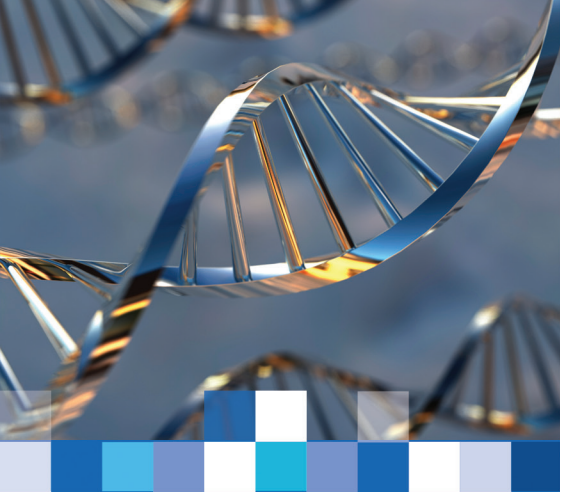
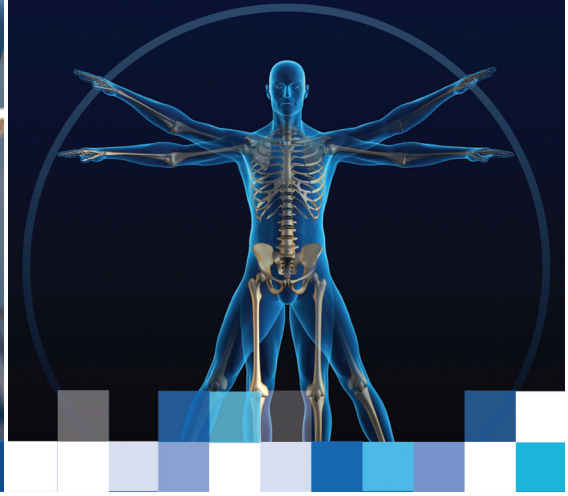


FELLOWSHIP IN ANTI-AGING REGENERATIVE & FUNCTIONAL MEDICINE

COURSE COMPLETION GUIDELINES & INFORMATION

- **Module I:** A Metabolic, Anti-Aging and Functional Approach to Endocrinology
- **Module II:** A Metabolic, Anti-Aging and Functional Approach to the Treatment of Hypertension, Diabetes, Coronary Artery Disease and Metabolic Syndrome
- **Module III:** A Metabolic, Anti-Aging and Functional Approach to Gastroenterology, Neurotransmitters, and Neurology
- **Module IV:** A Metabolic and Anti-Aging Approach to Amino Acid and Fatty Acid Metabolism, Drug Induced Nutrient Depletion, Stem Cells and Regenerative Medicine, Spirituality and Osteoporosis
- **Module V:** Clinical Intensives
- **Module VI:** Herbology and The Functional Regenerative Matrix
- **Module VII:** Mitochondropathy, Heavy Metal Toxicities, A Metabolic, Anti-Aging and Functional Approach to Autoimmune Diseases, Cognition Enhancement, and Fatigue
- **Module VIII:** A Metabolic, Anti-Aging and Functional Approach to Psychiatry and Cancer Therapies, Nutrition and the Athlete, A Metabolic and Functional Approach to Laboratory Evaluations
- **Module IX:** A Metabolic and Function Approach to Children's Health
- **Module X:** Homeopathic Applications to Metabolic Medicine
- **Module XI:** IV Therapies
- **Module XII:** Toxic Metals and Functional Toxicology

A4M AMERICAN ACADEMY OF ANTI-AGING MEDICINE

Established in 1992

FELLOWSHIP IN ANTI-AGING & REGENERATIVE MEDICINE

CONTACT US:

Tel: 888.997.0112 ▪ Fax: 561.997.0287 ▪ Fax: 561.997.0287 ▪ www.faafm.com

Fellowship in Anti-Aging Regenerative Medicine (FAARM)

What is Anti-Aging Medicine?

Anti-Aging Medicine is a clinical/medical specialty in the field of scientific research aimed at the early detection, prevention, treatment, and reversal of age-related decline. It is well documented by peer-reviewed medical and scientific journals and employs evidence-based methodologies to conduct patient assessments. The American Academy of Anti-Aging Medicine was established in 1992 as a professional physician certification and review board, which offers physician recognition in the form of specialty-based examination in Anti-Aging Medicine. It represents 20,000 physicians, scientists, health professionals, and the health minded public from 80 countries worldwide.

What is Regenerative Medicine?

Regenerative Medicine optimizes the body's endogenous mechanisms of self-repair and adds proven and near future exogenous treatments and technologies. Adult stem cells appear to be our most powerful tool at this time. Previous dogma concerning adult stem cells taught that neurons and myocytes did not have stem cells and the cells present at birth just declined in quantity and quality. It was also believed that hematopoietic stem cells in the bone marrow lacked plasticity and could not transform to other tissues. Current medical literature proves that adult stem cells exist in most tissues including brain, heart, muscles and liver. Hematopoietic stem cells (HSC) and endothelial progenitor cells (EPC) in the bone marrow have plasticity to potentially transform and repair all tissues and organs.

- In the hormone optimization component of Anti-Aging Medicine we are already optimizing stem cells. Progesterone via its metabolite allopregnenolone stimulates neural stem cells, testosterone stimulates muscle stem cells and EPC's which can improve erectile function, and growth hormone treatment for adult growth hormone deficiency improves the quantity and quality of EPC's. Estradiol improves incorporation and mobilization of EPC's.
- In the lifestyle component of Anti-Aging Medicine we are optimizing our adult stem cells with exercise and control of glucose and insulin.
- In the neutraceutical component of Anti-Aging Medicine we are optimizing our adult stem cells with Resveratrol as we turn on genes such as SIR1 and with blueberry, green tea and vitamin D3. DHA in omega 3 fish oil promotes neurogenesis from neuronal stem cells.

A new phase of Regenerative Medicine has recently commenced with cryogenic preservation of adult stem cells in healthy patients for future use. These patients are the same pro-active population who follow Anti-Aging programs. After stimulation with granulocyte colony stimulating factor adult stem cells can be collected by aphaeresis and stored in separate aliquots for treatment of specific pathologies such as acute myocardial infarction or for overall immune system reconstitution. This paradigm shift is referred to as bio-insurance.

What is Functional Medicine?

Functional Medicine is an integrative, science-based healthcare approach that treats illness and promotes wellness by focusing on the bio-chemically unique aspects of each patient, and then individually tailoring interventions to restore physiological, psychological, and structural balance.

Functional Medicine focuses on understanding the fundamental physiological processes, the environmental inputs, and the genetic predispositions that influence health and disease so that interventions are focused on treating the cause of the problem, not just masking the symptoms.

There are seven basic principles underlying Functional Medicine which include the following:

- Science-based medicine that connects the emerging research base to clinical practice.
- Biochemical individuality based on genetic and environmental uniqueness.
- Patient-centered care rather than disease-focused treatment.
- Dynamic balance of internal and external factors that affect total functioning.
- Web-like interconnections among the body's physiological processes also affect every aspect of functionality.
- Health as a positive vitality, not merely the absence of disease.
- Promotion of organ reserve.

