Mentor goals:
- To declare what is possible and establish a commitment to that possibility
- Address personal and professional barriers limiting the ability to serve
- Evolution of vision/mission/ethics that drive success
- Create immediate action steps to apply learning and growth
- Construct the round table of applied trophologists

Mentoring the mentor:
- Who are the mentors? – Practitioners
- Who are we mentoring? – Patients and GAP
- What’s the purpose? – Optimized life
  - How does it work? – Whatever you learn you teach someone else (anyone else)
  - Who’s is included? – Self selection, you pick yourself
Mentoring the Mentor:

- Each participant attends monthly teleconferences (1 hour in duration, 4th Thursday of every 2nd month) creating a round table discussion/exploration of the dynamics and details of a nutrition-based holistic practice.
- Each participant chooses how to convey the notes and information to their world and community – no information squandering.

Review - Distinguish yourself

- It is more apparent why people are choosing alternative health care professionals who specialize in a functional approach.
- No matter your specialty or technique, you must distinguish yourself as an expert – people are just seeking to understand and they need you to do so.
- Typically in the healthcare industry, people are receiving shallow answers that leave them puzzled with the mystery of “Why is this happening to me?” and “What can I do about it?”
- Trends research over 10 years ago identified a number of factors essential to being successful in the nutritional field – one of those was establishing yourself as an expert.

Review - Explanation as hope

- The practitioner’s ability to explain health issues and therapeutic outcomes creates an inflation of understanding in the patient which feels like hope.
- Today in the professional world, there is so much avoidance of ‘giving false hope’ that we end up offering little hope at all.
- I propose another model that boosts hope and expectation and subsequently practices accountability as to whether the therapeutic endeavors are achieved or not.
- As long as the hope that has been instilled is revisited and acknowledged as being accomplished or not, the betrayal of false hope can be avoided.
- So, as an example, if a practitioner was describing the potential for nutritional intervention through supplements and diet modification to improve the lipid profile, then s/he would need to revisit success or failure of the experiment within a reasonable period of time.
- Our community is starving for legitimate hope, as a starting place, as empowerment to begin, as an idea to act upon.
- There’s genius in hope.
Mentoring the Mentors

Mentor Considerations

- Osteoarthritis concepts
- Glycation Nation and Substandard Proteins

Therapeutic Rationale -

Understanding, and action proceeding from understanding and guided by it, is the one weapon against the world’s bombardment, the one medicine, the one instrument by which liberty, health, and joy may be shaped or shaped toward, in the individual and in the race.

James Agee
Therapeutic Rationale

- If we speak our rationale out loud and listen to ourselves we will always be rational
- If the medical profession were to describe the rationale behind its endeavors it would hold off
- We must be interested in the meaning of processes and the purpose of people’s lives to find the rationale
- People’s lives are too precious to waste on symptoms that are not speaking of deeper issues and only need suppressing
- The rationale dissolves the mystery, which is the only terror on our lives

Rationale as a map: Never lost

- The rationale is a combination of the patient’s story and the doctor’s understanding
- Often times for myself there was fear while I stood without understanding in the midst of a process – then understanding would emerge – then confirmation of that understanding would show itself – then confidence would build
- Symptoms make sense, processes can be trusted
- At the root of all fear is the idea that God is not in control
- Our patients must come to expect the therapeutic rationale in all their interactions – then they are protected from standard of care and malpractice

Building Rationale

- Patient complaints & details + Practitioner understanding
- Therapeutic Rationale
  Elaboration of Meaning and Purpose
- Correction, healing and more … Lifetime patient
Functional Medicine

Functional medicine could be characterized, therefore, as upstream medicine or back-to-basics – back to the patient's life story, back to the processes wherein disease originates, and definitely back to the desire of healthcare practitioners to make people well, not just manage symptoms.

Edward Leyton, MD, 2005

The healer's journey

Therapeutic rationale – why/what are we doing?

Racial Possibility

Genetic potential

Results achieved are demonstrated to practitioner and patient

Take on greater challenges – expand the scope of practice, raise the bar, set the standard

Confidence builds in the law and the ability to normalize

Hypothesis -

We are cognizant of the inevitable danger of errors of interpretation that must, by the nature of our method, be inherent in this exposition. We realize that there is scarcely a paragraph in this volume that cannot be interpreted in many different ways other than that in which we have.

