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 month) creating a round table discussion/exploration of the dynamics and details of a nutrition-based wholistic practice
- Each participant chooses how to convey the notes and information to their world and community – no information squandering

Learning wisdom -

But the wisdom from above is first pure, then peaceable, gentle, reasonable (repeatable), full of mercy and good fruit, unwavering, and without hypocrisy.

Book of James 3:17

Review - Distinguish yourself

- It is more apparent why people are choosing alternative health care professionals who specialize in a functional approach
- No matter you 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 often we end up offering little hope at all.
• I propose another model that bolsters 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 to 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 is genius in hope.

Sequential Up-Regulation

• The original sequential Immune Up-regulation was an invention named upon the realization of the process with a patient starting in 1998.
• The concept of sequential detoxification and hormonal up-regulation was named after the process was well know about a year ago during a Mentor call by one of the participants.
• So now the immune and hormonal up-regulation meet one another as two aspects of one larger evolutionary event sequentially unfolding for each of our patients.
• This presentation will further elucidate these events while superimposing upon a current case and that patients’ progress.
• It is the hope that this will describe a more universal process at work in the common and extraordinary cases we undertake with our patients.

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

7 – Cellular Vitality

- Ultimate foundational level of health and healing potency
- Never stop improving and assessing this aspect as it predicts disease cascades and defines resilience
- Primary concerns are: membrane electronics, heat shock protein optimization, mitochondrial efficiency, membrane integrity and composition, genetic activation
#7 Core Physiologic Principal

- Cellular Health
  - Burden of metabolic and environmental toxins
  - Incomplete states of repair and synthesis
  - Reduced responses
  - Ancient metabolic and environmental toxins
  - Depletion of cellular function
  - Chronic weakened organelles unable to meet demand
  - Loss of cellular resilience
  - Increased cellular dysregulation
  - Aberrant genetic activation
  - Take the ride - 27,000 named diseases

Cyto-Protection –

- The new term for these cellular enhancing approaches is cytoprotective – these are the efforts of this pillar
- The discovery of genes that create a survival prolife cascade of signaling and activity gives rise to the idea that we can promote and up-regulate this cellular activity
- Kerry Bone suggests that as our human genome evolved over millennia with the other kingdoms (plant, animal, mineral) it is predisposed to understand and respond positively to herbs and nutrients as epigenetic influences for turning on and off these "vitagenes"

NrF2/ARE Influences:

- Current research has identified several important involvements in how the NrF2 pathways influences health maintenance and disease prevention
  - Health aging and longevity
  - Preventing cancer buildup
  - Radiation protection
  - Reducing oxidative stress and inflammation
  - Potential benefit in diseases resulting from accumulated toxins
NrF2/ARE Influences:

- All tissues express NrF2, but it is higher in detoxifying organs like the liver and kidneys
- NrF2 activates more than 200 known genes, enhancing DNA repair, heme metabolism, toxin transport mechanisms and glutathione synthesis
- It activates detoxification, stabilizes proteins, strengthens cellular integrity and reduces inflammatory activity and overgrowth
- this pathway will gain more and more notoriety until it will be deemed worthy of the Nobel prize

1 - Cell Membrane Promotion

- Lipid membrane support includes:
  - Elimination of all trans fatty acids in diet
  - Supplementation with full spectrum EFA oil blends like Tuna Omega (2) or Calamari, Black Currant Seed Oil (2), Sesame Oil Perles (3) to promote proper membrane synthesis
  - Phospholipid repletion with Super EFF (2)
  - A&C Carbimide (4) or Calsol (4) to restore balanced membrane polarity and therefore interaction with the environment

2 - Mitochondrial Renewal

- Mitochondrial nourishment includes:
  - Lipoic Acid, Resveretrol, L-Arginine
  - Supplementation with Coenzyme Q10 in Cellular Vitality (2)
  - Reduced caloric diet promoting hormesis and cyclic AMP increase
  - Reduces cell apoptosis by reducing mitochondrial stress production of death hormone proteases
3 – Heat Shock Proteins

