

The goal of our doctors education program:

From Anti-Aging and Sports medicine to preventive and regenerative medicine

What is Aging?

Concerned about the tremendous increase of average age groups , researchers , targeting the causes of aging and managing centenarians (more than 100 years old people) and clinicians focus on Aging and Age related diseases to prevent them and find solutions for regeneration and rejuvenation. Aging is the accumulation of changes in an organism or object over time. Aging in humans refers to a multidimensional process of physical, psychological, and social change. Some dimensions of aging grow and expand over time, while others decline. Reaction time, for example, may slow with age, while knowledge of world events and wisdom may expand. Research shows that even late in life potential exists for physical, mental, and social growth and development. Aging is an important part of all human societies reflecting the biological changes that occur, but also reflecting cultural and societal conventions. Age is usually measured in full years — and months for young children. As aging begins, when the child is growing in the uterus and diseases related to later health , when the child is aged begin in the uterus, the term Anti- Aging Medicine has become a wider spectrum of years . Unborn children of Insulin resistant mothers develop diabetes risk for DM type II in later years due to the high glucose concentrations in their brain, damaging the glucose control system. High caloric intake of mothers during pregnancy or of their kids after birth and in the first years of life is responsible for many age related diseases , which occur in later years. Therefore prevention begins in the uterus and is as primary prevention a care program for kids into the puberty and later. The concept of preventive medicine in primary, secondary and tertiary prevention follows this principle and responds to the customized needs of patients regarding to their genetic equipment, their lifestyle their psychological and social environment. Moreover pollution and infection risks have become more and more important for the silent development of inflammatory aging , even in younger years. The concept of aging changed and this has to be recognized. Methylation, demethylation and acetylation, deacetylation processes determine the genetic expression and at least the phenotype outcome. This biochemical processes are widely influenced by our environment and lifestyle. Introducing Anti-Aging prevention after 30 may be too late and reversing pathological silent processes is n extremely difficult and requires high technology laboratory testing and treatments. The very important principle is the customizing of these procedures to avoid side effects and effortlessness. Educating physicians following the new concept therefore requires integrative and functional approach to the patient on a customized basis, following the principles of evidence based medicine.

What is Sports Medicine?

Basically, most of all Anti-Aging practitioners and clinicians came from the field of Sports Medicine. In the beginning, Sports Medicine existed only as a specialization in the field of medicine concerned with injuries sustained in athletic endeavors, including their prevention, diagnosis, and treatment. Sports medicine physicians recognized very early, that they handle preventive medicine because the purpose of injury prevention and treatment is to maintain optimal health and maximize peak performance. Traditionally, sports medicine was the sole domain of the team doctor, who worked mostly with college, professional, and Olympic athletes. Today, however, the sports medicine team is comprised of many disciplines including, for example, athletic training, biomechanics, exercise physiology, metabolism and nutrition. Sports medicine specialists also work with non-professional athletes and those participating in various recreational activities, for example children involved in youth sports or older adults training for foot races. Exercise Science is the study of movement and the associated functional responses and adaptations.

What is Anti-Aging Medicine?

So it was only a matter of time, that the performance orientated sports medicine practitioners recognized, Aging as an issue, which shows declining performance of all body functions. The term Anti- Aging medicine was created and over time became a brand . To understand this term and avoid confusion with cosmetic and esthetic medical over claims , it became necessary to explain Anti-Aging Medicine.

This integrative preventive and regenerative medical new medicine stands for 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. Anti Aging medicine is preventive medicine, including all aspects of age related declines, which may affect the body performance and consequently cause diseases. AA practitioners work in the fore field of diseases, using cutting edge diagnostics and treatments with much more deeper insight into molecular structures and functions.

What is Regenerative Medicine?

Regenerative Medicine optimizes the body's endogenous mechanisms of self-repair and adds proven and 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. Mesenchymal stem cells, derived from skin and identified by a Harvard University based protocol as pluripotent cells, are used to rejuvenate the body and bring the functional

integrity of the organs back to younger years. 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 proactive 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

In the hormone optimization component of Anti-Aging Medicine we are already optimizing stem cells.