Learning Objectives – Module I

Module I Objectives: A Metabolic, Anti-Aging and Functional Approach to Endocrinology

Upon completion of this module, the participant will:

- Recognize the hormonal changes that women and men manifest with aging
- Discuss the functions of estrogen, progesterone, testosterone, and DHEA in the body
- Know the structure of the sex hormones and their metabolism
- Understand the intricate web that the hormones are in the body
- Discuss the risks and benefits of estrogen, progesterone, testosterone, DHEA, pregnenolone and melatonin
- Know the symptoms of estrogen, progesterone, testosterone, and DHEA loss
- Learn the symptoms of estrogen, progesterone, testosterone, and DHEA excess
- Understand the differences between synthetic and bio-identical hormones
- Review the literature on synthetic, bio-identical hormone replacement
- Understand the adrenal system and its affects on other sex hormones and hormone replacement
- Initiate or suggest hormone replacement treatment
- Understand reasons bio-identical hormone replacement should be considered
- Monitor treatment, adjust dosages, alleviate side effects of BHRT
- Recognize the clinical manifestations of hypothyroidism
- Know the factors that cause decreased production of T4, affect 5'diodinase production, cause an inability to convert T4 to T3, and causes associated with decreased T3 or increased reverse T3
- Learn factors that increase the conversion of T4 to T3
- Understand the crucial role that iodine has in the function of the thyroid gland
- Prescribe or suggest treatment for hormone replacement including compounded thyroid medications
- Review of the key signs and symptoms of adrenal fatigue
- Know the physical examination findings present in adrenal fatigue
- Learn the laboratory test that aid in the diagnosis of adrenal fatigue
- Discuss the Women's Health Initiative findings and its clinical implications
- Understand the limitations of serum testing for steroid hormone levels and FSH
- Understand the importance of measuring tissue level of hormones, in diagnosing hormonal imbalances and in monitoring bio-identical hormone replacement
- Understand the impact of stress on the body
- Understand the physiology of the stress response
- Learn what tests best measures the physiologic response to stress
- Understand how to identify and treat adrenal dysfunction
- Understand how stress effects the cardiovascular system, insulin resistance, immune dysfunction, neurotransmitter balance, hormone balance, and thyroid function
- Review information on safe and effective therapies to correct adrenal dysfunction
- Discuss innovative testing that identifies thyroid dysfunction when TSH is normal
- Differentiate between progesterone and synthetic progestins relating to structure, pharmacologic actions and risks
- Explain the literature concerning the risk of breast cancer as it relates to differences in progesterone and synthetic progestins
- Explain research and clinical studies suggesting that progesterone therapy protects against breast cancer
- Discuss the advantages and disadvantages of testing hormone levels in different body fluids
- Discuss the methodology of scientific support for, and the differences in saliva, urine and blood testing of hormones
- Present scientific and clinical studies that suggest conventional venipuncture serum testing underestimates tissue uptake of sex-steroids delivered topically
- Be familiar with the basis of steroid synthesis

Learning Objectives – Modules I to II

Module I Objectives Continued

- Understand the urine monitoring of hormone levels and metabolites. Specific algorithms will be shared to facilitate ease of use in clinical practice
- Know the hormonal changes that occur with aging in males
- Know the cardiovascular, cognitive, bone, sexual, and emotional effects of hormone depletion and hormone restoration in males
- Learn to monitor and restore optimal hormone levels in males
- Discuss the differences between compounding and 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
- Learn how to evaluate a patient for iodine deficiency
- Review the roles iodine plays in the body
- Discover how to treat iodine deficiency
- Recognize the symptoms of PMS
- Study treatment modalities for PMS
- Learn the criterion required to make the diagnosis of PCOS
- Learn conventional and metabolic treatments for PCOS
- Learn the different bases that hormones can be placed in along with their advantages and disadvantages

Module II Objectives: A Metabolic, Anti-Aging and Functional Approach to the Treatment of Hypertension, Diabetes, Coronary Artery Disease and Metabolic Syndrome

Upon completion of this module, the participant will:

- Understand the glycemic index and its use in determining the glycemic index and glycemic load of foods
- Identify patients with Syndrome X/Metabolic Syndrome
- Learn nutritional supplements and lifestyle recommendations for treatment of the components of metabolic syndrome
- Establish a treatment course and treat patients with insulin resistance, diabetes, and neuropathy
- Discuss risk factors for heart disease including elevated cholesterol, triglycerides, lipid fractionation, homocysteine, lipoprotein (a), ferritin, fibrinogen and c-reactive protein
- Look at interventions for chronic endothelial inflammation
- Understand the role of inflammation in cardiovascular inflammatory disease
- Discuss free radical production, glycation, oxidation and apply to patient treatment
- Understand the causes of endothelial dysfunction
- Know botanical treatments to augment the care of insulin resistant patients
- Evaluate the link between oxidative stress and glycemic control
- Know which laboratory tests to order and to properly evaluate insulin resistance, diabetes mellitus, and risk factors for heart disease
- Discuss the role insulin has in the development of hypertension
- Learn nutritional treatments for hypertension
- Learn laboratory evaluations to aid in the diagnosis and treatment of heart disease risk factors
- Describe several interactive mechanisms that tie various components of the Metabolic Syndrome and Cardiovascular disease

Learning Objectives – Module II

Module II Objectives Continued

- Review diet, lifestyle and nutraceutical options for clinically managing dyslipidemia, cardiovascular inflammation, homocysteine, insulin resistence and related conditions
- Understand how various nutrient deficiencies lead/support metabolic syndrome
- Learn what lifestyle factors to modify in order to treat/prevent metabolic syndrome
- Review the complete physiology of hypertension
- Examine metabolic and anti-aging approaches to hypertension through nutrition and supplementation
- Review cholesterol physiology and its contribution to atherosclerosis
- Assess the current literature on dyslipidemia
- Examine effective nutrition and nutritional supplementation strategies for dyslipidemia
- Review a model of cardio metabolic disease
- Access the current literature on the complex physiologic relationships underlying cardio metabolic disease
- Examine effective nutritional strategies and nutritional supplementation on cardio metabolic disease
- Learn the difference between insulin sensitivity, insulin resistance, and Type II diabetes
- Understand glucose homeostasis
- Understand the counter-regulatory hormones and how their normal functions contribute/cause insulin resistance
- Understand why only some patients with insulin resistance develop Type II diabetes
- Redirect the focus of the treatment of Type II diabetes from the insulin perspective to the point of view of the counter-regulatory hormones
- Understand the consequences of increased sugar intake to the body
- Learn the numerous diseases that are linked to a high sugar diet
- Discover hidden sugars
- Study sugar substitutes, their use, and possible side effects
- Learn the symptoms of reactive hypoglycemia
- Know the diseases associated with insulin resistance
- Learn causes of elevated insulin levels
- Learn the interplay between metabolic syndrome and psychiatric illnesses
- Understand that medications that are commonly used to treat depression and other mental health diseases may increase the patient's risk of metabolic syndrome
- Investigate how targeted nutraceuticals can support cardiovascular function
- Define toxic blood syndrome and discuss interventions to improve
- Identify the inflammatory index and how to investigate silent inflammation
- Discuss the role of energy medicine in optimum health
- List five nutraceuticals that promote favorable vibrational frequencies in the body
- Discuss how electrical medicine assists in optimizing cellular function
- Define the complex role of energy and the heart
- Learn how the new triad of bioenergetic energy in cardiac health, i.e., coenzyme Q10, L-carnitine and D-ribose can help prevent and overcome heart disease
- Discover why ATP is so essential in optimizing diastolic function of the heart
- Learn about the most 20 common toxins that are found in our everyday life
- Explore the relationship between chemical toxins, inflammation, and disease
- Discover the role that heavy metals play in heart disease