- Increasing heat shock proteins includes:
  - Adrenal Complex (2) to balance cortisol
  - Supplementation with Cataplex C (3) to assist in stress hormone balance
  - Use Rhodiola/Ginseng (1-2) to increase cellular resilience and heat shock protein density
  - Femco (2) or any adaptogen can be used in this way as well

4 – Antioxidant Burden

- Antioxidant support includes:
  - Vitanox (2) makes various contributions but especially reduces free radical burden and therefore spares cellular aging
  - Cellular Vitality (2) also provides a formula to participate in this
5 – Nrf2 Pathway Promotion

Nrf2 pathway is an cytoplasmic factor that promotes nuclear genetic response to increasing survival mechanisms including glutathione synthesis – nutritionally supported:
- Include turmeric in Vitanox (2)
- Include resveretrol in HerbaVital (2)
- Include green tea catechins in Vitanox (2)
- Include sulfurathanes in Cruciferous Complete(2) or Garlic 5000 (2), also including cysteine to aid in glutathione synthesis

Genes – On or Off

- We are in the midst of the nutrigenomics era, wherein it has been discovered that environmental factors, including diet, can turn on or turn off specific genes
- It has been described as gene codes that may be up-regulated or down-regulated
- It is possible to do specific genomic studies that identify genetic predispositions in individual codes carried in the chromosomes
- This in turn may be predictive of certain cellular activities and metabolic tendencies an individual may have towards certain wellness or illness events

Unified Mechanisms

- As always there are some pathways that may be relevant not only to some people but to all, because of the high upstream nature of that genetic event
- The NF kappa beta gene activation has previously been observed as a gene code that may amplify inflammatory activity when engaged, and thus strategies have been developed to reduce and limit activation of this gene function
- It is well known that if the factors that reduce and limit NF kappa beta activation are employed downstream pro-inflammatory events may be effected
Free Radical Load and Antioxidant Relationship

- There are over 100,000,000,000 (100 Billion) free radicals created in the body per DAY.

- Previous medical logic was that of the stoichiometric model –

  \[
  2H + 1O \xleftrightarrow{} H2O
  \]

  1 Free Radical is offset by 1 Anti-oxidant

- ORAC – measurement – in vitro - of antioxidant capacities

- Lately, many people focused on the use of ORAC to quantify the power of their formula. There is no proof of this being valid in vivo. Also most diseased states are not dramatically altered by the use of antioxidants alone.

Antioxidant Supply vs. Gene Activation

Oxygen Radical Absorbance Capacity (ORAC) is a method of measuring antioxidant capacities in biological samples in vitro.\[1\]\[2\] A wide variety of foods has been tested using this methodology, with certain spices, berries and legumes rated highly.\[3\] Correlation between the high antioxidant capacity of fruits and vegetables, and the positive impact of diets high in fruits and vegetables, is believed to play a role in the free-radical theory of aging. However, there exists no physiological proof in vivo that this theory is valid. Consequently, the ORAC method, derived only in test tube experiments, cannot currently be applied to human biology.

- By activating Nrf2 you can multiply the body's natural antioxidant response to combat inflammation, minimize free radical damage and transport detoxification to new levels.
**Mentoring the Mentors**

**Nrf2**

Transcription activators that bind to antioxidant response elements (ARE) in the promoter regions of target genes. Important for the coordinated up-regulation of genes in response to oxidative stress.

**Pro-inflammatory vs. Anti-inflammatory**

- The goal biochemically is to promote inherent cell regulatory mechanism to complete repair activity without being exaggerated into inflammatory chaos.
- So the interest turns to the foods and lifestyle events that assist the body to find its intelligent and innately directed repair activity.
- Proper sleep (Phase 1-4) will promote Nrf2 gene activity and thus promote body balancing of free radical damage and toxicity.
- Caloric restriction as in the Phase II diet will promote hormetic activity and bring about sirtuin and heat shock protein production and increase Nrf2 activity.