Hormones, like Estrogens, Growth hormone, Testosterone, Pregnenolone, and Progesterone (via its metabolite allopregnenolone)stimulates neural stem cells, testosterone stimulates muscle stem

Peptides, derived as Growth factors from fetal animal (sheep, swine) ,

Placenta and umbilical cord are able to rejuvenate the organs and repair, as well regenerate the entire body function to a young person's age.

- 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 , quercetin and other polyphenols as we turn on genes such as SIRT1 and with blueberry, green tea vitamin D, and TA65 we are able to extend again the telomere length, showing moderate effects on the telomere lengthening enzyme telomerase. DHA in omega 3 fish oil promotes neurogenesis from neuronal stem cells.

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

The basic education tools are:

1. receiving customers : history ,physical examination (especially: skin , eyes, view, hearing, frailty, joints, sitting, standing, balance,) . This leads to a first appearance gate keeping function : first appearance and suspected diagnosis.
2. laboratory testing (including all modern biotechnical tools = basic lab, Food intolerance, allergies, genetic testing, chemosensitivity testing, Virus load, heavy metals)
1. proving diagnosis : based on lab test and physical examination, history: changing first estimated diagnosis or keeping . In both cases

- physicians shall be able to give evidence , why they changed or kept the same diagnosis
2. customized treatment : shall be delivered in a special treatment plan , includes: supplements , hormones (oral, injectable), exercise plan , diet plan, special medication required for this patient. Chelation, Hyperthermia, photophoresis .Durance of treatment , follow up time and lab.
 3. Clinical approach to general Anti-Aging and well being, ("successful aging")
 4. Clinical approach to preventive medicine. Learning the strategy and creating treatment protocols for prevention and intervention of age-related diseases and prevention in all ages.
 5. conditions and chronic diseases; and reduction of risk of CVD, Stroke, Cancer, Metabolic
 6. The principle of primary, secondary and tertiary prevention of diseases.
 7. Clinical approach to regenerative medicine
 8. Design distinguished clinical care programs for primary, secondary, and tertiary prevention
 9. Be able to use integrative the anti-aging clinical tools: Know how to order anti-aging diagnostics from urine/serum/saliva
 10. Know how to order genetic polymorphism test
 11. Know when to use advanced body scanning, MRI and virtual endoscopy
 12. Know how to analyze and interpret diagnostic results to aid in the diagnosis and treatment of anti-aging patients
 13. Ability to initiate and suggest Nutritional Therapy
 14. Ability to initiate and suggest Fitness and Therapeutic Exercise
 15. Ability to initiate safe Hormone Replacement Therapy and justify the risks and benefits
 16. Ability to monitor treatment, adjust dosages, alleviate side effects of HRT
 17. Ability to prescribe Regenerative Cell Therapy
 18. Be able to design and distinguish clinical care program for primary, secondary, and tertiary prevention

Therefore the student shall understand and be able to manage the

a) Principles of biological processes in Aging

Principles of biological processes in Aging , its major theories (Neuro - endocrine, Genetic Control, Free Radical, Wear & Tear, Cross linking, Immunological, Rate of Living, Mutation and other mechanisms of aging)and how some of these theories influence their current patient and they should be able to link it to other theories as well translate this theoretical knowledge into clinical practice. Learn the important common genetic polymorphisms and their implications on Aging. Discuss the interaction of genetic and environmental factors responsible for particular phenotype.

b) Mitochondrial disorders

We expect the students to know the methods of diagnosis and treatment With the most modern lab methods (DNA) we are able to measure mitochondrial disorders. The student should be able to interpret them and manage the preventive and curative process of mitochondrial deficiency

c) Immunology

The students should know the principles of immune systeme laboratory testing , should be able to link these results to the aging immune system including practical clinical parameters of assessment, the mechanism of Th1/Th2 regulation, Inflammation, silent inflammation with impact on Th1/Th2 Regulation,

Mechanisms of allergy and autoimmunity.