Learning Objectives – Module III

Module III Objectives: A Metabolic, Anti-Aging and Functional Approach to Gastroenterology, Neurotransmitters, and Neurology

Upon completion of this module, the participants will:

- Learn new treatment modalities for multiple sclerosis, stroke recovery, Parkinson's disease, ALS, and Alzheimer's disease
- Evaluate the energy producing ability of the mitochondria and their role in revitalizing neurological tissue
- Learn factors associated with intestinal permeability
- Discuss the consequences of inflammation on the neurological system
- Look at the role endocytic receptors, scavenger receptors, and RAGEs has on the inflammatory response
- Understand the importance of the gastrointestinal tract's role in the immune system
- Understand the crucial role that neurotransmitters have in the body and how they impact various organ systems
- Learn the many reasons why patients have a difficult time losing weight and keeping it off
- Have a comprehensive understanding of the relationship between the GI tract and neurotransmitter function
- Evaluate the role of diet and antibiotics in the management of gastrointestinal dysfunction
- Demonstrate the unique biochemistry of individual patients and examine the ramifications of nutrition, medications, and stress on the immune system during the first years of life
- Explain the gastro-intestinal system's interface with the environment
- Discuss the role of nutrition and digestion in the balancing the gut flora, as well as the role of nutrition in gastrointestinal disease
- Identify the symptoms and diseases associated with yeast overgrowth
- Learn the causes of yeast overgrowth
- Be knowledgeable about the treatments of yeast overgrowth
- Know the symptoms associated with dysbiosis
- Recognize signs of poor digestion
- Know the causes of dysbiosis
- Learn the common conditions associated with leaky gut syndrome
- Learn the 4R program
- Determine the common signs and symptoms of low gastric acidity
- Know the diseases associated with low gastric acidity
- Learn the protocol for HCL acid supplementation
- Realize the symptoms and diseases associated with food allergy
- Ascertain the symptoms of pancreatic insufficiency
- Learn how to replace bile salts
- Determine the symptoms of bile salts deficiency
- Know the causes of gas and bloating
- Learn the causes of heartburn
- Find out new treatments for hiatal hernia
- Learn the causes of chronic diarrhea
- Learn the treatment of chronic diarrhea

Learning Objectives – Module III

Module III Objectives Continued

- Learn the causes and treatment of hemorrhoids
- Look at the risk factors for IBS
- Learn the treatment for inflammatory bowel disorders
- Realize the symptoms of acute and chronic gallbladder problems
- Find out how to treat gallbladder disease
- Know the incidence of celiac disease
- Understand the increased mortality associated with celiac disease
- Understand 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 and false negatives that can occur with antibody testing for celiac disease
- Recognize the reasons for false positive results that can occur with biopsy when evaluating a patient for celiac disease
- Learn about dermatitis herpetiformis
- Know the extraintestinal manifestations that can occur with celiac disease besides dermatitis herpetiformis
- Learn treatment methods for all forms of celiac disease
- Recognize other autoimmune diseases that are associated with celiac disease
- Know the differential diagnosis for celiac disease
- Know the definition of probiotics
- Recognize that gastrointestinal and vaginal flora change with age
- Learn the mechanism of action of probiotics
- Know which bacteria that occur in the gastrointestinal tract that are friendly and which are pathogens
- Learn about bacteriocins
- Learn the desirable characteristics of an effective probiotic
- Recognize what foods can be used as probiotics
- Understand the beneficial effects of normal gut flora
- Learn which disease processes can be treated with probiotics
- Learn the differential diagnosis of irritable bowel disease
- Learn treatment modalities for irritable bowel disease
- Understand what an allergy elimination diet is and be able use this treatment modality with a patient
- Learn the role of probiotics in the treatment of antibiotic-associated diarrhea
- Know the definition of prebiotics
- Understand the criteria to be a prebiotic
- Review the medical literature on the use of prebiotics
- Learn food sources of prebiotics
- Recognize prebiotic substances and the organisms they work on
- Understand that protozoan infections of the gastrointestinal tract may be the cause of unrecognized systemic illnesses
- Learn conventional and natural therapies for parasitic infections
- Know the role that neurotransmitters play in weight loss
- Recognize the importance of hormonal balance in weight loss
- Understand that the ingestion of foods that the patient is allergic to can cause weight gain
- Recognize the role that sleep deprivation plays in weight issues
- Understand that the body's ability to effectively detoxify also plays a role in weight gain
- Learn that weight gain creates an inflammatory response in the body
- Know the chemistry behind why some foods are addicting
- Review the scientific literature on nutrients that can aid in weight loss

Learning Objectives – Modules III - IV

Module III Objectives Continued

- Know the role that yeast overgrowth plays in weight gain
- Have an understanding of basic neurochemistry as it relates to mood and cognition
- Recognize common neurotransmitter balances and how to diagnose them
- Discuss the major neurotransmitters in brain function and their understood roles in behavior and in neurological disorders
- Understand the function of receptors for these substances and factors which impact their regulation
- Discuss the metabolism of these substances within the body, including the precursors and substrates necessary for function in the nervous system as well as how they are metabolized in the body
- Understand the limitations of measurement of the neurotransmitters and the role that the blood brain barrier plays in controlling access of substrates and cofactors to the brain
- Recognize circumstances where functional imaging techniques may aid in diagnosis and therapy of conditions related to neurotransmitter dysfunction
- Recognize some of the many interactions of neurotransmitters with hormonal function and dysfunction
- Recognize the parameters within the Functional Medicine Matrix that would indicate the need for attention to neurotransmitter function and identify common antecedents, triggers and mediators when an imbalance or dysfunction is suspected
- Learn metabolic and anti-aging treatment options to improve mood and cognition

Module IV Objectives: : **A Metabolic and Anti-Aging Approach to Amino Acid and Fatty Acid Metabolism, Drug Induced Nutrient Depletion, Stem Cells and Regenerative Medicine, Spirituality and Osteoporosis**

Upon completion of this module, the participants will:

