokines
- Review the basic concepts behind the disciplines of metabolomics & nutrigenomics
- Define the critical steps involved in signal transduction & intracellular signaling, with emphasis on transmembrane receptors, intracellular kinases, transcription factors & DNA response elements
- Learn how DNA expression can be modified by specific dietary & lifestyle factors
- Learn basic pathophysiology of thyroid metabolism as it relates to cardiac function
- Evaluate the current myths regarding thyroid replacement therapy
- Know how thyroid deficiency can directly relate to cardiac disease, hypertension, hyperlipidemia, arrhythmia & heart failure
- Identify the role that genomics, pharmacogenomics, proteomics, & nutrigenomics has in Metabolic & Anti-Aging Medicine
- Look at a patient-centric system of healthcare that addresses biochemical individuality & genetic uniqueness to improve health & function of the patient
- Learn the relationships among the biotransformation enzyme systems
- Gain an understanding of current knowledge regarding the biotransformation & elimination of environmental toxins & the scientific basis supporting the use of nutrients & plant-derived factors for enhancing these processes as a strategy for treating toxin-related disease & improving overall health
- Understand the value of and testing options for a preconception medical evaluation

Module V: A Metabolic & Functional Approach to Nutrition & Exercise Objectives (continued)

- Learn the importance of EPA/DHA supplementation use in the mother & how it later affects the health of her child
- Study implementation modalities for patients with fatty acid deficiencies
- Explain how amino acid and fatty acid insufficiencies can manifest among a population that overconsumes dietary protein and dietary fat
- Demonstrate expertise in strategies for planning corrective interventions with amino acids
- Explain how fatty acid insufficiencies can manifest among a population that overconsumes dietary fat
- Understand the differences between omega 3, 6, and 9
- Understand the effects of omega 3 fatty acids on cardiovascular & inflammatory function
- Identify risks associated with non-pharmaceutical grade fish oils
- Basic understanding of the pathophysiology and lab normal of Vitamin D
- Learn the implications of Vitamin D deficiency
- Explain the symptoms of the various headache types
- Identify non-pharmacological treatments for head pain
- Describe the mechanism of action of Butterbur in reducing the frequency of migraine
- Outline a treatment plan utilizing various treatment options for the migraine patient
- Review the pathophysiology of peripheral pain transmission & the various receptors involved
- Learn the use of topical pain medications & the rationale for use
- Review various herbs & supplements that can help in the management of the chronic pain patient
- Identify insulin resistance and evaluate potential causes
- Suggest appropriate dietary supplement suggestion for neuroendocrine-immune regulation
- Learn the symptoms of toxic build up
- Discover how patients are exposed to toxins
- Understand that a toxic metabolite can build up between Phase I and Phase II detoxification that may be more toxic than the original metabolite.
- Realize what nutrients aid in phase I detoxification of the liver
- Achieve an expanded awareness of the common environmental toxins & their impact on the body
- Explain the types of toxicants & their respective levels of health threats
- Describe methods of assessment for xenotoxin exposures & endotoxin burdens
- Demonstrate expertise in strategies for planning corrective interventions to reduce toxin loads & improve detoxification function

Module VI: A Metabolic & Functional Approach to Toxicology & Detoxification

This module covers symptoms, disorders & diseases associated with exposures of heavy metals, pesticides, chemicals, drugs, nutrients, the natural environment & other toxic causes of oxidative stress. This course describes the pathophysiology of toxic exposure, methods to prevent & avoid exposure including nutritional & lifestyle approaches, early detection, lab testing & treatment protocols. Metabolic, digestive & antioxidative detoxification phases& processes are detailed.

Objectives:

- Review the characteristics of detoxification and biotransformation
- Discuss cellular detoxification of xenobiotics, phytochemicals and endogenous compounds with regard to hydrophilic and lipohilic compounds and routes of excretion
- Review the 2 step process of biotransformation of lipophilic compounds
- Learn Phase 1 reactions including Cytochrome P450 enzymes involving oxidation, reduction and hydrolysis
- Review the role specific enzyme substrates MTHFR, BHMT, SAHH, CBS, GSH and GSSG play in transsulfuration pathway
- Define impaired methylation with regard to undermethylation, remethylation defects and overmethylation
- Discuss the balance of oxidative stress and anti-oxidant defense systems in the context of Phase 1
- Review Phase 2 reactions including Glucuronosyl Transferase, Sulfo-transferases, Amino acid Conjugation, Glutathione Conjugation, and Acetylation
- Define First and Second Pass metabolism, primary and secondary locations
- Define Phase 3 Metabolism including xenobiotic transporters and antiporter export pump
- Review the role nutrigenomics plays in medical toxicology
- Review metabolic processes to target for nephroprotection during detoxification
- Discuss the role VEGF and CRF play in chronic kidney disease
- Review the impact of glutamine, nitric oxide, melatonin, & glutathione on kidney function
- Discuss beneficial heavy metals including trace elements, diagnostic medical applications and industrial applications
- Distinguish between macrominerals, required trace minerals, possible required trace minerals and toxic metals
- Review the EPA's assessment of sources of heavy metal exposure
- List the top four most commonly occurring heavy metals
- Define the most commonly involved organ systems affected by heavy metals
- Distinguish symptomatology between acute and chronic exposures to heavy metals
- Discuss the multiple effects of toxic metals on enzyme binding sites, displacement of nutrients, induction of deficiencies
- Review main sources of heavy metals including crops, food production, cooking, water supply, air, occupational, medications and topical applications
- Review symptoms associated with heavy metal burden
- Define Persistent Organic Pollutant and the three major categories
- Review biological effects of organochlorine persticides, induction of CYP enzymes and induction of Phase 1 enzymes
- Review the role the microbiome plays in detoxification and human health
- Discuss the impact of environmental pollutants on chronic medical conditions with regard to the gastrointestinal tract, nervous system, immune system, renal, endocrine and cardiovascular systems.

"I decided to join the Fellowship in Metabolic & Nutritional Medicine. The modules have been thorough & innovative. We were taught by well-known experts from around the world, each bringing a unique perspective. The training I received has afforded me an extensive knowledge base. With this new edge education I was able to open my own Anti-Aging practice with a focus in Advanced Preventative care. There, I keep my patients healthy & treat them before they have disease."

Anjali Noble, DO

Module VII: A Metabolic & Functional Approach to Inflammation & Autoimmune Disease

This module focuses on inflammatory disorders, autoimmune diseases, allergies, cancer & the gut-immune-brain connection. Cellular & molecular biology of immunity, the cellular stress response, oxidation, genetic damage, inflammation, etiology of disease including environmental & lifestyle factors & the risk for cancer development are reviewed. Clinical approaches to patient evaluations, testing & disease management are provided.

$100B

The NIH estimates annual direct healthcare costs for AD to be $100 billion.

23.5M

The National Institutes of Health estimated up to 23.5 million Americans suffer from autoimmune diseases & the prevalence is rising.

Top 10

Autoimmune disease is one of the top 10 leading causes of death in young girls & women under the age of 65.

100+

There are 100+ known autoimmune diseases.

75%

Autoimmune diseases affect women 75% more often than men.

Objectives:

- Review the evolution in thought regarding the pathophysiology of autoimmune diseases from genetically determined, static disorders of adaptive immunity (T & B lymphocytes) to a dynamic process involving defective programming of regulatory and Th17 lymphocytes by cells of the innate immune system (dendritic cells & macrophages)
- Review the mechanisms by which infections, imbalances in gut flora, food antigens, toxins, and other environmental factors can trigger the breakdown in immune tolerance that leads to autoimmune disease in susceptible individuals
- Explore the practical applications of this model for detecting autoimmune disease at an earlier stage, recognizing potential environmental triggers, and making appropriate recommendations for lifestyle changes and non-pharmaceutical interventions
- Understand how to design a protocol with appropriate chelating agents
- Understand the metabolic shift in the intestinal tract in conjunction with genetic switches that preclude an individual to autoimmune behaviors
- Discuss the appropriate labs to support metabolic assessment
- Learn potential dietary supplements and other recommendations that may have a positive impact on patient care
- Identify common drugs that can contribute to disruption of the gut-immune interface
- Understand the most relevant nutrients that can be of benefit to resorting metabolic homeostasis
- Learn the top three areas of disruption that lead to autoimmune disturbances.
- Learn how mitochondrial dysfunction plays a key role in a variety of diseases ranging from Parkinson's, Cancer, NASH, Alzheimer's, Autism and Diabetes.
- Understand the critical role the thyroid plays in metabolism and how this relates to mitochondria
- Learn about a variety of toxins that can adversely affect mitochondria and learn the key ways to optimize mitochondrial function in patients
- Discuss how to evaluate and work-up a patient with CFS and FM
- Learn about the autonomic and cardiac manifestations, impaired mitochondrial function, immune dysfunction, hypothyroidism and adrenal fatigue in CFS and FM
- Understand the symptoms, physical modalities and metabolic/anti-aging treatment modalities for fibromyalgia
- Learn how to treat mitochondrial dysfunction
- Learn the risk factors for Alzheimer's disease
- Discuss the role of heavy metals in memory loss
- Recognize the effects of fluoride on the brain
- Understand the role stress plays on cognition

Module VII: A Metabolic & Functional Approach to Inflammation & Autoimmune Disease (continued)

- Describe the role that environmental toxins may play in autoimmune diseases
- Understand metabolic/anti-aging treatments for lupus and Raynaud's phenomenon
- Learn new diagnostic tests and treatments for rheumatoid arthritis
- Identify the differential diagnosis for high anti-CCP
- Learn symptoms of chronic mercury poisoning
- Examine the research on the safety of mercury amalgams
- Discuss the diseases related to mercury poisoning
- Examine the diseases aggravated by allergies to metals
- Learn nutritional detoxification methods and mechanisms for mercury toxicity
- Examine symptom improvement after amalgam removal
- Understand the pathophysiology of allergic rhinitis
- Learn the role of white blood cells involved in allergic reactions
- Understand the role of IgE in allergic reactions
- Identify the role of mast cells and basophils in allergic reactions
- Learn the mediators involved in allergic reactions (histamine, leukotrienes, prostaglandins) and the medications used to block these mediators and over-the-counter alternatives
- Understand the chemical sensitivity component of rhinitis symptoms
- Recognize the connection between pesticides/herbicides, common household chemicals, hormone imbalance syndrome (HIS) and the growing food allergy and environmental allergy epidemics
- Understand the demographics of autoimmunity
- Discuss the important interactions of the endocrine system with immunity
- Understand how the endocrine system can affect autoimmunity
- Learn several laboratory tests that can be used in addition to the standard tests for autoimmunity
- Learn treatment options to augment usual and customary treatment of autoimmunity

Clinical Practice Review

This module examines various case histories to provide the knowledge for instantly implementing the latest nutritional treatment modalities for more than 50 conditions, ranging from the cardiovascular & immune systems to mental health & lifestyle-specific nutrition.

Objectives:

- Review hundreds of case histories so the practitioner leaves the module with a comprehensive approach on how to treat the patient the next day from a Metabolic & Anti-Aging Medicine approach
- Learn new nutritional treatment modalities for osteoporosis, ADD/ADHD, allergies, asthma, anorexia, anxiety, arthritis, cancer, candidiasis, dysbiosis, Alzheimer's disease, heart health, closed head injury, URI, congestive, heart failure, diabetes mellitus, neuropathy, depression, eye health, Chronic Fatigue Syndrome/Fibromyalgia, energy enhancing, prevention of migraine headaches, lipid management, hepatitis C, hypertension, IBS, Crohn's disease, ulcerative colitis, immune building, insomnia, restless leg syndrome, liver health, periodontal disease, BPH, skin disorders, stroke recovery, sports nutrition, stress reduction, hypothyroidism, hyperthyroidism, varicose veins, weight loss, PMS, polycystic ovarian syndrome, dysmenorrhea, cervical dysplasia, wound healing, nutritional needs for vegetarians, & much more.