**Promoting nuclear antioxidant activity**

- Curcumin
- Green Tea
- Resveratrol
- DNA
- Quercitin
- Milk Thistle
- Sulforaphane
- Garlic (Alicin)
- Caloric restriction (Phase II)
- Sleep (Stage 1-4)
- Reduced toxic load
- Oxidative stress

- Catalase
- Glutathione
- SOD
- Phase II detox
- Inhibits NF-kB activity
- Inhibits microglial activation
Dr. Stuart White

Mentoring the Mentors

9/27/2012

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Oxidative Stress

- Cancer
- Cardiovascular Disease
- Atherosclerosis
- Heart failure
- Myocardial Infarction
- Inflammation
- Renal Disease
- Neurological Disease
- Parkinson's
- Alzheimer's
- Cellular apoptosis/necrosis

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Targeting Inflammation-Induced Obesity and Metabolic Diseases by Curcumin and Other Nutraceuticals

Agarwal BB

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- Extensive research within the past two decades has revealed that obesity, a major risk factor for type 2 diabetes, atherosclerosis, cancer, and other chronic diseases, is a pro-inflammatory disease. Several spices have been shown to exhibit activity against obesity through antioxidant and anti-inflammatory mechanisms. Among them, curcumin, a yellow pigment derived from the spice turmeric (an essential component of curry powder), has been investigated most extensively as a treatment for obesity and obesity-related metabolic diseases. Curcumin directly interacts with adipocytes, pancreatic cells, hepatic stellate cells, macrophages, and muscle cells. It suppresses the pro-inflammatory transcription factor nuclear factor-kappa B, signal transducer and activator of transcription 3, and Wnt/beta-catenin, and it activates peroxisome proliferator-activated receptor-gamma and Nrf2 cell-signaling pathways, thus leading to the down-regulation of adipokines, including tumor necrosis factor, interleukin-6, resistin, leptin, and monocyte chemotactic protein-1, and the up regulation of adiponectin and other gene products. These curcumin-induced alterations reverse insulin resistance, hyperglycemia, hyperlipidemia, and other symptoms linked to obesity. Other structurally homologous nutraceuticals, derived from red chili, cinnamon, cloves, black pepper, and ginger, also exhibit effects against obesity and insulin resistance. Expected final online publication date for the Annual Review of Nutrition Volume 30 is July 17, 2010.

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Curcumin and Nrf2 Activation

Fig. 1 Chemical structure of curcumin

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Sulforaphane protects immature hippocampal neurons against death caused by exposure to hemin or to oxygen and glucose deprivation.

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Oxidative stress is a mediator of cell death following cerebral ischemia/reperfusion and heme toxicity, which can be an important pathogenic factor in acute brain injury. Induced expression of phase II detoxification enzymes through activation of the antioxidant response element (ARE)/Nrf2 pathway has emerged as a promising approach for neuroprotection. Little is known, however, about the neuroprotective potential of this strategy against injury in immature brain cells. In this study, we tested the hypothesis that sulforaphane (SFP), a naturally occurring isothiocyanate that is also a known activator of the ARE/Nrf2 antioxidant pathway, can protect immature neurons from oxidative stress-induced death. The hypothesis was tested with primary mouse hippocampal neurons exposed to either O(2) and glucose deprivation (OGD) or hemin. Treatment of immature neurons with SFP immediately after the OGD during reoxygenation was effective in protecting immature neurons from delayed cell death. Exposure of immature hippocampal neurons to hemin induced significant cell death, and both pre- and cotreatment with SFP were remarkably effective in blocking cytotoxicity. RT-PCR analysis indicated that several Nrf2-dependent cytoprotective genes, including NAD(P)H quinone oxidoreductase 1 (NQO1), hemeoxygenase 1 (HO1), and glutamate-cysteine ligase modifier subunit (GCLM), which is involved in glutathione biosynthesis, were up-regulated following SFP treatment both in control neurons and following exposure to OGD and hemin. These results indicate that SFP activates the ARE/Nrf2 pathway of antioxidant defense and protects immature neurons from death caused by stress paradigms relevant to those associated with ischemic and traumatic injury to the immature brain.