They should be able to interpret nitrosative stress as well as the impact of nitrosative stress on Th/Th2 Regulation, chronic intracellular infections and genesis of CFS, MCS. Moreover we focus very much on the managing of neurostress on different aspects of the immune system. Learn the important common genetic polymorphisms and their implications on the immune system. Discuss the interaction of genetic and environmental factors responsible for particular phenotype.

d) Nutrition and diet programs, CV Disease , metabolic syndrome

The student should be able to handle all aspects nutritional science, physiology of digestion, hormones regulating hunger and energy balancing and translate this into clinical praxis. He should know the role of nutrition in maintaining optimal health as the patient ages. Furthermore he should know the effects of drug induced nutrient depletion and be able to handle this. He

should know special diets in industrialized countries, difference between ancestral diets and present nutritional habits, evaluation of food supply, food sources of micronutrients, principles of supplementation (the emerging role of nutritional supplementation in medicine) to be able to prescribe after lab defined deficiencies. Learn the important common genetic polymorphisms and their implications on nutrition. Discuss the interaction of genetic and environmental factors responsible for particular phenotype.

The physicians have to be able to

- Understand diabetes, insulin resistance, and vascular dysfunction evaluation and treatment in
- the anti-aging, integrative, functional medicine model
- Distinguish the traditional vs. emerging risk factor of CVD; and how to manage risk factors including elevated cholesterol and triglycerides, lipid fractionation, homocysteine, lipoprotein (a), ferritin, fibrinogen and c-reactive protein
- Learn new treatment modalities for obesity, hypertension, and metabolic related diseases in anti-aging, integrative, functional medicine model
- Learn prevention, treatment, and management through exercise and nutrition, and lifestyle modification
- Learn types of physical exercise for metabolic syndrome and related diseases

e) Hormonal changes

The physicians shall recognize the hormonal changes that women and men manifest with aging. Know the relationship between all of the hormones and their metabolism. Know the physiological changes in postprandial glucose concentration, the association between, hormones like Insulin, androgens, thyroid hormones, HGH and obesity, metabolic syndrome and should be able to create weight loss programs after the need of their patients in a customized manner. They should be able to manage menopause and Andropause, adrenopause and somatopause problems. They should understand the relationship of hormones and metabolism (GHRH-HGH-IGF-1-Ghrelin,

GHRH, Insulin, Metabolic Syndrome, Adiponectin, Leptin, Neuropeptide Y, Nuclear Receptors

Stimulation and replacement and translate it into a customized clinical protocol. Learn the important common genetic polymorphisms and their implications on hormone metabolism, cancer risk and risks and benefits of HRT. Discuss the interaction of genetic and environmental factors responsible for particular phenotype. They will learn and manage the multidimensional approach to diagnose hormonal imbalance, manage the clinical pearls of female HRT for PMS, Pre-Menopause and Post-Menopausal, Fibrocystic Breast, and other hormone related conditions. The physicians shall learn the multidimensional approach to diagnose and treat andropause symptoms, and learn the prevention and management of sexual dysfunction in aging women and men.

f) Clinical Neurology

The physicians shall identify the common and uncommon neurologic syndromes, discuss the assessment of neurologic conditions such as: Migraine, Depression, Stroke. They should evaluate the correlation of oxidative stress, pain, inflammation and immune dysfunction evaluation and treatment and integrate it into the anti-aging, integrative, and functional medicine model. Dementias, Multiple Sclerosis, CNS, Parkinson. The students shall understand the process of Alzheimer's disease and current therapy. They should be able to identify dement patients using mini mental status and Bio Aging system (Wolff), manage the consequences of inflammation on the neurological system and create a proper clinical protocol for the neurological patients. This includes mental health problems like depression and anxiety disorders. They should learn the important common genetic polymorphisms and their implications on neurological and psychological disorders and diseases. Discuss the interaction of genetic and environmental factors responsible for particular phenotype in neurological and mental disorders. They should be able to discuss the use of natural serotonin modulators and other nutraceuticals, SSRIs, botanicals and adaptagens. They should be able to recognize and manage depressed patients

g) Clinical exercise, Osteoporosis, chronic Arthritis

The physicians shall know about the musculoskeletal structure, learn the underlying physiology responsible for the majority of training adaptations, learn the primary safety principles that underlie all exercises, manage the cardio respiratory system, concepts in cardiovascular endurance, and cardiovascular exercise prescription, review the differences in strength training apparatus and the advantages, manage the risk factor of osteoporotic fractures. They should be able to calculate maximum heart rate and target BPM. They should be able to prescribe weight loss exercise programs, athletic exercise programs, and body shaping programs. Learn the important common genetic polymorphisms and their implications on exercise strength, endurance. They shall discuss the interaction of genetic and environmental factors responsible for particular phenotype with regular follow ups

h) Regenerative Medicine

The physicians shall understand the definition of "Stem Cell" and be able to distinguish the various types of stem cell based on its origin and capacity/development stage. They shall understand the role of stem cell for

regeneration and therapeutic purposes. They shall know about processing of stem cells and the use in regenerative medicine. They should be able to know about the use of animal derived cell products (peptides) calculate benefits and risk of their intervention , especially in different organ combinations with regular follow ups.