- Know the role of nutrition in maintaining optimal health as the patient ages
- Learn phase I and phase II detoxification and the consequences of the body's inability to detoxify
- Learn nutritional depletions caused by medications
- Understand the relationships among the biotransformation enzyme systems
- Know the common warning signs indicating that toxicity may be a factor for the patient
- Understand the roles of physical, psychological, and spiritual health in Metabolic and Anti-Aging Medicine
- Know essential, conditionally essential, and non-essential amino acids and symptoms of amino acid deficiencies
- Learn new treatment plans for osteoporosis
- Look at pharmaceutical inhibitors of Phase 1 cytochrome P450 enzymes
- Learn treatment modalities for the dietary and nutritional support of detoxification
- Know the risk factors for osteoporosis
- Look at metallothioneins and genetic polymorphisms
- Know the function of fatty acids in the body
- Know treatments for amino acid deficiencies
- Learn disease process that have amino acid deficiencies as an antecedent
- Be aware of 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
- Teach new pain control options used in Metabolic and Anti-Aging Medicine
- Understand fatty acids may have profound effects on the network of inflammatory mediators altering prostanoid synthesis, PPAR activity, and the response to cytokines
- Review the basic concepts behind the disciplines of metabolomics and nutrigenomics

Learning Objectives – Module IV

Module IV Objectives Continued

- Define the critical steps involved in signal transduction and intracellular signaling, with emphasis on transmembrane receptors, intracellular kinases, transcription factors and DNA response elements
- Learn how DNA expression can be modified by specific dietary and lifestyle factors
- Identify the differences between types of stem cells
- Learn how stem cells are harvested for autologous use
- Learn about the current applications of stem cells from literature review
- Identify future applications for autologous stem cells
- Understanding of basic pathophysiology of thyroid metabolism as it relates to cardiac function
- Evaluate the current myths regarding thyroid replacement therapy
- Understanding of how thyroid deficiency can directly relate to cardiac disease, hypertension, hyperlipidemia, arrhythmia and heart failure
- Look at the role that genomics, pharmacogenomics, proteomics, and nutrigenomics has in Metabolic and Anti-Aging Medicine
- Look at a patient-centric system of health care that addressed biochemical individuality and genetic uniqueness to improve health and function of the patient
- Understand the relationships among the biotransformation enzyme systems
- Teach the participant the value of a preconception medical evaluation
- Learn what tests to order on a patient for a preconception medicine evaluation
- Aid the participant in the interpretation of labs results in a preconception medicine consult
- Learn the importance of EPA/DHA supplementation use in the mother and how it later affects the health of her child
- Study implementation modalities for patients with fatty acid deficiencies
- Learn the symptoms of toxic build up
- Discover how patients are exposed to toxins
- Realize what nutrients aid in phase I detoxification of the liver
- Understand that a toxic metabolite can build up between Phase I and Phase II detoxification that may be more toxic than the original metabolite
- Learn the six phases of Phase II detoxification
- Ascertain how to treat a patient with abnormal phase I or phase II detoxification
- Explain how amino acid insufficiencies can manifest among a population that over-consumers dietary protein
- Demonstrate expertise in strategies for planning corrective interventions with amino acids
- Explain how fatty acid insufficiencies can manifest among a population that over-consumers dietary fat
- Explain the types of toxicants and their respective levels of health threats
- Describe methods of assessment for xenotoxin exposures and endotoxin burdens
- Demonstrate expertise in strategies for planning corrective interventions to reduce toxin loads and improve detoxification function
- Attendees will achieve an expanded awareness of the common environmental toxins and their impact on the body; this awareness can then be used to help patients make informed decisions about healthy lifestyle choices
- Attendees will gain a working knowledge of the scientific evidence supporting the role of environmental and endogenous toxins in initiating and perpetuating chronic disease and accelerated aging; this information can then be used to enhance the practitioner's diagnostic skills in the recognition of toxin-related disease
- Attendees will gain an understanding of current knowledge regarding the biotransformation and elimination of environmental toxins and the scientific basis supporting the use of nutrients and plant-derived factors for enhancing these processes as a strategy for treating toxin-related disease and improving overall health; practitioners will be able to use this information to expand their therapeutic repertoire

Learning Objectives – Modules IV - VI

Module IV Objectives Continued

- Review the basic concepts behind the disciplines of metabolomics and nutrigenomics
- Define the critical steps involved in signal transduction and intracellular signaling, with emphasis on transmembrane receptors, intracellular kinases, transcription factors and DNA response elements
- Learn how DNA expression can be modified by specific dietary and lifestyle factors
- Identify risks associated with non pharmaceutical grade fish oils
- Identify future applications for autologous stem cells
- Basic understanding of the pathophysiology of Vitamin D
- Knowledge of the implications of vitamin D deficiency
- Learn new lab normals for Vitamin D
- Explain the symptoms of the various headache types
- Identify non-pharmacological treatments for head pain
- Describe the mechanism of action of Butterburr 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 and the various receptors involved
- Review the use of topical pain medications and the rationale for use
- Review various herbs and supplements that can help in the management of the chronic pain patient
- Know the mechanisms of how Vitamin K works in the body
- Learn the forms of Vitamin K
- Review the importance of Vitamin K in vascular health
- Know the causes of Vitamin K deficiency
- Understand the use of Vitamin K supplementation in patients taking Warfarin

Module V Objectives: **Clinical Intensives**

Upon completion of this module, the participants will:

- 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 and 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, and nutritional needs for vegetarians, and much more

Module VI Objectives: **Herbology and The Functional Regenerative Matrix**

Upon completion of this module, the participants will:

- Learn the botanical treatments of many major disease processes
- Know the side effects of botanical medicines
- Understand antecedents, triggers, and mediators of illness
- Learn the interaction that herbs may have with medications
- Understand and be able to treat infectious diseases such as hepatitis from a metabolic approach

Learning Objectives – Module VI

Module VI Objectives Continued

- Learn functional clinical imbalances that can occur in the body
- Learn how nutrition affects gene expression
- Review history and traditional uses of common herbs
- Review the medical literature on herbal therapies
- Define the frontiers of research for botanical medicines: identify key ongoing questions regarding evidence-based effectiveness, consistency of preparations and concerns regarding safety
- Learn to utilize readily available databases to make informed evidence-based decisions regarding botanical medicines
- Gain an understanding of the rationale and proposed mechanisms behind the potential therapeutic use of selective herbal supplements for specific health disorders including chronic inflammation, immune dysfunction and minor infections
- Familiarize participants with extraction and dosage forms of herbal therapies
- Familiarize participants with the DSHEA act and labeling
- Have the participants understand and explain standardization of herbal extractions
- Educate the participants on what are the necessary requirements for a quality herbal extraction
- Have participants learn clinical synergistic effects of drug therapy and herbal therapies where applicable
- Have participants become aware of potential adverse interactions with drug-herb prescribing
- Have participants gain a working knowledge of the dosing required to gain a therapeutic endpoint with herbal remedies
- Gain basic understanding of the functional medicine principles including the functional medicine tree and matrix
- Identify the core clinical, functional medicine imbalances with examples
- Apply the functional medicine matrix in a clinical setting when addressing complex patients
- Understand the importance that B vitamins play in the prevention of disease
- Learn in case history format the symptoms of all of the B Vitamin deficiencies
- Know the diseases and disorders that can be treated with different B Vitamins
- Learn the prevalence of Lyme disease
- Know the signs and symptoms of Lyme disease
- Understand that Lyme disease may be a contributing factor for other diseases
- Discover the testing methods to diagnose Lyme disease
- Realize the commonly used antibiotics to treat Lyme disease
- Learn metabolic therapies for the treatment of Lyme disease
- Find out co-infections that may occur with Lyme disease
- Learn about resistant Lyme disease
- Learn the history of restless leg syndrome
- Know the definition of restless leg syndrome versus the definition of periodic limb movement disorder
- Realize the risk factors for the development of restless leg syndrome
- Discover the difference between the primary and secondary causes of restless leg syndrome
- Know the coexisting diseases that may occur with restless leg syndrome
- Study the symptoms of restless leg syndrome
- Know the symptoms of periodic limb movement disorder
- Know the four essential diagnostic criteria for restless leg syndrome
- Find out the lab studies that need to be ordered to diagnose restless leg syndrome
- Learn the differential diagnosis of restless leg syndrome
- Gain knowledge of the drug therapies that are available to treat restless leg syndrome
- Know the difference between tolerance and augmentation in the treatment of restless leg syndrome