Royal Lee, Preface to Protomorphology
Experience as confidence:

- Experience makes you confident and an expert
- Most doctors limit their confidence by limiting their experience
- We must try more, work on ourselves more, and finally become more familiar with the transformative process, so that we become versed in healing and the devices of healing
  The expert knows the terrain and is never surprised

Principles at work

- Sufficient clinical observation allows mechanisms to be revealed that will remove the idiopathic mystery of hypertension and return it to a simple physiological modulation and resultant augmentation in function, balance, tissue fortification and promotes healthy genetic expression
- This allows the symptom resolution to occur as a result of system ‘mosaic’ change, and then of course the downstream events occur
- The longing in the public is for this sort of detective work to find the cause and make the correction – increasingly food is seen as medicine and people are asking more and more for what foods will change their health patterns

It’s all about ideas

What are the ideas that you are imparting
Top 5 Conditions:

- Each case is unique and generalities are always ambitious
- Yet there is value in examining what we see most in practice as examples of therapeutic rationale
  - Osteoarthiritis
  - Autoimmune dysregulation
  - People with cancer
  - Heart disease
  - Sleep and anxiety disorders

Defined:

- Most medical approaches define the disease process and further reinforce the hypnosis that nothing can be done other than symptomatic management
  - Instead you may define the antecedents to imbalance and automatically describe by doing so what may be done to change the events that have resulted in a certain outcome
  - So we must think etiology and upstream antecedents and convey that to the patient

Investigated:

- Investigation for the functional practitioner starts with the history, then the symptom survey and association and is completed in the assessment tools employed
  - History – always inquire when these symptoms began and then thoroughly consider the two years prior to that onset – while we are looking for emotional and spiritual challenges, the physical subclinical events are more suspicious for allowing the cascade of distorted physiology to occur (e.g., traveling to another country and getting sick while there)
  - Symptom survey – assesses the manifestation of imbalance and suggests possible mechanisms that may be involved – and of course this points to what may be done to support and change the manifestation
  - These two steps performed repeatedly will develop insight and understanding that will assist in navigating the challenging nature of transformative medicine (getting the change to happen)
  - Finally the assessment tools we use to evaluate patient physiology (e.g., Meridian stress analysis, muscle testing systems, physical signs, lab testing) can help to suggest actions – these ideas can make better sense when embedded in the above pattern of history and symptoms
Resolved:
Follow up care and evaluation is the most important aspect of transformational medicine as it defines the change process and the influence upon the antecedents to the disease.
The 2nd visit is the most important visit of all! Like any spiral process the resolution returns again to the definition and investigation to further elaborate the initial insights.
In other words the resolution delivers the patient and practitioner again to a new level of definition and investigation and further resolution.
This process is pursued results in long term care and profound change.

Osteoarthritis: Part II

Details and Insights -
Osteoarthritis (OA) has been defined as the failed repair of damage caused by excessive mechanical stress on joint tissues.
All joint structures are affected, menisci, synovial membrane, joint capsule, ligaments, muscles, but the major hallmarks are the destruction of articular cartilage and changes in the subchondral bone.


Clinically-diagnosed OA occurs in more than 50% of adults older than 65 years and in more than 50% aged 45 to 64 years.
27 million Americans suffer from OA.

Osteoarthritis: Risk Factors

- Age
- Obesity
- Joint injury
- Genetics (39 to 65% in twin studies)
- Gender
- Joint misalignment

Metabolic disorders


Osteoarthritis: Patho-physiology

- The precise mechanisms behind cartilage degradation are still unclear. Early on there is an increase of water and a decrease of proteoglycans (aggrecans) and type II collagen
- The predominant enzymes responsible for cartilage matrix degradation in OA are the matrix metalloproteinases (MMPs) and aggrecanases
- Later cartilage mineralization occurs and could accelerate inflammation


Osteoarthritis: Pathophysiology

- Subchondral bone plays a key role in OA development
- The subchondral bone plate is in direct contact with the cartilage and supports the metabolism of the deeper layers of articular cartilage
- Evidence from humans has shown that subchondral bone alterations may precede cartilage degeneration

Osteoarthritis: Pathophysiology

- There is also increasing evidence that bone marrow lesions (BMLs) and bone cysts have an important role in the pathogenesis of knee OA.
- BMLs are strongly associated with radiological progression of knee OA and BML enlargement predicts increased cartilage loss, and the reverse.