Advanced Certification & Elective Modules

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THE GEORGE WASHINGTON UNIVERSITY

A4M AMERICAN ACADEMY OF ANTI-AGING MEDICINE
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- Advanced Metabolic Endocrinology Certification
- Weight Management Certification
- Brain Fitness Certification
- Cardiovascular Certification
- Sports Medicine Certification
- Lifestyle Coaching Certification
- Addiction Certification

Requirements:

- Completion of Modules A-D with MMI & completion of courses A-D with USF
- A4M Membership
- A4M Board Certification

Certification

Module I: (A-D) A Metabolic & Functional Approach to Endocrinology

For Module I(A) of our Metabolic & Functional Approach to Endocrinology, please see pg.5

Module I: (B) Advanced Endocrinology

Objectives:

- Learn the subtle diagnostic clues to primary hyperparathyroidism
- Learn the Functional Medicine aspects of parathyroid hormone optimization including nutrition, inflammation & stress response
- Know the signs & symptoms of hyperthyroidism
- Know nutritional & conventional treatment modalities for hyperthyroidism
- Discuss the gut-immune-brain connection
- Review the gastrointestinal consequences of HPA axis dysfunction on the immune system
- Review etiologies of FMS & CFS & the role hypocortisolism plays in these conditions
- To learn the key roles of stress, inflammation, & nutrition in modifying steroid hormone metabolism

Module I: (C) Advanced Endocrinology

Objectives:

- Salivary Cortisol, DHEA, hormone testing & its relationship to neurotransmitter levels & behavioral manifestations
- Discuss estrogen metabolites & the link to breast cancer
- Learn tools for managing the issue of breast pain
- Learn strategies for identifying the cause of abnormal bleeding
- Learn the demographics associated with memory loss
- Discover the role of vitamin D receptors
- Learn that low vitamin D levels have been associated with an increased risk in cancer development
- Learn the mechanisms of the anticancer effects of calcitriol as related to growth arrest & differentiation, apoptosis, inhibition of invasion & metastasis, anti-inflammatory effects, regulation of prostaglandin metabolism & signaling, induction of mitogen-activated protein kinase phosphatase-5 & inhibition of stress-related kinase signaling, inhibition of NFkB activation & signaling, & inhibition of angiogenesis
- Learn toxins that are endocrine disrupters
- Learn new treatments for bacterial vaginosis
- Learn new treatment modalities for cervical dysplasia
- Learn new therapies to treat fibrocystic breast disease
- Learn new treatments for dysmenorrhea

Certification

Module I: (D) Advanced Endocrinology

This module will focus on advanced endocrinology in the male patient. Male sexuality, late-life hypogonadism, benign prostatic hyperplasia, lower urinary tract symptoms, prostate cancer & the use of hormonal therapies, nutrition & the aging male, osteoporosis in men & sarcopenia will all be subjects of discussion in this module.
The male athlete will also be a focus of this very interesting course.

Objectives:

- Discuss the methodology of scientific support for, & the differences in, saliva, urine & blood testing of hormones
- Analyze scientific & clinical studies that suggest conventional venipuncture serum testing underestimates tissue uptake of sex-steroids delivered topically
- Discuss basis of steroid synthesis
- Recall the urine monitoring of hormone levels & metabolites. Specific algorithms will be shared to facilitate ease of use in clinical practice
- Discuss hormonal changes that occur with aging in males
- Discuss cardiovascular, cognitive, bone, sexual, & emotional effects of hormone depletion & hormone restoration in males
- Review how to monitor & restore optimal hormone levels in males
- Discuss the differences between compounding & manufacturing medications
- Review the various licensure needs to compound medications
- Discuss the various patient care areas that involve specialized compounding
- Review various medication dosage forms that can be compounded
- Discuss the various types of equipment needed in compounding
- Identify how to evaluate a patient for iodine deficiency
- Review the roles iodine plays in the body
- Describe how to treat iodine deficiency

Module IX: A Metabolic & Functional Approach to Children's Health

This module discusses the effects of prenatal health on childhood development & metabolic approaches to prenatal care. The development & treatment of ADD/ADHD & the symptoms & factors of Autism Spectrum Disorder are explored. Also discussed are the causes & metabolic treatment of specific childhood conditions, like obesity & allergies.

Objectives:

- Learn that the health of the mother when she is pregnant greatly impacts the health of the child
- Review the literature on metabolic approaches to prenatal health
- Learn nutrients that have been shown in medical trials to aid in the treatment of ADD/ADHD
- Know the importance that gastrointestinal health plays in ADD/ADHD
- Learn the side effects of conventional treatments for ADD/ADHD
- Recognize the behaviors & symptoms of a child with Autism Spectrum Disorder (ASD)
- Learn the common factors present in ASD children
- Discover laboratory profiles to identify unique treatment options available for ASD
- Review the literature on the history of vaccinations
- Know the role that detoxification plays in ASD
- Recognize the role oxidative stress plays in ASD
- Look at nutritional supplementation that has been found successful in the literature in the treatment of ASD
- Review a new study on hyperbaric treatment for children with autism
- Look at the role of antibiotic use in children
- Learn herbal therapies that may function as antibiotics
- Review the current statistics on childhood obesity
- Gather new information on metabolic modalities to treat & prevent childhood obesity
- Review a metabolic approach to the treatment of childhood allergies
- Realize that insulin resistance may begin in childhood
- Know the role that exercise plays in overall health in childhood
- Learn metabolic approaches for the treatment of infections
- Know detoxification therapies for children
- Learn treatment modalities for teens with aggressive behaviors
- Recognize the role diet plays in the psychological health of a child
- Learn metabolic treatments for childhood depression
- Know the importance of bowel health in a child
- Learn metabolic & functional treatments for asthma
- Know metabolic therapies for learning disabilities

Module X: Homeopathic Applications to Metabolic Medicine

The development of homeopathy in a historical context is presented, as well as fundamental principles of homeopathic pharmacology, including legality of homeopathic medicines, nomenclature, manufacturing & prescribing. The module demonstrates how to select & prescribe homeopathic medicines for specific conditions – including GI problems, behavior issues & common ailments – as part of an integrative approach.

Objectives:

- Gain an understanding of historical development of homeopathy
- Learn the concept of homeopathic pharmacology
- Define the legal status & prescribing rights of homeopathic medicines in regards to OTC & RX status
- Describe the nomenclature for homeopathic medicine doses
- Review homeopathic medicine manufacturing & the process of succession
- Describe the differences between a materia medica & repertory
- Know the thought process & rationale for selection of homeopathic medicines
- Learn the basics of constitutional, complex & clinical homeopathic prescribing
- Be able to select homeopathic medicines as a part of the integrative model for healthcare
- Comprehend homeopathic medicine dosing for common complaints such as arthritis, headaches, migraines, sinusitis, allergies & other common chronic complaints
- Review homeopathic medicines for more acute conditions such as sore throat, colds, flu & adjunctive support for traditional medicines
- Learn homeopathic medicine dosing & application of topical & oral & injectable forms of homeopathic for the management of soft tissue injury, reactivation of metabolism & enhancement of detoxification pathways
- Be familiar with homeopathic medicine dosing & selection for common cold & flu & allergy complaints
- Learn homeopathic medicine dosing & selection for common GI complaints such as diarrhea & constipation
- Learn homeopathic medicine dosing & selection for upper respiratory conditions such as cough, sinusitis & mucolytic support
- Learn homeopathic medicine & selection for behavior issues, night terrors & bedwetting
- Review homeopathic medicine dosing & selection for common bumps, bruises & scrapes
- Familiarize the student with the theory & research related to homotoxicology
- Gain a working knowledge of the six phase process of chronic illness & the definition of each phases
- Learn the immunity model for homeopathic medicine
- Be able to apply homotoxicologic preparations for recoupling of oxidative phosphorylation & retarding the chronic inflammatory cascade
- Learn the application of homotoxicology in the geriatric population
- Grasp the concept of gemmotherapy
- Gain a working knowledge of dosage & application of gemmotherapy medicines so that the student can apply this information clinically
- Review the concept of diathesis & the theory behind oligo therapy
- Gain a working knowledge of dosage, protocol & application of oligo therapy so that the student can apply this information clinically

Module XI: IV Therapies

This module discusses various aspects of IV therapies, including when to use such therapies & condition-specific protocols. Other subjects in this module include pre-work up evaluations of patients, safety protocols & side effects of IV therapies. Also discussed are approaches utilizing chelation & those targeting infectious disease.

Objectives:

- Learn pre-work up evaluations of IV therapy patients
- Know when to use IV therapies
- Learn how to set up an office to do IV therapies
- Learn safety protocols for IV therapies
- Learn how to follow a patient during IV therapy treatment
- Recognize side effects of IV therapies
- Learn IV protocols for medical conditions
- Learn IV chelation therapies for heavy metal toxicities
- Learn oral & rectal chelation therapies
- Learn the side effects of chelation
- Learn IV protocols for nutritional therapies
- Know IV therapies for infectious diseases

Module XII: Toxic Metals & Functional Toxicology

Toxins, mechanisms of injury & potentially related disruptions. The module also discusses the organs of detoxification in the body, how to modify toxic metal susceptibility in patients & how to have a detoxified lifestyle.

Objectives:

- Learn how to assess a patient for toxic metal exposure
- Look at the incidence of exposure to toxic metals
- Discover treatment modalities for retention of toxic metals including EDTA, DMPS, DMSA
- Learn non-pharmaceutical agents that chelate out heavy metals
- Know the importance of adequate mineral status before testing a patient for heavy metal toxicity
- Learn the symptoms of heavy metal exposure
- Study the common toxins that affect health including organohalogens, organophosphates, organic solvents & heavy metals
- Know the mechanisms of toxic injury including disturbances in cell signaling, alterations in structural entities such as the mitochondria & impaired synthesis of specific molecules such as fatty acids, proteins, nucleotides, glutathione & phospholipids
- Discover hormonal disruption that can occur with toxin exposure
- Learn the biotransformation that can occur with drugs, metals & xenobiotics before they are excreted from the body
- Find out how biotransformation by cytochrome P-450 enzymes affects the toxic nature of compounds
- Study the mechanism of oxidative stress caused by toxins
- Learn about detoxifying enzymes & genetic polymorphism
- Know about metallothioneins & genetic polymorphism
- Discover nutritional & environmental factors that modify susceptibility to environmental toxins
- Learn how to assess the toxicologically affected patient
- Gather information on how to teach a patient how to have a detoxified lifestyle
- Discover the five organs of detoxification in the body & how to aid a patient in detoxifying these organs

Module XIII: A Metabolic Approach To Pain Management

This module examines integrative treatments in pain management & underlying physiological processes. Topical, herbal, supplemental, opiate & OMT/acupuncture pain treatments are discussed, as well as specific approaches to migraine headaches, Fibromyalgia, back pain & addiction. The influences of psychiatric disorders in the treatment of pain are also explored.