Natural Antioxidant Activation from Supplementation of Sulforaphane

Resveratrol induces glutathione synthesis by activation of Nrf2 and protects against cigarette smoke-mediated oxidative stress in human lung epithelial cells

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Nuclear erythroid-related factor 2 (Nrf2), a redox-sensitive transcription factor, is required for transcriptional regulation of many antioxidant genes, including glutamate-cysteine ligase (GCL). Cigarette smoke (CS) is known to cause oxidative stress and deplete glutathione (GSH) levels in alveolar epithelial cells. We hypothesized that resveratrol, a polyphenolic phytoalexin, has antioxidant signaling properties by inducing GSH biosynthesis and the activation of Nrf2 and protects lung epithelial cells against CS-mediated oxidative stress. Treatment of human primary small airway epithelial and human alveolar epithelial (A549) cells with CS extract (CSE) dose-dependently decreased GSH levels and GCL activity, effects that were associated with enhanced production of reactive oxygen species. Resveratrol restored CSE-depleted GSH levels by upregulation of GCL via activation of Nrf2 and also quenched CSE-induced release of reactive oxygen species. Interestingly, CSE failed to induce nuclear translocation of Nrf2 in A549 and small airway epithelial cells. On the contrary, Nrf2 was localized in the cytosol of alveolar and airway epithelial cells due to CS-mediated posttranslational modifications such as aldehyde/nitrosative adduct formation and nitration. On the other hand, resveratrol attenuated CSE-induced Nrf2 modifications, thereby inducing nuclear translocation associated with GCL gene transcription, as demonstrated by GCL-promoter reporter and Nrf2 small interfering RNA (siRNA) experiments. These data indicate that resveratrol protects against CSE-dependent GSH depletion by inducing GSH synthesis and protects epithelial cells by reversing CSE-induced posttranslational modification of Nrf2. These data may have implications in dietary modulation of antioxidants in treatment of chronic obstructive pulmonary disease.

Abstract: Astrocytes may modulate the survival of motor neurons in amyotrophic lateral sclerosis (ALS). We have previously shown that fibroblast growth factor-1 (FGF-1) activates astrocytes to increase secretion of nerve growth factor (NGF). NGF in turn elicits apoptosis in co-cultured motor neurons expressing the p75 neurotrophin receptor (p75NTR) by a mechanism involving nitric oxide (NO) and peroxynitrite formation. We show here that FGF-1 increased the expression of inducible nitric oxide synthase and NO production in astrocytes, making adjacent motor neurons susceptible to NO-induced apoptosis. Spinal cord astrocytes isolated from transgenic SOD1G93A rats also displayed increased NO production and spontaneously induced apoptosis of co-cultured motor neurons. FGF-1 also activated the redox-sensitive transcription factor nuclear factor erythroid 2-related factor 2 (Nrf2) in astrocytes. Because Nrf2 increases glutathione (GSH) biosynthesis, we investigated the role of GSH production by astrocytes on p75NTR-dependent motor neuron apoptosis. The combined treatment of astrocytes with FGF-1 and t-butylhydroquinone (tBHQ) increased GSH production and secretion, preventing motor neuron apoptosis. Moreover, Nrf2 activation in SOD1G93A astrocytes abolished their apoptotic activity. This protection afforded by increased Nrf2 activity was overcome by adding the NO donor DETA NONOate to the co-cultures or by inhibiting GSH synthesis and release from astrocytes. These results suggest that activation of Nrf2 in astrocytes can reduce NO-dependent toxicity to motor neurons by increasing GSH biosynthesis.

Naturally occurring phytochemicals for the prevention of Alzheimer’s disease.