Healthy Articular Cartilage

Articular Cartilage

Calcified Cartilage

Subchondral Bone

Chondrocytes

Tidemark

Hypertrophic Chondrocytes

Subchondral Bone

Articular Cartilage in OA

Articular Cartilage

Calcified Cartilage

Subchondral Bone

Chondrocytes

Tidemark

Hypertrophic Chondrocytes

Subchondral Bone
Mentoring the Mentors

Osteoarthritis: Synovium

- The synovial membrane is significantly involved in early OA
- Fragments of cartilage are detached from the damaged cartilage surface, float in the synovial fluid and are attached to the synovial membrane
- Initiate a foreign body and inflammatory response that clinically appears as synovitis
- Such a synovitis is characterized by hyperplasia of the synovial lining cells and infiltration of lymphocytes


Osteoarthritis: Inflammation

- Inflammation and its triggers directly affect synovial cells (fibroblasts and macrophages), as well as cartilage chondrocytes, causing them to produce cytokines, particularly interleukin (IL)-1β and later tumor necrosis factor (TNF)-α

Osteoarthritis: Pain

- Cartilage is aneural, hence cannot be the tissue that directly generates pain
- In contrast subchondral bone, synovium, marginal periosteum, ligaments and the joint capsule are all richly innervated
- But rarely can the precise tissue origin of pain be identified in the individual patient and many people with severe radiographic changes are asymptomatic
- Imaging studies at the knee joint have shown a correlation between pain and both synovitis and subchondral bone changes

Glycation: Protein Marination

- Glycation is when a sugar group is attached to the end amino acid portion of a protein sequence.
- It alters the functionality of the protein and its ability to attach to the enzymes and proteins because of the occupation of the sugar group.
- Hemoglobin A1C is the predominant feature to measure this event in the body, although every protein also can be glycated.
- In OA this happens to the bone proteins and chondral proteins and thus functionality is impaired and subsequent degeneration results.
- HbA1C should be less than 4.8 for optimal function.

Advanced Glycation End Products

- A prominent feature of aging is the modification of proteins by glucose and fructose (glycation).
- Glycated proteins undergo a series of reactions to become Advanced Glycation End Products (AGE).
- Age-related accumulation of AGEs in articular cartilage causes increased stiffness of the collagen network which in turn makes the cartilage collagen network more brittle and prone to damage.

AGEs and OA

- Increased severity of OA correlates with higher cartilage advanced glycation end product (AGE) levels.
- AGEs in cartilage trigger AGE receptors (RAGE) on chondrocytes and fibroblast-like synoviocytes to increase catabolic activity eg production of cytokines and matrix degrading enzymes, which degrade and breakdown cartilage.

References:
OA and Insulin Resistance

- Insulin resistance (IR) predisposes to an increased incidence of AGEs
- Current information suggests that OA shares a similar biochemical and inflammatory profile to metabolic syndrome\(^1\)
- Analysis of the National Health and Nutrition Examination Survey III data (7,714 people) revealed that OA is associated with an increased prevalence of metabolic syndrome, particularly in younger people\(^2\)

1 Katz JD, Agrawal S, Velasquez M. *Curr Opin Rheumatol* 2010; 22(5): 512-519

OA and Insulin Resistance

- IR predisposes to increased arterial wall thickness
- Positive association found between popliteal arterial wall thickness and OA

Kornaat PR, Sharma R, van der Geest RJ. *Positive association between increased popliteal artery vessel wall thickness and generalized osteoarthritis: Is OA also part of the metabolic syndrome?* *Skeletal Radiol.* 2009 Dec;38(12):1147-51

OA and Circulation

- Growing evidence from epidemiological studies suggests that OA is linked to primary cardiovascular (CV) disease
- A high prevalence of cardiovascular risk factors and vascular comorbidity have been described in OA
- Factors strongly associated include hyperlipidaemia and hypertension

OA and Circulation

- A higher risk of cardiovascular death is associated with widespread OA\(^2\)
- A large Finnish study found that men with OA in any finger joint were 40% more likely to die from cardiovascular disease\(^1\)
- “Atheromatous vascular disease is more important in the progression than initiation of OA”\(^2\)


OA, Circulation and Subchondral Bone

- There is mounting evidence that a microvascular pathology plays a key role in the initiation and/or progression of OA
- Disruption of microvascular blood flow in subchondral bone may reduce nutrient diffusion to articular cartilage in OA
- Ischaemia in subchondral bone due to microthrombi may produce osteocyte death, bone resorption and articular damage in OA

Findlay DM. Vascular pathology and osteoarthritis. Rheumatology 2007; 46(12): 1763-1768