Objectives:

- Be familar with the literature on integrative treatments in pain management
- Examine cases in depth & link the presentation to underlying physiologic processes framed with the Anti-Aging context
- Learn therapeutic substitutions to the cases
- Know the pathophysiology of peripheral pain transmission & the various receptors involved
- Know the use of topical pain medications & the rationale for use
- Learn the various herbs & supplements that can help in the management of the chronic pain patient
- Comprehend the new medical treatments for migraine headaches
- Know CAM treatments for migraine headaches
- Learn the various opiate medications available & rationale for use
- Learn the pathophysiology & treatment for Fibromyalgia
- Review the role of addiction & various treatment approaches as it relates to opiates & smoke cessation
- Know the interplay of psychiatric disorders in the chronic pain patient
- Review chronic back pain & various treatment approaches
- Review the use of OMT/acupuncture for chronic pain syndromes & various treatment approaches

Certification

Module XIV (A): Individualized Weight Management for the Patient

The complex causes of weight gain – & individualized therapies – are the focus of this module, which examines the roles of several factors on weight gain: inflammation, allergies, sleep deprivation, neurotransmitter function, psychological dysfunction & more. Also covered are the science of food addiction & how to recognize genetic markers for effective recommendations.

Objectives:

- Know the multi-factorial causes of weight gain
- Evaluate genetic markers for particular foods that show benefits in weight loss
- Evaluate genetic markers for exercise recommendations based on genetics
- Know nutritional depletions that are caused by bariatric surgery
- Learn how to replace nutrients in patients that have had bariatric surgery
- Learn individualized therapies for weight management
- Know the role of inflammation in weight gain
- Learn the importance that allergies play in gaining weight
- Recognize that hormonal imbalances can cause weight gain including: sex hormones, thyroid, insulin & cortisol
- Know the value of sleep deprivation & weight management
- Appreciate the value that detoxification plays in weight management
- Know how to detoxify a patient
- Comprehend the role yeast infections may play in weight gain
- Evaluate the role of neurotransmitter function in weight gain
- Appreciate the importance psychological dysfunction has on weight gain & weight loss
- Learn nutrients that aid in weight loss
- Learn the science behind why some foods are addicting
- Know the role that stress plays in weight gain & whether a patient can successfully lose weight
- Review healthy eating programs for weight management that are individualized to the patient's needs
- Know the importance of energy metabolism & production in weight management

Certification

Module XIV (B): Individualized Weight Management for the Patient

The prevalence & risk factors of obesity are discussed, as well as how the body processes nutrients. Several nutritional plans are reviewed, including testing for metabolic & digestive issues in applying weight loss therapies. The module also explores the influence of hormonal imbalances, eating disorders, inflammation, allergies & sleep disorders on weight changes.

Objectives:

- Learn the Paleolithic Diet & its principles & review current data regarding its ability to prevent relapse & ease of maintenance
- Grasp the Low Carbohydrate/Mediterranean approach & learn the present nutritional literature regarding its success & failure with the American population. Learn definitions of low carb, "no carb" & "modified carbs" & individual patient response to these subtypes
- Know decision principles & guidelines to use when trying to help a patient get started on a comprehensive weight loss plan that fits their needs
- Be able to use comparison of ease of performance & data outcomes between these plans to help make specific goals for weight loss patients
- Learn the concept of checking an REE for patients to see how their metabolism can be used to the patient's advantage when calculating caloric intake for a weight loss diet
- Become familiar with sarcopenic obesity in the elderly & why it is resistant to traditional methods for weight loss
- Know the concept of detoxifying the body when weight loss occurs is different in the younger versus older population
- Learn the Older Adipocyte: does it function the same as a younger cell & does it release different markers for weight loss?
- Learn the difference between a lapse & a relapse
- Know that patients who have recently lost a major amount of weight have a long road ahead, they may have the same RMR (Resting Metabolic Rate) & that biochemically, it's a struggle
- Introduce Principles of Successful Maintenance to patients. Realistic short term & long term goals are reviewed so they can stay on track & go the distance
- Important psychological behavioral tools towards maintenance are covered
- Learn about the currently existing data that presents obesity as a causative effect from prior exposure & infection with viruses, especially Adenovirus 36
- Explore the treatment realm of protection of the immune system as a real barrier to future biochemical changes in the cell that set up the pathway for later "obesity chemistry"
- Know the current literature on adenovirus treatment & prevention of obesity
- Learn novel testing methods for obesity including microbiologically based ones for infection
- Know the panel of immune boosting supplements that also correct obesity
- Learn how lectins can contribute toward obesity in your patient & how to eliminate them
- Learn the incidence & impact of obesity
- Learn the genetics & neurochemical basis of satiety & obesity
- Learn novel therapeutic interventions to managing patients with obesity
- Review the multitude of hormones, cytokines & other signals involved in obesity
- Know the role that the microbes of the intestinal tract have on energy balance in the body & consequently their effect upon weight gain & loss

Certification

Module XIV (B): Comprehensive Weight Loss for the Integrative Physician Objectives (continued)

- Learn how gluten intolerance & sensitivity may play a role in weight gain
- Recognize the link between Hormone Imbalance Syndrome & the growing food allergy & environmental allergy epidemics
- Learn the macro-diagram of Hormone Imbalance Syndrome, its impact on obesity & associated comorbidities
- Use the obesity model to identify the steps for effective treatment of obesity & its comorbidities
- Learn the optimal food choices for optimal weight control
- Recognize the role of nutritional supplements in weight control
- To learn the triggers of immuno-inflammation
- To elucidate the biomechanisms of macrophage interactions with adipose tissue
- To illustrate how food antigens & their modification can be amplifiers of inflammation & autoimmunity
- Recognize the variety of energetic techniques & biophysical technologies which have been demonstrated to impact weight management & healthy physiology
- Discuss the physiological parameters that have been shown to be changed by application of these techniques & technologies
- Recognize the scientific evidence & the theories about why these approaches can impact metabolism & identify future areas of research
- Be able to make informed choices about safe & appropriate use of energetic techniques & technologies that can benefit their patients
- Have a clearer understanding of the obesity & metabolic syndrome problem in children
- Know the environmental risk factors involved in the problem
- Be able to identify obesity in children using BMI as a tool & to identify children who have metabolic syndrome
- Know appropriate dietary measures to recommend for metabolic syndrome & obesity in children
- Know appropriate supplements to recommend for insulin resistance in pediatric populations

Certification

Module XIV (C): Weight Management

This module explores the body's immediate & cumulative responses to exercise intervention programs. The skeletal muscular changes that take place in obese & diabetic patients are presented, in addition to the maintenance of gastrointestinal health (via the 4R program, probiotics, etc.) & its role in energy & weight changes.

Objectives:

- Recognize different types of eating plans utilized in bodybuilding & fitness professionals
- Review a number of objective measurements including the importance of body composition in tracking
- Discuss how to alternate caloric load & macronutrient shift according to goals & results
- Review the importance of a pre & post workout meal
- Discuss some basics of exercise prescription for those looking to optimize their physique
- Learn advanced bio-marker testing for cardiovascular risk stratification & individualized treatment
- Know how diet & lack of exercise induces inflammation
- Recognize the role of inflammation in heart disease & weight loss
- Improve patient outcomes in both cardiovascular disease & weight loss by following bio-markers
- List the factors that make up the metabolic syndrome & how it relates to weight gain, weight loss, heart disease, strokes & diabetes
- Name the factors that are implicated in causing the metabolic syndrome & why there is disagreement with experts on the definition, cause & treatment
- Describe the diagnosis of the metabolic syndrome including labs, history & physical examination
- Illustrate how the liver is involved with the pathogenesis of disease & how weight gain, particularly around the organs, is a toxic response to liver stress
- Describe lifestyle & behavioral interventions, medications & other interventions for the prevention, treatment & cure of the metabolic syndrome
- Using the skills acquired as a Functional Medicine provider to assess & evaluate the bariatric surgery patient
- Learn the difference between treating gastric bypass, lap band & gastric sleeve patients & realizing that these patient have similar & different needs
- Addressing nutritional, hormonal, deficiency in a patient population that is volume & calorie restricted
- Formulating diet, exercise, vitamin, plans, from immediately after surgery to many years post-surgery while also realizing that the patient needs constant education & emotional support to attempt to achieve a healthy lifestyle
- Recognizing & treating dumping syndrome
- Learn how to help a bariatric surgery patient who has regained weight
- Know what the process of healing insulin resistance looks like, (i.e., why the patient gains weight as they become more insulin sensitive)
- Learn the mechanism of weight gain
- Know why less calories and/or more exercise works in the short term but not necessarily in the long term
- Learn how the counter--regulatory hormones plateau weight loss

Certification

Module XIV (C): Weight Management Objectives (continued)

- Learn the common drug therapies & new modalities
- Learn the physiology/endocrinology by which diet & lifestyle modifications improve insulin sensitivity
- Learn the stages of change model: To have a working knowledge of the stages of change model & learn to work with people in each stage of change
- Learn three options to approaching patients who need to make changes; to have three stylistic approaches to change depending on how much time you have
- Apply what you learn to your own life: to be able to make your own life changes easier
- Define how satiety signaling is affected by energy balance, adipose biology & metabolic efficiency & ways to know which area may be affecting a patient's outcome
- Define lifestyle intervention as a synergy of signals which work to trigger intracellular activities- ultimately driving changes in physiology & weight
- Outline key clinical studies that can form the basis of a rational lifestyle intervention approach for weight management in an aging population of patients
- Learn the role of macronutrients, micronutrients & phytonutrients in weight loss
- Learn the role of nutrient quality, quantity & ratios in weight loss research
- Learn how different foods & actives assist in weight loss mechanisms
- Learn the importance of the meal size, snacking, frequency of eating & time of day in contributing to body weight
- Learn how emotional eating & stress eating can result in dysfunctional changes in eating behavior
- Learn the importance of mindfulness & relaxation in establishing good eating behavior

Module XIV (D): Brain Directed Weight Loss

The goal of "getting healthy together" is to teach clinicians how to consult with organizations on placing weight loss & health programs into groups of people, including houses of worship, schools, businesses & communities.

Objectives:

- Learn the main components of losing weight & getting better together
- Learn the eight circles of health/healing
- Know ways to boost group motivation
- Learn specific important health numbers to measure
- Know specific steps in helping people lose weight & change
- Comprehend specific steps to enhance decision making skills
- Learn the impact of ADD, anxiety, depression & addiction on group function
- Learn specific behaviors to avoid for health
- Review specific weight loss & health actions to take
- Learn four questions for optimal mental health
- Know how to implement the program's principles during travel
- Learn four ways to influence loved ones, community & world to lose weight & get healthy

Certification

Module XV (A): The Basics of Brain Fitness & Memory Maintenance

This module discusses the factors that help or hinder cognitive functioning, specifically memory. Negative influences such as toxins, medications, stress & inflammation are outlined, while pro-cognitive factors like exercise, nutrients, good sleep hygiene & fatty acids are presented. Cognitive testing, relevant brain anatomy & risk factors for Alzheimer's & dementia are also covered.

Objectives:

- Evaluate genetic markers for memory loss
- Learn the role that toxins have in memory loss
- Appreciate how exercise helps maintain cognition
- Learn commonly used medications that may cause memory loss
- Identify nutrients that help maintain memory & focus
- Comprehend exercises that help maintain memory
- Learn cognitive testing
- Know the affect that psychotropic & pain medications have on memory
- Learn the role recreational drugs have on memory loss
- Value the role sex hormones have in maintaining memory & focus including pregnenolone, estrogens, progesterone, testosterone & DHEA
- Learn how optimal thyroid function helps maintain memory & focus
- Know how stress affects memory
- Comprehend the role that insulin dysfunction plays in memory loss
- Learn the risk factors for Alzheimer's disease
- Recognize the effects of fluoride on the brain
- Know elevated plasma homocysteine levels are a risk factor for dementia
- Learn the value of sleep hygiene & its affect on memory
- Realize the key role stress has on cognition
- Know the relationship between health status & cognitive functioning
- Identify the fatty acids that aid in memory maintenance
- Learn the role that inflammation plays in memory loss
- Learn that level of education affects memory
- Know that intake of foods that the patient is allergic to can affect cognition
- Learn that dysbiosis can affect memory
- Identify toxic metals that can affect cognition
- Learn the role neurotransmitters have on memory
- Learn the parts of the brain that affect memory

Certification

Module XV (B): How the Brain Learns & Metabolism of the Brain

An in-depth look at the biology, anatomy & physiology of the brain is taken, specifically how it processes information. The stages & types of memory are reviewed, as well as factors that affect retention & learning, including gender differences. Other topics include Bloom's Taxonomy, the brain & the arts, human attention & healthy brain aging.