Learning Objectives – Modules VI - VII

Module VI Objectives Continued

- Ascertain the different treatments for intermittent restless leg syndrome, daily restless leg syndrome, and refractory restless leg syndrome
- Learn non-drug therapies for restless leg syndrome
- Recognize that arthritis is one of the most common diseases
- Know the radiologic findings seen on x-ray to diagnosis osteoarthritis
- Find out about the two forms of osteoarthritis
- Understand conventional therapies for osteoarthritis
- Learn metabolic therapies for osteoarthritis
- Know common foods that are linked to allergies and arthritis
- Recognize the side effects of different treatment options
- Learn treatment options for ankylosing spondylitis
- Know the symptoms of ankylosing spondylitis
- Identify specific plant and plant compound as effective antivirals
- Understand the mechanism of action of specific plant and plant compounds as antivirals
- Become proficient in recommending plant and plant compounds for specific human viruses
- Identify botanicals that are effective for infectious disease
- Understand the mechanism of action of specific botanicals in their ability to modulate infectious disease
- Become proficient in recommending botanicals for specific infectious diseases

Module VII Objectives: Mitochondropathy, Heavy Metal Toxicities, A Metabolic, Anti-Aging and Functional Approach to Autoimmune Diseases, Cognition Enhancement, and Fatigue

Upon completion of this module, the participants will:

- Understand the molecular triggers of the immune response and their receptors
- Look at intracellular signaling pathways and their gene products
- Look at the cellular and molecular biology of immunity and inflammation
- Learn clinical approaches to immune imbalance and inflammation
- Understand that micronutrient insufficiency leads to DNA and mitochondrial damage
- Look at disorders of mitochondrial function
- Understand the nutritional and environmental regulation of toxic metals
- Know the role that heavy metal toxicity places in disease
- Recognize the role that excitotoxins play on the developing brain
- Learn treatment plans on help a patient maintain their memory
- Learn new treatment modalities for patients with memory loss
- Learn the role that excitotoxins play in disease
- Understand the role of antioxidants in cellular redox control
- Recognize the clinical manifestations of chronic fatigue and fibromyalgia
- Review the role of cytokines as organizers of the inflammatory response
- Learn the cellular and molecular biology of immunity and inflammation
- Look at the molecular triggers of the immune response and their receptors
- Understand the loss of tolerance, Th1/th2/Th3/Th4 imbalance and the role of normal gut flora
- Explore the role of altered bioenergetics in the diathesis of chronic disease
- Learn the counter-regulatory control points of immune imbalances
- Approach to autoimmune diseases and cognition enhancement
- Define and differentiate the various clinical profiles associated with fatigue

Learning Objectives – Module VII

Module VII Objectives Continued

- Understand key biochemical features that underlie energy deficits in patients
- Understand fundamental tools of laboratory assessment in patients with fatigue
- Create and understanding of the physiology of the glutamate receptors system
- Demonstrate how the immune system interacts with glutamate receptors to induce human disease
- Discuss specific CNS diseases and the role played by glutamate receptor dysfunction in these diseases
- Discuss the glutamate receptor system in peripheral disorders
- Discuss way to protect the brain and systemic system from glutamate receptor over activity
- Understand how to measure all components of memory, including P300, WMS, CNSVS and other related factors
- Know the connection between the brain's testing results and the appropriate diagnosis
- Learn how to approach treatment for memory loss and how to prevent it
- Understand toxic metal exposure from the environment
- Recognize the symptoms and conditions related to toxic metals exposure
- Design a protocol with appropriate chelation agents for heavy metal toxicities
- Learn the risk factors for Alzheimer's disease
- Know the role of heavy metals in memory loss
- Recognize the effects of fluoride on the brain
- Understand the role stress plays on cognition
- Know the role hormonal balance plays in memory maintenance
- Recognize the affects of sugar on cognitive decline
- Learn nutrients that may help maintain cognition
- Recognize medications that may affect memory
- Learn symptoms of chronic mercury poisoning
- Examine the research on the safety of mercury amalgams
- Look at the diseases related to mercury poisoning
- Examine the diseases aggravated by allergies to metals
- Learn mechanisms of mercury toxicity
- Learn nutritional detoxification methods for mercury toxicity
- Examine symptom improvement after amalgam removal
- Look at the role that environmental toxins may play in autoimmune diseases
- Know metabolic/anti-aging treatments for lupus
- Learn metabolic/anti-aging treatments for Raynaud's phenomenon
- Lean how new diagnostic tests for rheumatoid arthritis
- Know the differential diagnosis for high anti-CCP
- Know metabolic/anti-aging treatments for rheumatoid arthritis
- Exposed to nutrients that affect NF-Kappa Beta
- Learn how to evaluate and work-up a patient with chronic fatigue syndrome (CFS) and fibromyalgia (FM)
- Recognize the brain imaging changes that occur with CFS and FM
- Recognize the autonomic and cardiac manifestations in CFS and FM
- Understand the impaired mitochondrial function that occurs in CFS and FM
- Learn the immune dysfunction that is present in CFS and FM
- Recognize the symptoms of fibromyalgia
- Look at conventional treatments of fibromyalgia
- Learn the numerous metabolic/anti-aging treatment modalities for fibromyalgia
- Find out the how to treat mitochondrial dysfunction
- Understand the role Guaifenesin plays in the treatment of fibromyalgia
- Understand that salicylates affect the efficacy of Guaifenesin
- Learn common medications and natural products that contain salicylates

Learning Objectives – Modules VII - VIII

Module VII Objectives Continued

- Study the SHIN protocol
- Discover what physical modalities can be used in the treatment of fibromyalgia
- Study the differential diagnosis of CFS
- Learn the factors suspected of promoting CFS
- Discover immune abnormalities that can be present in CFS
- Realize the nutritional treatments for CFS
- Understand the role that hypothyroidism and adrenal fatigue play in CFS and FM
- 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
- Know the demographics of autoimmunity
- Understand some of the important interactions of the endocrine system with immunity
- Learn how the endocrine system can affect autoimmunity
- Know several laboratory test that can be used in addition to the standard tests for autoimmunity
- Know the treatment options to augment usual and customary treatment of autoimmunity