Rational OA Therapy

- OA is not simply mechanical wear and tear
- OA is an active and complex biological process of matrix degradation mediated by cells within and adjacent to the joint involving a range of inflammatory factors and pathological processes
- The source of pain can be enigmatic
- Insulin resistance and comprised circulation (especially microvascular) predispose to the condition
- Rational therapy for OA should target the underlying processes driving matrix degradation and the true sources of pain and inflammation
Top 5: Osteoarthritis

To promote osteoblastic activity:
- Vitamin D3 supplementation seeking to achieve 150K units per month (Cataplex D 3 bid)
- Epimedium to up-regulate the beta estrogen receptors in the bone and promote osteoblastic activity (Bone Complex 1 bid MediHerb)
- Gotu Kola to promote collagen synthesis and thus increase bone repair (Gotu Kola Complex 1 bid MediHerb)
- Microcrystalline hydroxyapatite as found best in bone meal products to promote more osseous repair (Calcifood 1 Tbsp bid or wafers 3 bid)

To promote osseous vascular health:
- Address plaquing in the in distal osseous structures that have become limited in circulation
- Garlic thins the blood and acts to increase vascular health (Garlic Forte 1 bid MediHerb)
- Cayenne pepper may help the intimal layers of the vascular system to be less inflamed and sticky and thus reverse the reason for vascular plaque buildup (Cayenne 1 bid)
- Hawthorne acts as a vascular beta blocker essentially dilating the larger vessel blood flow and reducing constriction (Hawthorne Complex 1 bid MediHerb)
- Horse Chestnut promotes vascular integrity and prevents certain vascular degenerative activity thus promoting vascularity over time (Horse Chestnut Complex 1 bid MediHerb)

When results are not realized in reduction of OA symptoms within 2 months other mechanisms may be utilized:
- Cyruta and Soy Bean Lecithin can help increase the solubility of plaque and cholesterol resulting in reduction of plaque (3 bid) – note that if extensive plaquing exists the application of this product may result in elevated lipid measurements for a number of months while the body eliminates the liberated cholesterol
- Enzymes that eat plaque from the vascular walls such as nattokinase and lumbrokinase can be adjunctive as well, but only necessary in cases that are stubborn to respond
Top 5: Osteoarthritis

- Because the functional approach if to observe the physiological and biochemical mechanisms involved in isolate these explanations apply to more than the presenting issues
- Therefore the following condition all fall into this general consideration of bone health:
  - Bunyons
  - Stenosis
  - Osteoporosis
  - Torus and Exostosis

#2 Core Physiologic Principal

Glycemic balance

- Introduce glucose - source in starch, alcohol, sugars
- Increased blood glucose
- Hunger - Sugar cravings
- Hypoglycemia - blood sugar too low
- Adrenal / Pancreas stress

- Insulin up
- Cells absorb sugar
- store as triglycerides
- Increased energy/stamina/productivity/independence
- Anabolic weight/fat gain
- Protein/fat
- Increased satiety
- Glycogen reserve depletion
- Increase gluconeogenesis
- Mitochondria proliferate
- Glycemic dysregulation
- Food dependency / fatigue
- Adaptation
- Insulin Resistance

Carbs & Hormones

Anabolic Adaptation

- Corticosteroids
- T3, T4
- Normal Catabolism
- Normal insulin
- Sex hormones
- Growth hormones


Catabolic shift

- Corticosteroids
- T3, T4
- Normal Catabolism
- Normal insulin
- Sex hormones
- Growth hormones

Calorie restriction – Life Extension

Phase II diet is in fact a form of calorie restriction and appetite reduction resulting in reduced insulin levels and activation of more basic survival mechanisms, including lipolysis to internally maintain blood sugar.

All researcher studying aging agree that reduced calorie intake by 20–40% extends lifespan by up to 50%.

No other known intervention has such a consistent and profound effect.

Compressing morbidity

Not only does calorie restriction extend life but also reduces morbidity by activating stress responses that are hard-wired into the gene code.

These stress responses activate biochemistry that is designed to increase functionality and promote survival.

The activation of these survival mechanisms also act to promote wellness, if not only activated or survival. In other words it is good to live somewhat inside our survival mechanisms as away of life, and this reduces morbidity, disrepair and decline.

Can we promote these mechanisms biochemically?
**Hormesis**

A term originally coined by toxicologists to describe a biphasic dose-response curve wherein an agent has a stimulatory effect at low doses and a toxic effect at high doses.

Now this term has been adopted by medicine to portray the beneficial adaptive responses of cells to moderate stress.