Objectives:

- Know the critical history questions to ask in the evaluation of a patient with memory loss
- Know what cognitive testing should be performed in the basic evaluation of a patient with memory loss
- Know what laboratory, imaging & other diagnostic tests should be obtained in the evaluation of a patient with memory loss
- Identify the risk factors that are associated with Alzheimer's disease
- Learn the pathology & pathophysiology of Alzheimer's disease
- Know the symptoms & signs of Alzheimer's disease
- Learn to diagnose all-cause dementia using the new NIA-AA criteria
- Learn to diagnose Alzheimer's dementia using the new NIA-AA criteria
- Learn to diagnose mild cognitive impairment due to Alzheimer's disease using the new NIA-AA criteria
- Learn to screen patients for dementia, Alzheimer's disease & mild cognitive impairment using cognitive tests
- Know the appropriate next steps to take when a patient screens positive or negative
- Distinguish between normal aging & mild cognitive impairment
- Identify the characteristic pattern of history common in Alzheimer's dementia & mild cognitive impairment due to Alzheimer's disease
- Identify the characteristic pattern of cognitive deficits on neuropsychological tests due to Alzheimer's dementia & mild cognitive impairment due to Alzheimer's disease
- Identify the characteristic pattern of laboratory & imaging studies observed in Alzheimer's dementia & mild cognitive impairment due to Alzheimer's disease
- Learn the mechanism of action & use of the cholinesterase inhibitors
- Learn the mechanism of action & use of memantine
- Learn to diagnose & treat common dementias
- Recognize uncommon causes of memory loss & dementia
- Identify the characteristic pattern of memory loss in depression & how it differs from normal aging, mild cognitive impairment & Alzheimer's disease
- Identify the characteristic pattern of dementia with Lewy bodies
- Identify the common characteristic patterns of vascular dementia
- Learn to use cholinesterase inhibitors to treat patients with Alzheimer's disease
- Learn to use memantine to treat patients with Alzheimer's disease
- Learn to use cholinesterase inhibitors to treat patients with dementia with Lewy bodies (Parkinson's disease dementia)
- Distinguish between mild cognitive impairment, Alzheimer's disease & depression
- Distinguish between Alzheimer's disease & dementia with Lewy bodies
- Distinguish the three common types of frontotemporal dementia from other causes of dementia
- Recognize common behavioral & psychological symptoms of Alzheimer's dementia
- Recognize common behavioral & psychological symptoms of other forms of dementia

Certification

Module XV (B): How the Brain Learns & Metabolism of the Brain Objectives (continued)

- Learn to use pharmacotherapy to treat common behavioral & psychological symptoms of dementia
- Learn to counsel families regarding basic legal & financial issues related to dementia
- Learn the episodic memory system, semantic memory system & the procedural memory system
- Learn which memory systems are affected by Alzheimer's disease
- Know which causes of memory loss & dementia affect the episodic memory system, semantic memory system & the procedural memory system
- Learn to use pharmacological & non-pharmacological methods to treat behavioral & psychological symptoms in patients with Alzheimer's disease & other forms of dementia

Module XV (C): Memory Loss: A Practical Guide

This module teaches how to evaluate memory loss in patients & how to make a differential diagnosis, comprising such conditions as Alzheimer's disease, vascular dementia & vascular cognitive impairment, frontotemporal dementia, normal pressure hydrocephalus & more. The behavioral & psychological symptoms of dementia are discussed, as well as medications for memory loss.

Objectives:

- Learn the nine principles of integrative neuropsychiatry
- Learn the functions, problems & treatment of seven brain systems
- Learn how to subtype ADD, anxiety, depression, addictions, obesity & aggression based on a brain system approach
- Recognize the practical role of neuroimaging in clinical practice, including indications of when to order
- Explore 50 cases to learn how to read brain SPECT scans
- Know the rational use of supplements in brain fitness
- Learn lifestyle interventions to boost overall brain fitness
- Learn the role of various forms of psychotherapy, including hypnosis, cognitive therapy & EMDR
- Obtain a basic knowledge of innovative treatments, including hyperbaric oxygen therapy, repetitive transcranial magnetic stimulation, neurofeedback, light therapy & acupuncture
- Grasp knowledge of specific steps to decrease the risk for Alzheimer's & related dementias

Certification

Module XV (D): Brain Fitness Therapies

This module outlines a road map for healthy brain aging, including implementing factors such as nutrients, sleep, diet, exercise & creative engagement to preserve cognitive function. The link between cardiovascular risk factors & cerebrovascular disease & the role of excitotoxins in memory loss are also covered.

Objectives:

- Learn some of the latest neuroscience research on how the brain learns, focusing particularly on the attention & memory systems
- Realize some characteristics of the gifted brain, the special needs brain & the brains of leaders & managers
- Recognize how findings from neuroscience research can influence teaching & learning in our schools, from pre-Kindergarten through graduate school
- Recognize the importance of plasticity as the brain develops & ages
- Know those behaviors that look like ADHD, but are not
- Know what is meant by multi-tasking & whether the brain can really do it
- Examine ways to improve memory retention & recall
- Recognize the difference between intelligence & creativity
- Discover what is meant by “multiple intelligences” & whether they really matter
- Recognize insulin deficiency & insulin resistance as prominent features of Alzheimer’s disease & other neurodegenerative disorders
- Learn rationale for use of ketones & medium chain triglycerides as alternative fuel for the brain
- Learn how to use medium chain triglycerides as a dietary intervention for certain neurodegenerative diseases
- Learn, in some detail, the mechanisms & pathways of the stress response system- & how stress alters neuron function
- Learn both the clinical literature & clinical challenges in managing the stress response to limit brain/memory dysfunction & improve brain fitness
- Learn a comprehensive & synergistic strategy of lifestyle therapies (including augmented therapies) allowing for the development of successful patient protocols
- Know how the male & female brain functions differently
- Learn the hormones that affect the functioning of the female & male brain including estrogen, testosterone, cortisol, vasopressin & oxytocin
- Learn how the female brain is designed to multitask, be empathetic & find relationships to be of major importance
- Recognize how the male brain is designed to be competitive & less communicative
- Review the different types of learning as discussed in Howard Gardner’s work on multiple intelligences
- Learn how nutrients help keep the brain fit including huperzine A, curcumin, alpha lipoic acid, B vitamins, ashwaganda, grape seed extract, EPA/DHA, coenzyme Q-10 & many others
- Learn how gut health & gut integrity play a critical role in brain fitness
- Learn how astroglial-like cells in both the brain & the gut contribute to barrier functions & how they play a key role in membrane integrity of both the gut & the brain
- Learn how silent infections can cause low grade inflammation & lead to neurodegenerative disorders such as MS, Alzheimer’s & depression

Certification

Module XV (D): Brain Fitness Therapies Objectives (continued)

- Learn the normal functions of insulin in the brain
- Learn the consequences of insulin resistance on the brain
- Learn aspects of the insulin signaling pathway – PIK3
- Learn GSK-3 & its role in amyloid & tau pathology
- Learn how insulin & the counter-regulatory hormones maintain glucose homeostasis
- Learn how lifestyle habits affect insulin, adrenaline, noradrenaline & cortisol levels throughout the day
- Identify potential drug therapies to improve cognition in Alzheimer's Disease

Module XVI (A): Advanced Cardiovascular Health

Vascular biology, vascular aging & vascular disease are the focus here. The module teaches how to apply nutrition, exercise & weight management programs in treating such conditions, as well as the clinical presentation & cardiovascular relationships among vascular biology, vascular aging & vascular disease. Laboratory testing & new, noninvasive diagnostic cardiovascular tests are also reviewed.

Objectives:

- Learn, review & apply in clinical practice the concepts of vascular biology, the RAAS, nitric oxide, cytokines & chemokines, heat shock proteins, endothelial progenitor cells, circulating endothelial cells, Salusins in CVD & hypertension, nutritional supplements, related to vascular biology, exercise related to vascular biology, weight management related to vascular biology, presentation issues & cardiovascular relationships of vascular biology
- Learn, review & apply in clinical practice the pathophysiology of vascular aging
- Learn, review & apply to patient care nutrition, in the treatment of vascular aging
- Learn, review & apply to patient nutritional supplements in the treatment of vascular aging
- Learn, review & apply to patient exercise in the treatment of vascular aging
- Learn, review & apply to patient weight management in the treatment of vascular aging
- Learn, review, discuss, select & apply laboratory testing for vascular aging
- Learn, review, discuss, select new noninvasive diagnostic cardiovascular tests for vascular aging
- Learn, review & apply in clinical practice the pathophysiology of hypertension
- Review & discuss cell energy concepts, as it applies to vascular disease & hypertension
- Review & discuss oxidative stress as it applies to vascular disease & hypertension
- Learn, review & apply to patient care nutrition in the treatment of hypertension
- Learn, review & apply to patient nutritional supplements in the treatment of hypertension
- Learn, review & apply to patient care exercise in the treatment of hypertension
- Learn, review & apply to patient care weight management in the treatment of hypertension
- Learn, review & discuss the clinical presentation & cardiovascular relationships of hypertension & CVD
- Learn, review, discuss, select & apply laboratory testing in CVD
- Learn, review, discuss & select noninvasive diagnostic cardiovascular tests to identify CV disease early & select appropriate treatment in hypertension & CVD

Certification

Module XVI (B): Advanced Cardiovascular Health

The pathophysiology of hypertension, dyslipidemia, cardiovascular disease & heavy metal toxicity in CVD are explored, as well as methods of patient care through weight management, nutrition & exercise. Also covered are the cardiovascular relationships & clinical presentation of such conditions, in addition to the selection & implementation of laboratory testing & noninvasive diagnostic tests.

Objectives:

- Learn, review & apply in clinical practice the pathophysiology of dyslipidemia
- Learn, review & apply to patient care nutrition, nutritional supplements, exercise & weight management in the treatment of dyslipidemia
- Learn, review & discuss the clinical presentation & cardiovascular relationships of dyslipidemia, coronary heart disease & CVD
- Learn, review, discuss, select & apply laboratory testing for dyslipidemia & select appropriate treatment
- Learn, review & apply in clinical practice cardiovascular risk factors & mediators, CVD labs & noninvasive CVD testing heavy metals & CVD
- Learn, review & apply to patient care nutrition, nutritional supplements, exercise & weight management in the treatment of CVD , heavy metals & vascular disease
- Learn, review & discuss the clinical presentation & cardiovascular relationships of coronary heart disease, CHF, heavy metals & CVD
- Learn, review, discuss, select & apply laboratory testing & new noninvasive diagnostic cardiovascular tests to identify CV disease early & select appropriate treatment
- Learn, review & discuss traditional, new & emerging CHD risk factors to prevent & treat CHD & CVD in clinical practice

Certification

Module XVI (C): Advanced Cardiovascular Health

Immunologic vascular disease is reviewed in depth, including pathophysiology, clinical presentation, prevention & treatment. Factors that impact cardiovascular disease, such as nutragenomics, anxiety & hormonal balance, are explored, as well as methods of testing. The module also discusses nutritional & dietary therapies for prevention & treatment of cardiovascular disease.