Module VIII Objectives: A Metabolic, Anti-Aging and Functional Approach to Psychiatry and Cancer Therapies, Nutrition and the Athlete, A Metabolic and Functional Approach to Laboratory Evaluations

Upon completion of this module, the participant will:

- Learn advanced integrative approaches to cancer therapies
- Explore clinical approaches to structural imbalances
- Learn what determines test result accuracy, sources of error and what is involved in the management of quality assurance systems in a clinical laboratory
- Understand how reference ranges are established and displayed
- Understand organic acid metabolism and how this relates to evaluating nutrient insufficiency and toxic imbalances
- Learn how to evaluate a patient's level of oxidative stress
- Understand how urinary porphyrin analysis can evaluate functional effects of environmental toxins
- Learn how to evaluate a patient's level of vitamins, minerals, and toxic metals
- Understand the use and advantages of DNA identification of stool microbes
- Learn the use of genomic analysis in the management of patient health risks
- Learn how to evaluate patient levels of phthalates and other bioactive plasticizers and how this can affect steroid hormone interactions and potential health risks
- Learn how analysis of stool microbes, chemistry, immunology and enzymology can be used to evaluate and treat intestinal disorders
- Know treatments for psychiatric illnesses from an Anti-Aging and Metabolic approach
- Learn nutritional support programs for the competitive athlete
- Learn the role that nutrients play in the treatment of psychiatric illness

Learning Objectives – Module VIII

Module VIII Objectives Continued

- Write prescriptions for exercise plans for healthy patients and those with special needs
- Learn new treatment modalities in the area of sports medicine from a an Anti-Aging and Metabolic approach
- Learn how to wean a patient successfully off of prescription medications such as hypnotics and antidepressants
- Review the biochemical basis of psychiatric diseases
- Discuss the neurobiology and chemistry of the sleep wake cycle in the context of circadian rhythms and identify treatable disorders that can interrupt restorative sleep
- Explain the role of the orexin secreting neurons in sleep disorders, including narcolepsy/cataplexy
- Map a treatment or interventional plan to optimize restorative sleep
- Introduce the principles of functional medicine, focusing on biochemical individuality
- Explore the relationship between genes and environment as risk factors for disease, as well as opportunities to optimize health and well-being
- Discuss the importance of laboratory testing that emphasizes optimal wellness and looks at factors that change before the outward manifestation of disease. Case histories will be discussed
- Emphasize the fundamental functional imbalances that every clinician should consider when seeing a patient: environmental inputs, immune & inflammatory imbalance, energy production/oxidative stress, gastro-intestinal imbalance, detoxification & biotransformation, hormonal & neurotransmitter imbalance, structural imbalance, and emotional imbalance
- Apply the new-found understanding the gene-environment interaction in clinical practice
- Understand the reasons for the failure of traditional chemotherapy
- Learn how to use targeted chemotherapy
- Learn new protocols for advanced stage cancers
- Have a basic understanding of how clinical lab tests are run
- Learn what determines result accuracy, sources of error and what's involved in management of quality assurance systems in a clinical laboratory
- Understand how reference ranges are established and displayed
- Learn how to detect and treat food allergies and how this can affect health
- Understand how to evaluate a patient's level of vitamins, minerals and toxic metals
- Understand organic acid metabolism and how this relates to evaluating nutrient insufficiency and toxic imbalances
- Learn how analysis of stool microbes, chemistry, immunology and enzymology can be used to evaluate and treat intestinal disorders
- Understand the use and advantages of DNA identification of stool microbes
- Learn how anaerobic bacterial imbalances in the gut can affect health and treatments
- Learn the use of genomic analysis in the management of patient health risks
- Learn how to evaluate patient levels of phthalates and other bioactive plasticizers, how this can affect steroid hormone interactions and potential health risks
- Recommend appropriate mineral and vitamin repletion based on exercise needs
- Recommend the correct protein to carbohydrate ratios and specific sources to optimize nutrient timing depending on age
- Recommend amino acids that are evidenced based to improve recovery from a strenuous exercise program
- Recommend nutraceuticals and herbal compounds that will reduce lactate loading and reperfusion injury
- Recommend the appropriate nutrients to support inflammation and post surgery recovery
- Investigate the role that diet has in cancer prevention
- Provide the existing and new research on metabolic therapies for the treatment of cancer
- Identify scientific rationale for using antioxidant/micronutrient/ phytochemical combinations with standard conventional cancer therapies

Learning Objectives – Modules VIII - IX

Module VIII Objectives Continued

- Provide supporting literature concerning nutriceuticals and if they can be used as complementing cancer therapies
- Address alternative treatment of specific cancer types
- Learn therapies that may prevent or treat the side effects of radiation or chemotherapy
- Provide step-by-step guide to the safe and gradual withdrawal from tranquilizers, antidepressants, and sleeping aids
- Identify the symptoms of anti-depressant and hypnotic medication withdrawal
- Learn nutritional support for benzodiazepine withdrawal
- Learn the effects that anti-depressants have on the brain
- Learn nutritional support for discontinuation of SSRIs, tricyclic and MAO inhibitor anti-depressants
- Learn nutritional support for hypnotic withdrawal
- Know the antidepressant-induced mental, behavioral, and cerebral abnormalities that can occur with their use
- Learn metabolic treatments for depression, anxiety, OCD, schizophrenia, and manic depression
- Recognize the biochemical imbalances that result in a mental illness
- Understand the decline in endocrine function that occurs in all organs with age
- Know the behavioral effects of endocrine disorders and their application to geriatric psychiatry
- Lean laboratory abnormalities that occur with hyperparathyroidism
- Learn the mechanisms of action of PTH
- Recognize the drug effects that occur on bone strength
- Understand how the mode of delivery of PTH determines the skeletal response to PTH
- Review the literature on the effect PTH treatment has on the risk of vertebral fractures in postmenopausal women with osteoporosis

Module IX: Objectives: A Metabolic and Function Approach to Children's Health

Upon completion of this module, the participant will:

- Understand 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 antecedents and mediators that affect the development of ADD/ADHD
- Learn nutrients that have been shown in medical trials to aid in the treatment of ADD/ADHD
- Understand the importance that gastrointestinal health plays in ADD/ADHD
- Learn the side effects of conventional treatments for ADD/ADHD
- Recognize the behaviors and 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
- Understand the role that detoxification plays in ASD
- Recognize the role oxidative stress plays in ASD
- Look at microglial activation in ASD
- Ascertain the possible role allergies may play 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 and prevent childhood obesity
- Review a metabolic approach to the treatment of childhood allergies
- Realize that insulin resistance may begin in childhood
- Understand the role that exercise plays in overall health in childhood
- Learn metabolic approaches for the treatment of infections

Learning Objectives – Modules IX - X

Module IX Objectives Continued

- 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
- Understand the importance of bowel health in a child
- Learn metabolic and functional treatments for asthma
- Know metabolic therapies for learning disabilities

