

# 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 nutraceutical 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.

## ■ Module I Objectives

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, DHEA, cortisol, melatonin, pregnenolone, and thyroid in the body.
- Know the structure of the sex hormones and their metabolism.
- Understand the intricate web of hormones in the body.
- Discuss the benefits and risks of estrogen, progesterone, testosterone, DHEA, pregnenolone, thyroid, and melatonin replacement.
- Know the symptoms of decline or excess of estrogen, progesterone, testosterone, DHEA, cortisol, thyroid hormone, melatonin, and pregnenolone replacement in both men and women.
- Understand the differences between synthetic and bio-identical hormones.
- Order and analyze laboratory tests that are pertinent to hormonal function.
- Understand the adrenal system and its effects on other sex hormones and hormone replacement.
- Initiate or suggest hormone replacement therapy.
- Have reviewed the literature on synthetic and bio-identical hormone replacement.
- Understand reasons bio-identical hormone replacement should be considered.
- Monitor treatment, adjust dosages, alleviate side effects of hormone replacement.
- Recognize the clinical manifestations of hypothyroidism.
- Know the factors that cause decrease 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.

## ■ Module II Objectives

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 be able to treat patients with insulin resistance, diabetes, and diabetic neuropathy.
- Discuss risk factors for heart disease including elevated cholesterol panel and fractionation of cholesterol panel (LPP/VAP test).
- Look at interventions for chronic endothelial inflammation.
- Understand the role of inflammation in cardiovascular inflammatory disease.
- Discuss other risk factors for heart disease including elevated homocysteine, lipoprotein (a), ferritin, fibrinogen, and c-reactive protein.
- Discuss free radical production, glycation, and oxidation and apply to patient treatment.

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## Module Overview

### *Module II Objectives Continued*

- 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.

### ■ Module III Objectives

#### Upon completion of this module, the participants will:

- Learn new therapeutic strategies 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 function.
- Be able to identify the causes of dysbiosis and learn how to repair gut health.
- Be able to adequately evaluate and treat patients for weight loss using a Regenerative Medicine approach.
- Understand the crucial role that neurotransmitters have in the body and how they impact various organ systems.
- Learn the symptoms and diseases associated with food allergy and intolerance.
- Learn the symptoms and be able to diagnosis and treat chronic yeast infections.
- Learn the many reasons why patients have a difficult time losing weight and keeping it off.
- Develop individualized treatment plans for weight loss.
- Learn how to diagnosis and treat the cause of most major diseases of the GI tract.
- Have a comprehensive understanding of the relationship between the GI tract and neurotransmitter function.

### ■ Module IV Objectives

#### 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 oxidative perspective on newer treatments for autism.
- 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 Regenerative Medicine.
- Learn the latest information concerning bi-function detoxification processes and the capacity of specific nutrients to normalize phase I and phase II detoxification.
- 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.



### *Module IV Objectives Continued*

- Learn new treatments for ADD/ADHD.
- Know the risk factors for osteoporosis.
- Look at metallothioneins and genetic polymorphisms.
- Know the function of fatty acids in the body.
- Be able to suggest treatments for amino acid deficiencies.
- Learn therapeutic strategies for a regenerative treatment of cancer.
- 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 Regenerative Medicine.
- Understand fatty acids may have profound effects on the network of inflammatory mediators altering prostanoid synthesis, PPAR activity, and the response to cytokines.

## ■ Module V Objectives

Upon completion of this module, the participants will:

- Review numerous case histories in Anti-Aging Medicine and learn how to implement these treatment modalities in everyday practice.
- Understand the importance of decreasing acidification in the body.
- Understand the importance that estrogen has on memory.
- Review the role of estrogen in the prevention of heart disease in women.
- Develop a practice technique in assisting the patient in maintaining memory.
- Learn how to help patients with cognitive loss to maintain as much memory as possible.
- Develop treatment plans for patients with Multiple Sclerosis and Parkinson's disease.
- Learn the pharmacology of obesity.

## ■ Module VI Objectives

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.
- Learn the basics of infectious diseases.
- Learn how to write a prescription for a homeopathic remedy.
- Learn functional clinical imbalances that can occur in the body.
- Learn how nutrition affects gene expression.
- Look at the role that genomics, pharmacogenomics, proteomics, and nutrigenomics has in Regenerative 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.

## ■ Module VII Objectives

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.
- Learn the basics of IV nutritional therapies.
- Learn clinical approaches to immune imbalance and inflammation.
- Understand that micronutrient insufficiency leads to DNA and mitochondrial damage.

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## Module Overview

### *Module VII Objectives Continued*

- Look at disorders of mitochondrial function.
- Learn basic chelation for heavy metal toxicities.
- Understand the nutritional and environmental regulation of toxic metals.
- Know the role that heavy metal toxicity places in disease.
- To recognize the role that excitotoxins play on the developing brain.
- Learn new treatment modalities for patients with memory loss.
- Learn treatment plans to help a patient maintain their memory.
- 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.

### ■ Module VIII Objectives

Upon completion of this module, the participant will:

- Learn advanced integrative approaches to cancer therapies.
- Explore clinical approaches to structural imbalances.
- Have a basic understanding of how clinical lab tests are run in Regenerative Medicine.
- 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.
- Be able to treat psychiatric illnesses from a Regenerative Medicine approach.
- Learn nutritional support programs for the competitive athlete.
- Learn the role that nutrients play in the treatment of psychiatric illness.
- 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 Regenerative Medicine approach.
- Learn how to wean a patient successfully off of prescription medications such as hypnotics and antidepressants.
- Review the biochemical basis of psychiatric diseases



## Testimonial



### **Harvey Montijo, M.D.**

I am Harvey Montijo, M.D., an Orthopedic Surgeon, and my initial premise was to evaluate and learn about hormonal replacement for the management of Osteoporosis. I just happened to stumble on the A4M website and attended the April 2007 conference in Orlando. It was at this conference that I met Heidi Pepper. I enjoyed the conference so much and became very intrigued to pursue this further through

joining the Fellowship Program. On a professional basis, the experience and the information learned throughout the different modules has broadened my treatment modalities of my orthopedic patients such as management of chronic pain, fibromyalgia and osteoporosis and perioperative support. I am also able to now initiate a new Anti-Aging and Regenerative Practice concurrent to my existing orthopedic practice. On a personal note, for my own personal health, it has been a dramatic turnaround.

I have been able to treat my undiagnosed hypothyroidism and stress management, especially while overseeing and managing a 20 physician orthopedic practice. I have applied the same information learned the past two years from the conferences and the modules for my personal well being. I strongly recommend the Fellowship Program for any physician looking to provide top of the line preventive care to their patients!

**Become a Fellow in Anti-Aging Regenerative Medicine**

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