Objectives:

- Review & learn the pathophysiology, clinical presentation, prevention & treatment of immunologic vascular disease
- Discuss, review & learn invasive & non-invasive cardiovascular testing
- Review & discuss the role of nutrition in cardiovascular disease
- Learn, review & discuss the role of nutragenomics, proteomics & genetic SNPs in cardiovascular disease
- Learn, review & discuss the role of stress, anxiety, depression & sleep in the prevention & treatment of cardiovascular disease
- Learn the importance of optimal sex hormonal balance & function in cardiovascular protection in both men & women
- Review the protective & treatment roles that optimal thyroid function plays in cardiovascular health
- Learn the role of nutrition & dietary patterns in a lifestyle approach for prevention & treatment of cardiovascular disease
- Know how specific macronutrients, micronutrients & phytonutrients impact prevention & treatment of cardiovascular disease
- Review the scientific rationale & mechanisms for the clinical application of nutritional therapies in cardiovascular disease

Module XVI (D): Advanced Cardiovascular Health

The roles of various conditions in cardiovascular disease—such as dysglycemia, insulin resistance & diabetes mellitus—are presented. Methods for the prevention & treatment of cardiovascular disease, including stem cells & chelation therapy, are explored, in addition to occupational risk factors for heart disease, the effects of toxins in the heart & the role of solvents in the development of arrhythmias.

Objectives:

- Identify the sources of acute & chronic toxic metal exposure (i.e. lead, mercury, cadmium, arsenic)
- Recognize the adverse health affects of toxic metals on cardiovascular disease & overall health
- Distinguish patients with symptoms of toxic metal accumulation
- Select appropriate tests for diagnosing toxic metal exposure
- Learn treatment strategies for reducing toxic metal exposure & accumulation; including the use of various chelating agents
- Learn the physiological changes to the arteries that increase plaque formation
- Learn the role of hyperglycemia in the formation of plaque
- Learn the metabolic continuum of non diabetes, prediabetes & diabetes

Certification

Module XVI (D): Advanced Cardiovascular Health Objectives (continued)

- Be able to discuss ways to improve glycemic control in diabetes
- Learn AGE & RAGE
- Learn the role of the mitochondria in the pathophysiology of CVD
- Learn the PIK3 & MAPK pathways
- Learn causes of insulin resistance
- Learn how over expression of the MAPK pathway leads to the changes seen in vascular diseases
- Learn the role of IR in inflammation & oxidation
- Learn the role of IR in AGE & clotting
- Be able to come up with clinical ways to decrease the implications of insulin resistance
- Learn how a breakdown in glucose homeostasis causes metabolic syndrome
- Learn the difference between T1DM & Type2DM
- Learn how changes in mitochondrial function predispose patients to CVD
- Learn how increased FFA seen with both increase the risk for CVD
- Learn how someone who is insulin sensitive at birth ends up developing T2DM
- Be able to come up with strategies for avoiding or treating T2DM
- To create awareness about oral health & systemic concerns with a focus on vascular disease
- To introduce new concepts in periodontal diagnosis; a large benefit to dentists & physicians
- To explore practice advancement & improved patient health through the collaborative relationship
- To identify cardiovascular drug nutrient depletions
- To be prepared to recommend the appropriate nutrients & the dosing required for genomic changes & nutrient repletion
- To be able to identify symptoms associated with drug related nutrient depletions
- To discuss wheat gliadin, amylopectin & lectin
- To discuss why elimination of modern wheat can unexpectedly be the most important strategy in improved health & weight loss
- Discuss how grains, such as wheat, corn, rye, millet & others, are recent additions to the diet of Homo sapiens, departures from the diet that humans have consumed for most of their evolutionary history
- Review the evidence that, when wild grains were first incorporated into the human diet, adverse health effects results, especially those involving the teeth & bones, the evidence that dominates the archaeological evidence
- Discuss how grains are responsible for a collection of metabolic distortions that constitute a situation that leads to coronary artery disease: grain consumption is a coronary risk factor

Module XVII: ACUP-Medical Acupuncture for the Integrative Physician/Practitioner

This module focuses on the history & development of Chinese acupuncture, as well at its standing with medical organizations. Acupuncture training, certification, standards & practice are reviewed; effects on bodily systems & conditions are presented; & different microsystems & techniques are explored. Classic & contemporary understandings of the method are referenced throughout.

Objectives:

- Review modern considerations for the major acupuncture points
- Review acupuncture treatments for musculoskeletal pain of the head & neck, muscle tension & vascular headaches, musculoskeletal pain of the shoulders & upper extremities, musculoskeletal pain of the waist, buttocks & hips, musculoskeletal pain of the lower extremities, gastrointestinal illnesses, pulmonary illnesses, gynecological illnesses, urological illnesses & immune illnesses

Module XVIII: Neuropsychiatry

This module focuses on principles of integrative neuropsychiatry, in addition to the functions, problems & treatment of brain systems. Subtyping of conditions (i.e., anxiety, addiction, Alzheimer's, obesity) is covered, as well as neuroimaging, hormones & lab testing. Also reviewed are drug interactions, toxins in the brain, the role of neurotransmitters, lifestyle interventions, forms of psychotherapy & innovative treatments.

Objectives:

- Learn the nine principles of integrative neuropsychiatry
- Learn the functions, problems & treatment of seven brain systems
- Learn how to subtype ADD, anxiety, depression, addictions, obesity & aggression based on a brain system approach
- Learn the practical role of neuroimaging in clinical practice, including indications of when to order
- Comprehend the role of specific hormones & lab testing in integrative neuropsychiatry
- Learn drug-drug-nutrient, drug-herb interactions
- Appreciate the role of food in optimizing diet in neuropsychiatry
- Learn how to work up a toxic brain, including metals, organo-pollutants, viruses, substances
- Learn the role of neurotransmitters, genetic testing in dementia, Parkinson's & neuropsychiatry
- Comprehend the rational use of supplements in integrative neuropsychiatry
- Learn lifestyle interventions to boost overall mental health & treat mental illnesses
- Learn the role of various forms of psychotherapy, including hypnosis, cognitive therapy, EMDR & DBT
- Gain a basic knowledge of innovative treatments, including hyperbaric oxygen therapy, repetitive transcranial magnetic stimulation, neurofeedback, light t herapy & acupuncture
- Know specific steps to decrease the risk for Alzheimer's & related dementias

Certification

Module XIX (A): Sports Medicine & Sports Nutrition Courses

Objectives:

- Describe the prevalence, causes & consequences of the disorders of the female athlete triad
- Highlight gender differences in substrate utilization & fluid balance (and the implications of these for sport nutrition recommendations)
- Be able to identify the most recent nutrition recommendations for the optimal health & performance of the female athlete
- Review evaluation methods of the ability to concentrate & focus in athletes
- Review the biochemistry & physiology underlying the neuroendocrine response to stress
- Examine therapies & strategies that improve focus & reaction time
- Explain how fluid & electrolyte balance affect cardiac output related physiological systems, as well as physical performance
- Be able to identify the key endocrine responses that occur during exercise & how those responses are influenced by nutritional interventions
- Describe how ATP is produced in skeletal muscles during exercise & how that production can be affected by nutrition
- Learn the application of sports nutrition guidelines to the college athlete
- Apply nutrition guidelines to case studies of college athletes
- Identify resources on sports nutrition that are valid & reliable
- Learn how the aging process affects the sports performance & nutritional needs of masters athletes
- Identify alterations in body water balance that affects hydration in master athletes
- List dietary supplements that may be beneficial for masters athletes
- Recognize nutrient-drug interactions that may affect aging athletes
- Describe how the concepts of nutrition periodization & metabolic efficiency blend into an athlete's training goals throughout annual training year
- Describe specific metabolic testing procedures & data interpretation that can be done to assist athletes in improving their metabolic efficiency & caloric needs during training
- Provide nutritional implementation strategies that can be easily implemented for any athlete regardless of their sport & different energy expenditure fluctuations

Module XIX (B): Sports Medicine & Sports Nutrition Courses

Objectives:

- Provide a basic overview of steroid hormone physiology
- Review the structural & hormonal components of HPA axis
- Discuss the relationship between the adrenal gland hormones & other major hormones
- Discuss the role of enzymes in the steroidogenesis & the clinical implications of enzyme dysfunctions
- Define & discuss the symptomatology of hypocortisolism
- Review factors affecting cortisol release patterns
- Discuss the clinical significance of the cortisol awakening response
- Discuss the causes hypothalamic-pituitary-gut axis dysfunction & potential therapeutic options
- Discuss the relationship between the HPA axis & the immune system
- Discuss the immunological complications of HPA axis dysfunction

Module XIX (B): Sports Medicine & Sports Nutrition Courses Objectives (continued)

- Discuss the role of HPA axis dysfunction in mood disorders & review non-pharmacologic treatment options
- Discuss the role of HPA axis dysfunction in chronic pain syndromes & review non-pharmacologic treatment options
- Discuss effects of exercise training & overtraining on:
  - HPA Axis & adrenal glands
  - Immune system
  - Gastrointestinal system
  - Reproductive system
- Discuss various therapeutic modalities for HPA axis, HPgut axis, HPgonadal axis dysfunction & immune system dysfunction
- Learn eating programs that will aid the professional athlete or patient that aggressively exercises
- Recognize the science of eating for sports success
- Learn winning recipes for peak athletic performance
- Recognize body pollutants that will decrease athletic performance
- Know vitamins that will aid in athletic performance
- Learn minerals that will aid athletic performance
- Know the importance of good sleep hygiene & performance
- Learn the nutritional depletions that are caused by vigorous exercise programs
- Learn how antioxidants combat injury
- Know how to prevent infections in athletes
- Learn cardiovascular responses to exercise & training
- Know anaerobic metabolism, acid-base balance & muscle fatigue during high intensity exercise
- Learn about eating disorders in athletics
- Know respiratory responses of athletes to exercise
- Recognize adaptations in skeletal muscle in response to endurance training
- Learn about the aging athlete
- Learn the endocrinology of exercise
- Look at exercise & pregnancy
- Learn sport psychology
- Know biomechanics as applied to sports
- Recognize the physiological & clinical consequences of exercise in heat & humidity
- Learn the affects altitude has on sport performance
- Know about fluid & electrolyte loss & replacement in exercise
- Discover the epidemiology of athletic injuries
- Learn the role of exercise in the treatment of chronic disease
- Ascertain how to prevent injuries
- Know how to select the appreciate diet for the athlete or patient that exercises vigorously
- Know the protein & carbohydrate requirements for various types of athletes
- Realize how to manage weight issues in athletes
- Find out techniques for weight gain in athletes

Certification

Module XIX (C): Sports Medicine & Sports Nutrition Courses

Objectives:

- Learn the epidemiology of fatal & catastrophic injuries in athletes
- Review sudden cardiac deaths in younger & older athletes
- Learn the how to of prevention of sudden cardiac death
- Recognize dangerous conditions in younger & older athletes, as well as commotio cordis
- Learn pathophysiology of sudden death caused by heat stroke, brain injury, cervical spine injury, exertional sickling, lightning & asthma
- Discuss protocols & issues for survivors of catastrophic injury & illness for athletes wishing to return to sport or activity after catastrophic injury and/or illness
- Define "Ultraexercise" & review its history
- Review the cardiac structural effects of ultraexercise
- Describe the pathophysiology of ultraexercise & nutrient depletion
- Strategies for prevention of tragic cardiac events during ultraexercise
- Review guidelines for exercise & cardiac health
- Learn the production of ATP & the necessary substrates & cofactors
- How to optimize mitochondria by lifestyle & nutraceuticals
- Incorporate protocols for exercise training that utilize metabolic support
- Discuss the observational & palpatory findings for the shoulder, elbow, wrist & hand
- Discuss upper extremity nerve entrapments
- Locate landmarks for the shoulder elbow, wrist & hand
- Demonstrate active & passive examination for the shoulder, elbow & wrist joint
- Demonstrate & understand the special tests for the shoulder, elbow & wrist
- Demonstrate & understand shoulder treatment with Spencer technique
- Demonstrate diagnosis of radial head somatic dysfunctions (anterior & posterior)
- Demonstrate muscle energy/ HVLA for:
    - Abduction (pronation) somatic dysfunction-adduction (supination) restriction
    - Adduction (supination) somatic dysfunction-abduction (pronation) restriction
- Demonstrate muscle energy for wrist restrictions in ulna & radial restrictions/dysfunctions
- Review a treatment/management plan for carpal tunnel syndrome
- Demonstrate carpal bone articulation, HVLA & myofascial techniques
- Discuss the observational & palpatory findings for the hip & knee
- Locate important landmarks for the hip & knee
- Demonstrate active & passive range of motion examination for the hip & knee
- Demonstrate diagnosis of somatic dysfunctions in the hip & knee
- Demonstrate & understand special tests for the hip & knee
- Demonstrate evaluation for anterior & posterior fibular head dysfunctions
- Demonstrate articulatory treatment of the foot & ankle
- Outline daily carbohydrate targets based on exercise duration & intensity
- Review recommended carbohydrate targets in relation to training/competition
- Discuss recovery nutrition recommendation in the immediate post-training state for carbohydrate, protein, fluid & electrolytes
- Recommendations for assessing hydration & electrolyte replacement during exercise, as well as hourly carbohydrate targets based on training duration & intensity
- Daily protein & fat intake targets for athletes
- Describe protein targets after resistance training
- Plan body fat loss appropriate for athletes
- Describe the practical role & application of sports nutrition supplements
- Articulate which ergogenic aids are effective for specific types of exercise

Module XIX (C): Sports Medicine & Sports Nutrition Courses Objectives (continued)

- Learn the risks of using sports nutrition supplements
- Describe practice strategies for athletes with health concerns or unique nutritional considerations
- Learn the multiple influences that alter growth hormone production & its function
- Identifying lifestyle, diet & supplement choices that safely optimize growth hormone
- Define the factors that modulate testosterones presence & function in the athlete
- Learn the mechanism of endotoxemia & its role in the athlete
- Identify the therapies that reduce the harmful effects of endotoxemia
- Learn the relationship between endotoxemia & cardiac disease in the athlete
- Identify & understand the proper use of ergogenic aids in the athlete
- Identify options for supporting the immune system of the athlete
- Develop a complete support package & recovery plan for athletes of all levels

Module XIX (D): Sports Medicine & Sports Nutrition Courses

Objectives:

- Comprehend brain function as it pertains to an athlete
- Recognize what role quantitative EEG may play in the assessment of the athlete
- Learn what role visual & auditory Event-Related-Potentials have in the assessment of the athlete
- Explore the role of Autonomic Assessment in the Athlete
- Become familiar with the tool of Neurofeedback as it pertains to the athlete
- Recognize the role of Oxidative Stress on the function of the brain & its ramifications in the performance of the athlete
- Be able to describe what a Traumatic Brain Injury is from a molecular, cellular, tissue, organ, & organ system perspective
- Recognize risk factors for the development of severe long-term poor outcomes from a TBI
- Learn the challenges involved with the diagnosis of a TBI as well as the various tools available to improve diagnostic sensitivity & specificity.
- Learn the appropriate initial treatment of a TBI
- Be aware of the role of Quantitative EEG, visual & audio Event Related Potentials, & Heart Rate Variability autonomic testing in the evaluation & ongoing monitoring of the head injured athlete
- Diagnose the potential long-term treatment strategies for the head injured athlete – including diet, medications, nutritional supplementation, Neurofeedback, biofeedback, & other data-supported interventions
- Comprehend muscle metabolism
- Practice & understand exercise physiology
- Identify & understand gene expression patterns & exercise
- Detect & understand mechanisms by which combined aerobic & resistance exercise improves cardiovascular health
- See CHD risk factors & how each is modified with exercise
- Learn clinical outcome studies of CVD, CHD, CHD & cardiac arrhythmias & exercise
- Review the role of nutrition & exercise
- Review the role of nutritional supplements & exercise

Certification

Module XIX (D): Sports Medicine & Sports Nutrition Courses Objectives (continued)

Objectives:

- Identify the shifts in immune & neuroendocrine function that occur with intense exercise
- Determine the cause of immune activation in people who train in the intense exercise range
- Identify cytokine shifts that are present in people who train intensely
- Make recommendations regarding how to support immune function for people who train regularly
- Articulate what happens to the immune system when someone trains intensely & how it affects cardio-immune metabolic dynamics• Articulate the effect of intense exercise on cortisol & its effect on cortisol- testosterone relationships
- Recognize the signs of overtraining including neuroendocrine immune shifts
- Evaluate possible lab values that would indicate that a person is overtraining
- Know what supplements may be of value in recovery from overtraining
- Evaluate an individual for signs of overtraining
- Utilize resting pulse & recovery pulse as clinical coordinates to guide overtraining monitoring
- Make recommendations for what to do about the key overtraining issues
- Recognize & review how at times eating & oral supplementation may not be adequate enough for the athlete
- Know the purpose & method of using IV vitamins & minerals
- Learn how IV nutrition can reverse & support the stressed athlete
- See how HBOT & IV therapies can enhance recovery & performance
- Learn the potential benefit of HBOT with sports injuries & head injuries
- Recognize the difference in altitude/hypobaric training, & HBOT & how these can also complement each other
- Assist the pro-athlete in achieving their goals & preventing common pitfalls
- Learn the difference between compounding & manufacturing
- Have knowledge of various formulations for rehydration solutions for your athletic patient
- Determine which to use of the various topical pain gel formulations for the treatment of sports injuries
- Realize that physical inactivity leads to significant muscle & bone loss each decade of adult life
- Recognize that muscle loss results in resting metabolic rate reduction
- Consider that resting metabolic rate reduction is a major factor in fat gain
- Realize that resistance exercise produces significant increases in lean weight, bone mineral density, & resting metabolic rate, with concurrent decreases in fat weight
- Recognize resistance training benefits with respect to diabetes management, cardiovascular health, low back & arthritic discomfort, physical performance & functional independence, cognitive function & self-esteem, as well as reversal of aging factors in skeletal muscle
- Prescribe resistance training in accordance with the American College of Sports Medicine guidelines for exercise selection, frequency, resistance, repetitions, sets, & execution

Module XX (A): Metabolic Code Triad Training

The Metabolic Code Triad system creates a framework to assess & treat patients by first understanding these important interrelationship hierarchies & then provides specific treatment recommendations. The Metabolic Code Triad Training is a breakthrough approach in clinical medicine that serves to organize complex patient presentations into a unified treatment approach.

The module will cover five triads that together underlie the clinical framework of the Metabolic Code. Case-based teaching forms a central part of the training, ensuring that the learner gains specific tools & techniques to effectively treat patients immediately after completing the course.

Triad 1: Adrenals – Thyroid – Pancreas - Reviews the significant physiologic, reciprocal relationships between cortisol levels, thyroid functions & insulin sensitivity. Patients often report fatigue & depression, while progressing towards insulin resistance & auto-immunity when this triad deteriorates. This lecture will explore these interactions, common clinical presenting symptoms & how to effectively manage them therapeutically.

Triad 2: Gut – Immune – Brain - Reviews the physiologic relationships between the digestive tract, immune system & brain. We will also examine the important role stress plays as a mediator of these interconnections. Understanding Triad 2 is critical to evaluating patients with complex presentations such as fibromyalgia, auto-immune diseases, cancer, mood disorders, cognitive impairments & digestive problems.

Triad 3: Cardio – Pulmonary – Neuro-Vascular - Reviews the physiologic relationships between mood, the central & peripheral nervous systems & cardiac function. The brain, mind, lungs & heart are connected in intimate ways, with early disturbances leading to endothelial dysfunction, a precursor to hypertension, vascular pathologies & heart disease.

Triad 4: Liver – Lymph – Kidney - Reviews the interrelationships between the 'drainage' systems of the body including the liver, lymph & kidneys. There is a growing awareness of the impact environmental toxins have on human physiology. Organophosphates, chemical byproducts, heavy metals, antibiotics & hormones all contribute to many chronic diseases. It is critical that health practitioners learn methods to assess the clinical burden of environmental exposure & acquire tools to safely remove these factors from their patients.

Triad 5: Estrogen – Progesterone – Testosterone - Reviews the role sex hormones play in human health. Their decline with age contributes to the worsening of the most common chronic illnesses & creates a large burden on quality of life for many men & women. Understanding how to balance & restore when appropriate, these hormones is a centerpiece of any anti-aging practice. Estrogen, progesterone & testosterone will be explored in detail with regard to normal functioning & in particular how they interrelate in the context of human physiology. Methods of assessment & treatment will be reviewed for both men & women.

Objectives:

- Learn how the Metabolic Code Triad works
- Look at an example of a triad, The Brain-Gut-Inflammation Triad & see how triad organizational thought would be helping organize complex patient therapies
- Review normal physiology of adrenals, thyroid & pancreas
- Review common ways patients present with multiple metabolic abnormalities
- Review natural & hormonal treatment strategies for cortisol, insulin & thyroid
- Be familiar with the physiologic relationships between the digestive tract, immune system & brain

Module XX (A): Metabolic Code Triad Training Objectives (continued)

- Review common clinical presentations within the proposed framework of Gut-Immune Brain
- Review treatment options & strategies specific for Gut-Immune-Brain pathologies
- Learn basic physiologic connections between the mind, brain & heart mediated through mechanisms such as heart rate variability, depression, stress & the immune system
- Review common clinical presentations within the cardiopulmonary-neuro-vascular triad
- Learn ways to treat complex conditions within this triad framework
- Learn the physiology of the most important detoxification organs & their pathways to remove toxins
- Review the most common toxins, both exogenous & endogenous, which contribute to medical illness
- Review treatment strategies for removal of toxins safely & effectively
- Review ways to mitigate toxins in the home environment
- Review the role of sex hormones in the aging male & female
- Review common presentations of sex hormone dys-regulation & the associated signs & symptoms
- Examine methods of balancing & replacing estrogen, progesterone & testosterone safely & effectively through the use of natural products & hormone replacement therapy

"As a Pharm.D, the Triad module presents an invaluable framework for providing practical, effective, & comprehensive guidance to the patients who come in to my pharmacy. More than ever, folks are becoming increasingly aware of the disruptive effects of foreign stressors, including pharmaceuticals, & are seeking a more balanced approach to their treatment. The Triad module has equipped me to recommend the types of treatments patients need to bring them closer to a true state of health."