Module X: Objectives: **Homeopathic Applications to Metabolic Medicine**

Upon completion of this module, the participant will:

- Gain an understanding of historical development of homeopathy
- Understand the concept of homeopathic pharmacology
- Define the legal status and prescribing rights of homeopathic medicines in regards to OTC and RX status
- Describe the nomenclature for homeopathic medicine doses
- Review homeopathic medicine manufacturing and the process of succession
- Describe the differences between a Materia Medica and Repertory
- Familiarize the students with the thought process and rationale for selection of homeopathic medicines
- Provide a foundation for understanding Constitutional, Complex and Clinical homeopathic prescribing
- Provide a framework for students to select homeopathic medicines as a part of the integrative model for health care
- Educate the student on homeopathic medicine dosing for common complaints such as arthritis, headaches, migraines, sinusitis, allergies and other common chronic complaints
- Educate the student on homeopathic medicines for more acute conditions such as sore throat, colds, flu and adjunctive support for traditional medicines
- Educate the student on homeopathic medicine dosing and application of topical and oral and Injectable forms of homeopathic for the management of soft tissue injury, reactivation of metabolism and enhancement of detoxification pathways
- Familiarize the student with homeopathic medicine dosing and selection for common cold & flu and allergy complaints
- Familiarize the student with homeopathic medicine dosing and selection for common GI complaints such as diarrhea and constipation
- Familiarize the student with homeopathic medicine dosing and selection for upper respiratory conditions such as cough, sinusitis, and mucolytic support
- Familiarize the student with homeopathic medicine and selection for behavior issues, night terrors and bedwetting
- Familiarize the student with homeopathic medicine dosing and selection for common bumps, bruises and scrapes
- Familiarize the student with the theory and research related to homotoxicolgy
- Familiarize and gain a working knowledge of the six phase process of chronic illness and the definition of each of the phases
- Familiarize the student on the immunity model for homeopathic medicine
- Teach the student to apply homotoxicologic preparations for recoupling of oxidative phosphorylation and retarding the chronic inflammatory cascade
- Teach the student application of homotoxicology in the geriatric population
- Introduce the concept of gemmotherapy to the student
- Provide a working knowledge of dosage and application of gemmotherapy medicines so that the student can apply this information clinically
- Introduce the concept of diathesis and the theory behind oligo therapy
- Provide a working knowledge of dosage, protocol and application of oligo therapy so that the student can apply this information clinically

Learning Objectives – Modules XI - XII

Module XI: Objectives: **IV Therapies**

Upon completion of this module, the participant will:

- 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 and rectal chelation therapies
- Understand the side effects of chelation
- Learn IV protocols for nutritional therapies
- Know IV therapies for infectious diseases

Module XII: Objectives: **Toxic Metals and Functional Toxicology**

Upon completion of this module, the participant will:

- 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 nonpharmaceutical agents that chelate out heavy metals
- Understand 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, and heavy metals
- Know the mechanisms of toxic injury including disturbances in cell signaling, alterations in structural entities such as the mitochondria, and impaired synthesis of specific molecules such as fatty acids, proteins, nucleotides, glutathione, and phospholipids
- Discover hormonal disruption that can occur with toxin exposure
- Understand the biotransformation that can occur with drugs, metals, and 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 and genetic polymorphism
- Know about metallothioneins and genetic polymorphism
- Discover nutritional and 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 and how to aid a patient in detoxifying these organs

Master's Program

The modules in the Fellowship in Anti-Aging, Regenerative, and Functional Medicine have also been approved for course credit at the University of South Florida School of Medicine leading to a master's degree in Medical Sciences with a concentration in Metabolic and Nutritional Medicine. For further information on enrolling in the master's program and course requirements contact Elizabeth Wheeler at 561-997-0112 ext. 531.

Fellowship Staff and Faculty

Fellowship Director

Pamela Wartian Smith, M.D., MPH, spent her first twenty years of practice as an emergency room physician with the Detroit Medical Center. She is a diplomat of the Board of the American Academy of Anti-Aging Physicians and is an internationally known speaker and author on the subject of Metabolic, Anti-Aging and Functional Medicine. She has been featured on CNN, PBS, and other television channels, radio shows and consumer magazines. She is currently the Director of the Center for Healthy Living and Longevity and the founder and Director of The Fellowship in Metabolic, Anti-Aging and Functional Medicine. She is the author of four best-selling books, "HRT: The Answers," "Vitamins: Hype or Hope," "Demystifying Weight Loss", "What You Must Know About Vitamins, Minerals, Herbs & More," and her new book "What You Must Know About Women's Hormones," has just been released.

Faculty

Thomas J. Barnard, M.D., FCCFP, (EM), FAAFP, CAQ, (Geriatrics), FABAAM, adjunct clinical professor of family medicine, University of Western Ontario, adjunct professor of Human Biology and Nutritional Sciences, University of Guelph. Consultant and Medical Director, Aura Medical Restorative Spa, Leamington, Ontario Canada, 2006. Chief Scientific Officer, See Yourself Well, Inc, 1999 to present. Author of Defeating Diabetes Published 2003.

Scott Becker, M.D., is the Medical Director of The Becker Hilton Medical Institute in Fort Lauderdale, Florida. He has been in Pediatric & Adolescent Medicine for 18 years, as well as a Pediatric Emergency Room Attending in some of Florida's highest acuity and busiest Pediatric ER's over the same time.

Russell L. Blaylock, M.D., CCN, did his residency in neurosurgery at the University of South Carolina School of Medicine, is on the editorial board of the Journal of American Physicians and Surgeons and has authored several books including: Excitotoxins: The Taste That Kills, Health and Nutrition Secrets That Can Save Your Life, and Natural Strategies for Cancer Patients. He is well published in the medical arena with numerous journal articles.

Kenneth A. Bock, M.D., FAAFP, FACN, CNS, received his medical degree with Honor in 1979. He is the author of Healing the New Childhood Epidemics: Autism, ADHD, Asthma, and Allergies. For the past 25 years, he has dealt with complex medical problems by integrating alternative modalities with conventional medicine into a comprehensive integrative medical practice

J. Alexander Bralley, Ph.D., has authored numerous research publications, is an Internationally known speaker and co-author/ editor of the landmark textbook, Laboratory Evaluations for Integrative and Functional Medicine, now in its 2nd edition, and is founder and CEO of Metametrix Clinical Laboratory.

Eric R. Braverman, M.D., is the Director of The Place for Achieving Total Health (PATH) Medical, New York City, NY, a full-service family health care integrative medical practice. He also is President of Total Health Nutrients and author of several books.

Ben Brown, M.D., is the Director of the Integrative Medicine Family Medicine Residency at the University of California San Francisco. He is also the Director of Global Medicine at the University. Dr. Brown furthermore spent 15 years near the Thai-Burma border on international medical missions work. He studied under Dr. Dean Ornish and has won numerous awards as a teacher, author and lecturer.

Mitchell J. Ghen, D.O., Ph.D., has 30 years of Integrative Medical experience. He is one of the Pioneers of I.V. Nutritional Therapies and has taught the workshops on the subject for the A4M. Author of 3 textbooks, dozens of articles, including the study guide chapter on Regenerative Medicine and a radio talk show host.