i) Gut disorders, Crohns disease and Colitis ulcerosa

The physicians should be able to interpret the laboratory, history-taking, and physical exam techniques for assessing dysbiosis, protozoal, and yeast infestations. They shall create specific protocols, either nutraceutical, botanical or pharmaceutical and learn the capacity of specific nutrients to normalize phase I and phase II detoxification They shall be able to discuss practical approach to the assessment, treatment, management of gut with regular follow ups.

k) Cancer prevention: Breast and prostate cancer colonic cancer

The students have to distinguish mainstream and alternative oncology, Learn how to manage inflammation, heavy metals, virus load, be able to initiate biological detox, chelation, immune therapy, cell extract and adjunctive treatments. They will know the polymorphisms of breast and prostate cancer and genomic approach to cancer treatment. They will understand and prescribe proteomics, MRI , mammogram , spiral MRI and PET for early detection of urinary , breast and prostate cancer. They will prescribe a proper cancer inhibition through nutritional intervention. The physicians should be able to use preventive approaches of breast cancer through polymorphism analysis, customized HRT, and nutrition and be able to control the follow ups, fine tuning their treatment approach.

For secondary and tertiary cancer prevention they should be able to develop a diagnostic and treatment program based on chemosensitivity testing, immune system follow up and tumour suppressing interventions as immune boosting treatments customized.

l) Detoxification programs and Chelation

The physicians should be able to know the principles of genetically based detoxification (Cytochromes and phase II detox) , They should create and lead a chelation program for patients enriched with heavy metals. They should prescribe oral and iv detoxification and oral chelation supplements and control the follow up.

m) Chronic fatigue . Immune deficiency

The students should be able to identify chronic fatigue patients and distinguish them from other fatigue causing diseases or disorders. They should be able to create a treatment and diagnostic protocol. They should know to interpret lab results from immune lab and create a proper treatment protocol for their patient. They shall know the follow ups .

n) Autoimmune diseases and macular degeneration

The students should be able to identify chronic autoimmune diseases, create a proper lab and treatment protocol and shall know , how to follow up. Learn how to manage inflammation, heavy metals, virus load, be able to initiate biological detox, chelation, immune therapy, stem cells and adjunctive therapies

o) CV prevention, myocardial Infarction, Coronary sclerosis, after stent and/or bypass, after calcium score or soft plaque prevention, stroke and hypertension

The students should be able to identify risk patients by using lab parameters and polymorphism diagnostics. They shall develop a proper prevention program in secondary and tertiary prevention after Cv disease or their risk have come to be detected.

p) Clinical Pharmacology of Aging

The students should be able to understand how the various pharmacological agents used to interfere age-related physiological changes; learn the indications and contraindications, discuss adverse effects to be observed in precipitating drugs (barbiturates, chlorpropamide, digoxin, disopyramide, methyldope)

Understand the genetic polymorphisms and metabolism of pharmaceutical drugs. They should discuss the interaction of genetic and environmental factors responsible for particular phenotype.

q) Control of overweight and obesity in male and female patients, under aspects of hormonal deficiencies or excess

The students should know the metabolic syndrome & signal pathways: G-Protein Pathways, tyrosin kinase, AKT, serine kinase, mitochondrial Effects, identify genetic control and polymorphisms related to metabolic disorders and overweight. They shall be able to distinguish the traditional vs. emerging risk factor of CVD; and how to manage risk factors including elevated cholesterol and triglycerides, lipid fractionation, homocysteine, lipoprotein (a), ferritin, fibrinogen and c-reactive protein

Learn new treatment modalities for obesity, hypertension, and metabolic related diseases in anti-aging, integrative and functional medicine model. They should be able to create a preventive treatment program in primary and secondary prevention and know the management through exercise and nutrition, and lifestyle modification, thereby knowing types of physical exercise for metabolic syndrome and related diseases.