Javier Diaz, PharmD, RPH

Module XX (B): Metabolic Code Triad Training

Further delve into the five primary triad relationships & begin to explain the concept of "stacking". For example, relationships between Triad 1 (Thyroid-Adrenal-Pancreas) & Triad 2 (Gut-Immune-Brain) can be difficult to correct. Development of food intolerances & immune shifts (Triad 2) can lead to autoimmune thyroiditis (Triad 1).
In this module you will learn relationships between:

- **Triad 1** (Adrenal-Thyroid-Pancreas) mitochondrial regulation & it's effect on Sex hormones (Triad 1)

- **Triad 2** (Gut-Immune-Brain) stacking with Triad 4 (Kidney-Liver-Lymph), the role of intoxication & it's role in GI integrity & immunity. In addition clinical case break out sessions will be included to drive home applying the Metabolic Triad Stacking approach

- **Triad 4** role of environmental toxins (Liver-Lymph-Kidneys) & disruption of Thyroid-Adrenal-Thyroid (Triad 1) relationships

- **Triad 5** (Testosterone-Estrogen-Progesterone) relationships with Triad 2 (Gut-Immune – Brain), focusing on the role of sex hormones in brain health

In addition, six full hours of depth discussion of clinical nutrition & diet strategy as a core component to the success of patient outcomes will be taught

Objectives:

- Know the role that environmental pollutants play in disrupting the thyroid-adrenal-pancreas relationships
- Learn the importance of heavy metal toxicity & its effect on the thyroid-adrenal-pancreas relationships
- Learn how halogens may affect the thyroid-adrenal-pancreas relationships
- Recognize the role that persistent pollutants play in the thyroid-adrenal-pancreas relationships
- Know strategies for removal of toxic metals from the body
- Learn treatment modalities for environmental toxin removal
- Learn new aspects of digestive health & key drivers of pathology including endotoxins, acetaldehyde, mycotoxins & enterocytes
- Review different diet based eating programs
- Know that affect that cortisol, DHEA & insulin have on energy regulation & metabolism in the body
- Be familiar with the role sex hormones have in maintaining memory & focus including pregnenolone, estrogens, progesterone, DHEA & testosterone in both men & women
- Be familiar with the role that liver dysfunction plays in cognitive function, immune regulation, GI integrity & immune expression
- Be familiar with the relationship between adrenal-thyroid-pancreas on endothelial dysfunction
- Know the role that adrenal-thyroid-pancreas plays with insulin resistance & lipid profile alterations
- Know the interface between immune regulation, hormone production & cognitive function
- Recognize the role of endotoxemia plays in cardiovascular health

Module XXI: Advanced Autoimmune Therapies

This module discusses the immune system & digestion, along with toxins, detoxification & diet. The key avenues for toxin entry are overviewed, along with digestion, absorption, deposition & utilization of all nutrients. Diet prescription & food preparation are taught & techniques are reviewed for overcoming objections by the patient.

"Auto-Immunity is linked to many chronic illnesses. There are so many conditions that I encounter every day in my own practice that are rooted in the immune system. I learned a lot of useful concepts from the professors & their clinical cases in Module 21 that I can incorporate into my practice. & this module also ties in to all the other modules that I have taken as we treat the patient as a whole being. This is such an excellent module for me that I highly recommend all practitioners take it."

Cindy Yap-Wong, BSc, Pharm., CCN

Objectives:

- Have an up-to-date review of the most important lifestyle factors which can affect autoimmune disorders
- Learn the importance of a wide range of topics such as the creation & role of auto-reactive antibodies/T-cell receptors, formation of autoimmune complexes, animal models of autoimmunity, epigenetic influence on autoimmune disease burden
- Learn the complexity of multiple triggers in autoimmune disease
- Learn the critical role that the gut microbiota, the mucosal immune system & the intestinal barrier play in maintaining a balanced immune system
- Review the pharmacology of low dose naltrexone vs. high dose naltrexone
- Review the clinical applications & clinical studies in IBD, autoimmune disorders & autism
- Review new research in its use in neurodegenerative disorders
- Review the side effect profile of LDN
- Know the role that stress plays on psoriatic exacerbations
- Learn metabolic therapies that have immmunomodulating properties
- Review metabolic therapies that serve an immunosuppressant function
- Learn the role that estrogen metabolism plays in lupus
- Learn new therapies for lupus nephritis
- Learn the role that allergy, gut permeability & candida overgrowth plays in atopic dermatitis
- Learn the immune dysregulation that occurs with eczema
- Learn the genetic basis for atopic dermatitis
- Know metabolic approaches to treat atopic dermatitis
- Know the variants of lichen planus
- Learn the role dental amalgams may play in the etiology of this disease
- Learn new treatment modalities for lichen planus
- Know the diagnostic criteria for seborrheic dermatitis
- Know the genetic predisposing factors that influence susceptibility to ankylosing spondylitis
- Learn new treatment therapies for this disease
- Review conventional & metabolic therapies for Behcet's disease
- Know the role that food allergies may play in the symptoms of Behcet's disease
- Learn conventional therapies for dermatomyositis
- Know metabolic therapies to treat this disease process
- Learn conventional therapies for polymyositis
- Know the role that food allergies may play in the development of polymyositis
- Learn metabolic therapies for polymyositis
- Know the two main subtypes of scleroderma
- Learn that scleroderma can be caused by exposure to organic solvents, plastics, medications, silica powder & silicone

Module XXII: Genomics

This module will focus on the inter-individual variability & genetic variability as they relate to how their body handles metabolism & utilization of pharmacological agents & also nutritional supplements. We will review the pharmacogenomics of certain drugs & describe the differences between slow, normal & extensive metabolizers of drugs & supplements. Furthermore, we will review the fascinating world of genetics & how they interplay with pain sensitization & response to various treatments.

Objectives:

- Provide a brief history & overview of the basic genetics & applications of genetic testing in every day medical practice
- Discuss Specific Genetic Biomarker testing as it relates to medication management for patients with Attention Deficit Disorder, Depression, Psychosis, Opioid Dependence & other mental health disorders
- Describe the importance of pharmacogenomics in clinical practice
- Review the various pharmacogenomics testing methodology available today
- Explain introduction to pharmacogenetics & the future of personalized medicine in the customization of healthcare with medical decisions, practices & products being tailored to each individual patient based on their unique molecular & genetic profiles & biomarkers
- Cytochrome P-450 will be discussed including: CYP2D6, CYP2C9, CYP2C19, CYP1A2 & CYP3A4/5 as it relates to metabolism & the potential for drug-drug interactions. Also COMT, ADRA2A, OPRM1, SLC6A4, HTR2A, SLC6A4, ANK3, CACNA1C & DRD2 will be discussed as it relates to medication & supplement management
- Utilize nutritional & botanical interventions for preclinical cardiovascular syndromes & diseases (body composition, hypertension, atherosclerosis & metabolic syndrome) & for clinical cardiovascular syndromes & diseases (vulnerable plaque, stable angina & congestive heart failure)
- Review the nutrigenomics effects of diet on activity of individual genes
- Review nutrigenomic testing available today & its limitation
- Review the use of obtained data to recommend individualized supplement regimen
- Review the assessment of gene-nutrition interactions
- Review of Genotypes & Epigenetics will be discussed as related to patient care & outcomes.
- Describe the molecular mechanism involved in pain genomics
- Review genes, proteins & protein modifications involved in the transition from acute to chronic pain using genomic & proteomic approaches
- Review the various opioid phenotypes & how they impact treatment

Certification

Module XXIII (A): Lifestyle Coaching

This module provides information on how to guide the patient to successfully changing lifestyle habits to create sustainable, long-term health. Several steps are discussed to bring the patient through this process & models for success are shown.

Objectives:

- Learn the Wellness Revolution & how you can become a part of the solution
- Learn the "Three Circles of Success" for lifestyle health coaches
- Know why we are in such a healthcare crisis & how you can prepare yourself for the future
- Learn the three steps for sustainable change
- Learn how to get amazing results by shaping one's belief systems
- Have a greater understanding that everything begins at the cellular level & learning how to balance your body's pH
- Learn how to build the three pillars for optimal health & performance
- Be able to improve nutrient absorption, digestion & elimination, keys for optimal health
- Know how to learn & educate your clients on the "food target"
- Know the six-step Nutritional Pyramid for optimal health, energy & vitality
- Learn hormonal pathways & stress
- Learn how to create more "white space" in your life
- Learn the six-step Rest & Rejuvenation Pyramid for optimal health, energy & vitality
- Learn how much exercise is enough
- Learn the key to exercise is proper posture & body alignment
- Learn the five-key checkpoints for injury prevention & performance
- Learn there is more to your exercise program than sets, reps & resistance. Learn how to develop & sustainable exercise program that creates amazing results
- Learn the six-step Exercise Pyramid for optimal health, energy & vitality
- Learn how to educate your clients about know your numbers along with many other measurements for tracking their success
- Learn how to build a solid Lifestyle Health Coaching Program
- Learn how to create "transformational experiences" with your coaching clients & watch your business grow

Module XXIII (B): Lifestyle Coaching

Certification

This module discusses the immune system & digestion, along with toxins, detoxification & diet. The key avenues for toxin entry are overviewed, along with digestion, absorption, deposition & utilization of all nutrients. Diet prescription & food preparation are taught & techniques are reviewed for overcoming objections by the patient.

Objectives:

- Be able to explain the difference between addressing symptoms of disease with palliative drugs & surgery versus resolving underlying etiology of disease with lifestyle alterations
- Comprehend basic nutrition: digestion, absorption, assimilation, deposition & utilization of all essential nutrients
- Learn the key components in a healthy gut ecosystem along with the probiotic & prebiotic precursors for optimal immune functioning
- Be able to analyze a patient's lifestyle exercise habits & make appropriate recommendations for enhanced physical therapy
- Be able to assess the key avenues of entry for toxins into the human body, along with major principles of detoxification
- Learn how to analyze a patient's attitude & stress levels as they may be involved in the overall equation of patient's morbidity
- Know how to itemize the main vectors that constitute "host defense mechanisms" in a human body in order to restore the patient's innate self-regulating & self-repairing capacities
- Learn to adapt to individual patient needs, ethnic diets, unique eccentricities & still be able to counsel the patient toward a healthier lifestyle that will prevent or reverse disease
- Be able to write a recommended diet based upon unique preferences, limitations in food preparation & requirements for wellness from doctor's prescription
- Know how to outline potentially useful nutrition supplements, based upon limitations in ability to swallow pills & finances & predicated on physician's advice

Certification

Module XXIII (C): Lifestyle Coaching

This module focuses on the concept of the co-active coaching model. It discusses fundamentals of the model, the basics of the co-active coaching relationship & the coaching power triangle. The program instructs on how to utilize co-active coaching contexts, principles, practices & other skills.

Objectives:

- Distinguish three levels of listening
- Differentiate powerful questions from analytical questions
- Apply Levels 2 & 3 listening to form powerful questions
- Distinguish acknowledgment from recognition
- Choose from a range of conversation types to attain a balance between completing tasks & supporting patients
- Hold a formal coaching conversation
- Describe:
  - Level 2 listening
  - Level 3 listening
  - Powerful questions
  - The Coaching Roadmap
  - Intuition
  - Curiosity
  - Intrude/Take Charge
  - Accountability
  - Requests
  - Designed Alliance
- Exemplify the assumption that individuals are naturally creative, resourceful & whole
- Generalize formal coaching skills to daily use in patient conversations
- Practice Designed Alliance with co-workers & patients

Module XXIII (D): Lifestyle Coaching

Several different topics of lifestyle coaching are explored, such as medication-induced nutritional depletions, foods as nutrients, treatment modalities, hormonal balance, energy levels & food additives. The module also discusses other factors that relate to health coaching—such as emotions, intuition, etc.—as well as skills to implement a comprehensive weight loss program for a patient.