George Gillson, M.D., Ph.D., received a Ph.D. from University of Alberta before earning his M.D. from University of Calgary. He practiced Family Medicine for six years and is now the President and Medical Director Of Rocky Mountain Analytical Laboratory in Alberta Canada. He is the co-author of "You've Hit Menopause, Now What?"

Thomas Guilliams, Ph.D., is Director of the Point Institute of Nutraceutical Research, research arm of Ortho Molecular Products, where he serves as the VP/Director of Science and Regulatory Affairs. He is also a clinical instructor for the UW-Madison School of Pharmacy. His focus is on the evidence-based approach of Nutraceuticals.

Patrick Hanaway, M.D., founded Family to Family: Your Home for Whole Family Health in Asheville, NC, and is currently Medical Director for Genova Diagnostics. Dr. Hanaway has lectured extensively across the US and in Europe on the clinical application of nutrition and genomics, particularly in the areas of digestion, oxidative stress, inflammation, and achieving long-term wellness.

Andrew Heyman, M.D., MHSA, is a nationally known expert in natural therapies. He currently sits as the clinical chair of the Consortium of Academic Health Centers for Integrative Medicine and is on faculty at the University of Michigan in the Department of Family Medicine.

Mark Houston, M.D., SCH, FACP, FAAHA, is associate clinical professor of clinical medicine at Vanderbilt University School of Medicine and Director of a hypertension institute in Nashville, TN. He has published over 120 peer-reviewed medical articles, three books, and numerous textbook chapters.

Jerry Kartzinel, M.D., is a Board Certified pediatrician and a Fellow in the American Academy of Pediatrics. He specializes in the recovery of neurodevelopmental, chronic neuro-inflammatory diseases, and hormonal dysfunctions. His practice is located in Irvine, California.

Faculty (continued)

Lisa Saff Koche, M.D., is an internist with board certification in both bariatrics and internal medicine and is Fellowship Trained in Anti-Aging and Regenerative Medicine. She is an Associate Professor at the University of South Florida and the Director of Cardiac Rehab at Tampa General Hospital. She is also the Medical Director of Spectra Healthcare. Dr. Koche often is featured on television, has frequently been published, and lectures on topics of wellness, hormones, thyroid disease, nutrition and weight loss.

Jim LaValle, R.Ph., C.C.N., N.D., has 18+ years of clinical practice experience in the field of natural therapeutics and functional medicine, is author of 14 books, the latest being "Cracking The Metabolic Code" and is an adjunct professor in the College of Pharmacy, University of Cincinnati.

Jay Lombard, D.O., is the Chief of Neurology at Bronx Lebanon Hospital. In addition to his clinical duties, he is an Associate Professor of Neurology and Pharmacology at Touro Medical College, Assistant Professor of Neurology at Cornell Medical School and a Clinical Instructor of Neurology at Albert Einstein College of Medicine. He is the author of several critically acclaimed books, including the recently published work;" Freedom from Disease."

Richard Lord, Ph.D., completed his degree in Chemistry at the University of Texas. He then went on to do a fellowship at the NIH and subsequently was the Chairman of the Department of Chemistry at Life University. He is currently the Chief Science Officer at Metametrix Laboratory. He has numerous published articles in scientific magazines to his credit along with authoring two textbooks.

Mark Rosenberg, M.D., is Board Certified in emergency medicine and is active in drug research. He has recently patented a drug for the treatment of obesity that will soon be entering clinical trials. Over the past three years, Dr. Rosenberg has developed and refined a novel protocol for the treatment of advanced cancer.

Ron Rothenberg, M.D., is Clinical Professor and Course Director of Preventative and Family Medicine, University of California, San Diego School of Medicine. He is the author of Forever Ageless and has recently been featured in the University of California M.D. television series.

Robert Rountree, M.D., practices family medicine in Boulder, CO, is board certified, and is an adjunct clinical faculty of the Institute for Functional Medicine in Washington. He is also a Diplomat of the American Board of Holistic Medicine, and is co-author of numerous books including: The New Breastfeeding Diet (McGraw-Hill, in press), and A Natural Guide to Pregnancy and Postpartum Health (Avery, 2002).

Michael A. Schmidt, Ph.D., did his Ph.D. research in molecular medicine within the Life Sciences Division at NASA Ames Research Center. He is a member of the Society for Neuroscience and the Metabolomics Society. He is the author of Brain-Building Nutrition and of Beyond Antibiotics: Strategies for Living in a World of Emerging Infections & Antibiotic-Resistant Bacteria (2009).

Stephen T. Sinatra, M.D., F.A.C., C.M.S., is Assistant Clinical Professor of Medicine at University of Connecticut School of Medicine. He is board certified in Cardiology and Internal Medicine, and is the former Chief of Cardiology at Manchester Memorial Hospital. He has authored several books, including Lose to Win, Heartbreak and Heart Disease, Optimum Health, and The Coenzyme Q10 Phenomenon.

Alicia Stanton, M.D., received her degree Magna cum Laude in 1990 and is currently the Chief Medical Officer for BodyLogicMD. She practices Anti-Aging and Functional Medicine in Glastonbury, CT, lectures throughout the United States and is the author of the book, Hormone Harmony.

Sahar Z. Swidan, Pharm.D., BCPS, is a board certified pharmacotherapy specialist working in the field of chronic pain management. She is also the Clinical Pharmacy Specialist on the inpatient Head-Pain Unit at Chelsea Comm. Hospital, and is a Clinical Associate Professor of Pharmacy at the University of Michigan. She is the President & CEO of both Pharmacy Solutions and NeuroPharmacology Consultants, Inc. in Ann Arbor, Michigan.

Eldred Taylor, M.D., is a board-certified obstetrician/gynecologist, Director of Integrative Medicine at De Kalb Medical Center in Decatur, Georgia, and an Assistant Clinical Professor at Emory University School of Medicine, and co-author of Are Your Hormones Making You Sick?

Filomena Trindade, M.D., MPH, practices Functional Medicine in Capitola, CA, is a graduate of the Fellowship in Anti-Aging and Regenerative Medicine and teaches at the Institute of Functional Medicine (IFM). She is currently very active in developing teaching programs in Anti-Aging and Functional Medicine.

Catherine Willner, M.D., is Chair of the American Academy of Neurology Pain Section's Scientific Committee. She is certified by the American Board of Psychiatry and Neurology. Dr. Willner has published several studies in the field of Neurology and Pain Management. She practices Neurology.

James L. Wilson, N.D., D.C., Ph.D., author of Adrenal Fatigue: The 21st Century Stress Syndrome, Director of Research at Immunogenics Company of America in Tucson, AZ, and President of Future Formulations in Tucson, AZ.

David T. Zava, Ph.D., President and Director of ZRT Laboratory in Beaverton, OR, and co-author of What Your Doctor May Not Tell You About Breast Cancer is a research scientist. His research is in the field of basic hormonal regulation of breast cancer and the symptoms, signs, syndromes and diseases of Western society.