In other words, moderate stress promotes health, wellbeing, and mental and physical performance.

So gain Nietzsche as accurate when he said, “What does not kill you makes you strong.”

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**Hormesis – Some known mechanisms**

In response to stress, the body calls up defense molecules – once present these molecules not only effect the perceived threat, but also increase resistance to other threats and repair existing damage.

- HSP (Heat Shock Proteins) are produced to protect and chaperone other proteins by binding to them and shielding them from attack.
- SIRT1 (Sirtuin 1) is a bodyguard that activates multiple genes to produce antioxidants and cell membrane stabilizers.
- Growth factors are generated to promote repair.
- Cellular kinases are produced to promote motility.

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**Adaptogens & Hormesis**

Adaptogens are herbs and nutrients that promote stress responses to help the body better adapt to stress.

Many phytochemicals that are found beneficial are in fact the plant’s responses against diseases, pests and grazing.

- Resveretrol has been proven to be a potent sirtuin activator.
- Panax Ginseng and Milk Thistle reduce insulin resistance and increase DHEAS (primary marker of adrenals vitality).
- Echinacea increases heat shock proteins and immune potency.
- Gingko reduces oxidative damage to DNA in numerous studies and acts antioxidant and anti-inflammatory.
Mentoring the Mentors

Protocol – Glycemic Pillar

General Glycemic Regulation:
- Phase II Diet
- Gymnema (6) minimal dose dependant effects receptors
- Protefood (6)
- SP Complete (2Tbsp)

Adrenal / Cortisol Regulation:
- Adrenal Complex (2)
- Drenamin (6)
- Protefood (6)
- Nutrimere (4)

Pancreas Support:
- Pancreatrophin (6)
- Paraplex (6)
- Colaplex GTF (6)
- Zinc Liver Chelate / Chezyn (6)

Glycogen Reserve (Liver):
- AF Betafood (14)
- Livaplex (6)

Glycemic Management – How to steward transformation

Step One: Phase II Diet, SP Complete (2 Tbsp), Enzycore (1.5 g glutamine)

Step Two: Phase I Diet, fruit elimination, 6 meals per day, Protefood (6), Nutrimere (4)

Step Three: Stimulant Elimination, Food Allergy removal

Step Four: Thyroid Support - Barnes Thyroid Temperature Monitoring, Iodine Patch Testing, Prolamine Iodine (1-6)

Step Five: Insulin Receptor Sensitivity Recovery - Gymnema (6) minimal dose, Zinc Liver Chelate (6), Chezyn (6)

Step Six: Adrenal Balance - Adrenal Complex (2), Drenamin (6), Withania Complex (4), Eleuthero (6)

Step Seven: Fructose Burden Assessment (less than 25 g/day)

Absolute starch elimination must be present through the process or each increment will be invalidated – only go to whatever step achieves 4 to 10 lbs per month weight loss.
Mentoring the Mentors

Seven Pillars
Unified Mechanisms of Health
Promoting Physiology

7 Pillars of Healing
7 Unified Mechanisms of Health

- Endocrine/Hormonal
- Glycemic Management
- pH Bioterrain
- Immuno-Inflammatory
- Circulatory Status
- Digestive Potency
- Cellular Vitality

Normal Miracle
Principles at work

- Sufficient clinical observation allows mechanisms to be revealed that will remove the idiopathic mystery of hypertension and return it to a simple physiological modulation and resultant augmentation in function, balance, tissue fortification and promotes healthy genetic expression.
  - This allows the symptom resolution to occur as a result of system ‘mosaic’ change, and then of course the downstream events occur.
  - The longing in the public is for this sort of detective work to find the cause and make the correction – increasingly food is seen as medicine and people are asking more and more for what foods will change their health patterns.

Sequential Intervention

- By giving hope through discussion of therapeutic rationale and then accountably determine if the therapy had efficacy it is possible to initiate activity that may assist a person to make the changes that result in healing.
- Sequential intervention and accountable follow-up can show what has worked and what may still need to be employed.
- Promote an understanding of intervention that creates evolutions in individual physiology and show the effect of that intervention.
- Allow every condition to become a strategic consideration of possible etiology and therapeutic rationale – people are in search of experts – reveal yourself.
- The comprehensive nature of nutritional therapy means there is always more physiology to optimize and support leaving an individual constantly refining as long as they wish to further improve their status.
- If the practitioner is accountable s/he will be allowed to experiment with reasonable ideas.

Change the world

It wants to