Objectives:

- Learn the importance vitamins A & B vitamins play in the prevention of disease
- Recognize the symptoms of mineral deficiencies such as magnesium, chromium, phosphorus, manganese & zinc
- Learn the symptoms of nutrient toxicity
- Identify the psycho-social-behavioral patterns in overeating, restrictive eating & instinctive eating
- Be able to list the six crucial decision points in the Mindful Eating Cycle
- Use the Mindful Eating Cycle model to identify specific opportunities to introduce brief messages to improve eating & physical activity choices
- Learn & apply intuitive eating strategies, including the differentiation of physical hunger from emotional & environmental cues for eating

Module XXIII (D): Lifestyle Coaching Objectives (continued)

Certification

- Help their patients identify & effectively address triggers for mindless & emotional eating
- Use & teach self-awareness for selecting food that takes into account personal preferences, health considerations & available options
- Utilize positive, small-steps messages to increase physical activity
- Explain why mindful eating is a powerful & universal solution to the complex problem of treating chronic diseases impacted by lifestyle choices
- Differentiate between standardized & non-standardized herbs
- Discuss the myth of pharmaceutical grade supplements
- Articulate the issues around product purity & efficacy
- Differentiate between moderate & intense exercise
- Learn key nutrients related exercise performance
- Recognize the signs of overtraining
- Learn the importance of macronutrients for someone who engages in regular exercise
- Know the differences between acute deficiency & functional deficiency of a nutrient
- Identify some of the most common drug nutrient depletion issues
- Recognize the signs of nutrient depletion
- Learn the importance of macronutrients for maintaining health
- Learn the importance vitamins A & B vitamins play in the prevention of disease
- Recognize the symptoms of mineral deficiencies such as magnesium, chromium, phosphorus, manganese & zinc
- Learn the symptoms of nutrient toxicity
- Identify the psycho-social-behavioral patterns in overeating, restrictive eating & instinctive eating
- Be able to list the six crucial decision points in the Mindful Eating Cycle
- Use the Mindful Eating Cycle model to identify specific opportunities to introduce brief messages to improve eating & physical activity choices
- Learn & apply intuitive eating strategies, including the differentiation of physical hunger from emotional & environmental cues for eating

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- Differentiate between standardized & non-standardized herbs
- Discuss the myth of pharmaceutical grade supplements
- Articulate the issues around product purity & efficacy
- Differentiate between moderate & intense exercise
- Learn key nutrients related exercise performance
- Recognize the signs of overtraining
- Learn the importance of macronutrients for someone who engages in regular exercise
- Know the differences between acute deficiency & functional deficiency of a nutrient
- Identify some of the most common drug nutrient depletion issues
- Recognize the signs of nutrient depletion
- Learn the importance of macronutrients for maintaining health

Module XXIV: The Nuts & Bolts of Writing Prescriptions for Compounded Medications: The Ultimate in Personalized Medicine

This module is designed to aid the practitioner in advanced prescription writing skills for compounded medications. Many areas of compounding will be covered, including but not limited to: sports medicine, pain control, wound healing, decreasing scar tissue, weight loss, summer & winter formulations & Anti-Aging skin care & more.

Objectives:

- Learn how to write prescriptions for sports medicine injuries such as heel spurs, tendonitis, etc.
- Learn how to write prescriptions for improving wound care
- Learn how to write prescriptions to help the patient decrease scaring after injury or surgery
- Learn formulations for stretch marks
- Know how to write prescriptions for winter & sun formulations
- Learn how to write prescriptions for weight loss
- Know how to write prescriptions for many dermatological conditions such as psoriasis, rosacea, atopic dermatitis, etc
- Know how to write prescriptions to aid in the treatment of periodontal disease
- Learn how to write prescriptions for pain control gels
- Know how to develop prescriptions for Anti-Aging skin care
- Learn how to write prescriptions for hair restoration
- Know how to write prescriptions to increase libido
- Learn how to write prescriptions for fungal skin infections
- Know how to write prescriptions for nebulized medications for chronic sinusitis, nasal polyps & allergic rhinitis
- Learn how to write prescriptions for gynecological issues such as vaginal dryness, vulvodynia & refractory bacterial vaginitis
- Know how to nebulize glutathione & how to give glutathione IV
- Know how to write prescriptions for compounded medications for customized problems such as transdermal metformin & vitamin D
- Know how to compound cancer aids for mouth sores, nausea etc.

"I searched for the best source of education for me to learn anti-aging, prevention & regeneration. I enrolled in the fellowship program & have been very impressed by the knowledge that I acquired. I have been able to help myself, my family members & my patients. Chronic degenerative diseases are preventable. All the time & money spent attending the fellowships are well worth the investment So, instead of treating your patients symptoms, come & learn how to treat the causes of chronic degenerative diseases & improve your patients quality of physical, mental & sexual life."

Sherien Verchere, MD

Certification

Module XXV: Addiction (A-D):

The addiction certification will cover four modules (XXV A-D). The goal of the addiction certification is to train physicians & other healthcare providers in Anti-Aging/Metabolic approaches to addiction recovery.

Module (A):

This Module will be an overview of addiction. Questions such as: Who me? How do you know if you, or someone you love, or one of your patients has an addiction? Sugar is the most addicting substance on earth. There are biochemical, metabolic, neuroendocrine, neurobiologic & psycho-emotional similarities & differences between other addictions & sugar. These other addictions will be discussed as well such as foods, drugs (stimulant, depressant, hypoxia inducing agents), alcohol, sex, work, shoplifting, gambling & computer addictions.

Module (B):

This Module will look at the electric & electromagnetic changes that result from addiction. The neuroendocrine pathways will be discussed such as dopamine, serotonin & tryptophan. Changes in the HPA axis & thyroid will also be elucidated. The body's ability to detoxify has a great deal to do with addiction as well. Organs of detoxification such as the liver, kidney, skin, bowel & lungs will be examined. Mitochondrial & other energy producing states will also be deliberated in their relationship to addiction.

Module (C):

This Module will concentrate on pain control & also addictions that co-occur with psychiatric & other medical disorders. Furthermore, the endocannabinoid system & addiction will be elucidated. Epigenetic regulations in substance abuse disorders will likewise be discussed.

Module (D):

This Module will focus on pillars of healing. Steps to recovery & treatment will be reviewed. What are the patient's motivations? How does the patient learn craving control? Does diet play a role in the healing process? How to help the patient kill the addiction that has infested their brain & is keeping them in chains will be considered. Moreover, how do you help the patient create a healthy brain & body to help them overcome addiction will be a focal point of this module will focus on pillars of healing. Steps to recovery & treatment will be reviewed. What are the patient's motivations? How does the patient learn craving control? Does diet play a role in the healing process? How to help the patient kill the addiction that has infested their brain & is keeping them in chains will be considered. Moreover, how do you help the patient create a healthy brain & body to help them overcome addiction will be a focal point of this module.

University of South Florida Master's Degree FAQ's

USF HEALTH MORSANI COLLEGE OF MEDICINE UNIVERSITY OF SOUTH FLORIDA

"I am writing to tell you how pleased I am with the Master of Science degree in Metabolic & Nutritional Medicine that I completed last year, & the Graduate Certificate in Advanced Metabolic Endocrinology that I am currently completing. The knowledge base I gained has helped me become a better physician. The credentials have allowed me to really grow my cash-based practice. & the credibility has brought new business opportunities. In fact, I was recently contacted by a group of investors who are planning to open a number of male BHRT clinics, & they would like me to serve as their national Medical Director."

Daniel Thomas, DO, MS

What is the name of master's program?

MS in Medical Sciences with a Concentration in Metabolic & Nutritional Medicine

What school is granting the degree?

School of Biomedical Sciences College of Medicine, University of South Florida Morsani College of Medicine (USF)

How many credits are needed to complete degree?

32 credit hours

Who is eligible for the master's program?

- Anyone who already holds a Master's degree in a related field is eligible for this master's program with the University of South Florida
- Those who have graduated in an accelerated program from an accredited medical school inside the United States will also be eligible with the university
- Anyone who holds a BS or BA degree will need special approval with the university
- Physicians who have graduated outside of the United States will need to have graduated from a four-year medical school to be eligible for this master's program

What are the program requirements?

There will be 11 courses in total that will need to be completed in order to receive the Master's degree

- Modules I-VII plus the Clinical Practice Review with MMI
- Courses 1-8 from the University
- The 11th course is an ethics course
- Course 9 & Course 10 are independent studies. There is a vast number of offerings that students may choose in order to receive credit for as an independent study. Please see your MMI Educational Advisor for more details or email mastersandcertificates@gmail.com

What are the requirements for each course?

- The completion of all seven modules plus the Clinical Practice Review
- 40 webcasts
- Two open-book, online examinations (50 questions each)
- Three case histories (examples of case histories will be forwarded to students)
- Upon completion, students are able to turn in their case histories anytime during that semester. Pre-tests will be available online with the University of South Florida's online educational system

University of South Florida Master's Degree (Continued)

USF HEALTH MORSANI COLLEGE OF MEDICINE UNIVERSITY OF SOUTH FLORIDA

How do I register?

Students will receive notification by email on how to register for classes with USF or students can contact mastersandcertificates@gmail.com

Will I have access to medical journals?

As long as you are a registered student at USF, you will have access to all major journals

What if I have already completed the module? How do I receive credit for the course at the medical school?

If students have already completed a module & the university is offering that particular course, they will need to complete two online examinations & three case histories

What degree do I earn upon completion?

Master's in Science degree with a concentration in Metabolic & Nutritional Medicine

2015 EVENT SCHEDULE

MMI METABOLIC MEDICAL INSTITUTE

AUGUST 13-15, 2015

- Module II: A Metabolic & Functional Approach to Cardiovascular Disease
- Module V: A Metabolic & Functional Approach to Nutrition & Exercise
- Module XV(C): Memory Loss: A Practical Guide for Clinicians
- Botanical Module VII-Pediatric Conditions

Venetian/Palazzo Hotel
Las Vegas, NV 89109
Tel: (702) 414-1000
Rate: $169 Expires 7/23/15

SEPTEMBER 17-19, 2015

- Module III: A Metabolic & Functional Approach to Neurology
- Module VII: A Metabolic & Functional Approach to Inflammation & Autoimmune Disease
- Clinical Practice Review
- Botanical Module V: Women's & Men's Health
- ABAARM & ABAAHP Written Exam (Sept 16, 2015)
- ABAARM Oral Exam (Sept 17-19, 2015)

Sheraton New Orleans
New Orleans, LA 70130
Tel: (504) 525-2500
Rate: $179 Inc. Internet
Expires 8/23/15

OCTOBER 8-10, 2015

- Module IV: A Metabolic & Functional Approach to Gastroenterology
- Module VI: A Metabolic & Functional Approach to Toxicology & Detoxification
- Module XIV(A): Weight & Lifestyle Management
- Module XV(D): Brain Fitness Therapies
- Module XXIV: Advanced Prescription Writing for Compounded Medications

Chicago Marriott Downtown
Chicago, IL 60611
Tel: (877) 303-0104
Rate: $259 Expires 9/15/15

DECEMBER 11-13, 2015

- Clinical Practice Review
- ABAARM & ABAAHP Written Exam (Dec 10, 2015)
- ABAARM Oral Exam (Dec 11-13, 2015)

Venetian/Palazzo Hotel
Las Vegas, NV 89109
Tel: (702) 414-1000
Rate: $189 Expires 11/5/15

MMI METABOLIC MEDICAL INSTITUTE

Educationally Partnered With:

School of Medicine & Health Sciences
THE GEORGE WASHINGTON UNIVERSITY

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