Alzheimer’s disease (AD) is an age-related neurodegenerative disease increasingly recognized as one of the most important medical problems affecting the elderly. Although a number of drugs, including several cholinesterase inhibitors and an NMDA-receptor antagonist, have been approved for use, they have been shown to produce diverse side effects and yield relatively modest benefits. To overcome these limitations of current therapeutics for AD, extensive research and development are underway to identify drugs that are effective and free from side effects. In particular, curcumin, a potential to prevent AD because of its anti-amyloidogenic, anti-oxidative, and anti-inflammatory properties, and green tea catechins have been suggested to have the potential to prevent AD because of their anti-amyloidogenic, anti-oxidative, and anti-inflammatory properties.

New Product Alert – Read All About It!

HerbaVital released April, 2010 is a unique combination of factors to reduce the physiologic decline known as aging, but also acts as a hormetic influence to up-regulate stress responsibility and therefore survival status. This is a cocktail of daily herbal constituents that can universally support the declining stress response that is so essential to wellness and vitality. It is a strategy in a formula for daily minimizing of the underlying process of aging. This product takes the assessment out of the picture for the clinician and addresses the common background issues at work universally in the patient.

HerbaVital:
- Japanese Knot Weed root extract 100:1 80 mg providing 36 mg of natural resveretrol
- Milk Thistle seed 5:1 50 mg providing 48 mg of silybin
- Korean Ginseng root 5:1 50 mg
- Masson Pine bark 100:1 50 mg providing 37.5 mg proanthocyanidins
- Ginkgo Leaf 50:1 30 mg
Vitanox is a unique combination of herbs to provide strong antioxidant protection, and now we discover also acts to up-regulate Nrf2 gene activity and subsequent survival compound status increase, including glutathione synthesis. This is a cocktail of daily herbal constituents that can universally support the overloaded detoxification and inflammatory mechanisms. It is a strategy in the formula for daily minimizing of the underlying process of aging and degeneration. This product was introduced by Kerry Bone based on widespread agreement about the merits of these herbs, before and correctly predicting the emerging research around Nrf2 gene activation.

Vitanox tablet:
- Rosemary leaf extract 5:1 200 mg providing carnosol and rosmarinic acid
- Green Tea leaf extract 25:1 166.7 mg providing 83.35 mg of catechins
- Turmeric rhizome extract 25:1 80 mg providing 70.4 mg curcuminoids
- Grape Seed extract 120:1 50 mg providing 42.5 mg procyanidins

Cruciferous Complete is a combination of kale and brussel sprouts to protect against free radicals and now also is shown to up-regulate Nrf2 gene activity and subsequent survival compound status increase, including glutathione synthesis. This nutrient supports Phase I & II detoxification pathways promoting reduction of toxic load in the body, and as supports repair mechanisms involving the eye. It contains a myriad of nutrients including vitamins B6, C, K, calcium, copper, potassium, and dietary fiber. It also contains carotenoids, which include beta carotene and lutein which help quench free radical ROS effects and retinal repair activity.

Cruciferous Complete capsule:
- Vitamin K 4 mcg
- Potassium 10 mg
- Kale 300 mg
- Brussel Sprouts 300 mg

Who would benefit from Nrf2 Activator:
- Patients with Alzheimers
- Patients with Parkinsons
- Exposure to physical stress
- Overexposure to oxidation
- Traumatic Brain Injury
- Fisher Syndrome
- Huntington's Disease
- Inflammatory Myopathy
- ALS
Research suggests that to increase the telomeres length on the chromosomal ends promotes cellular health and reduces apoptosis – nutritional support includes:
- Supplementation with Astragulus Complex (2)

New Product Alert – Read All About It!
- Cellular Vitality released March, 2010 is a formula designed to enhance and invigorate cellular health and repair mechanisms, so it also acts on a macroscopic level to promote repair and cleansing and vitality. Reading the ingredients help us to expect clinical outcomes, and although this formula is new to the scene a functional practitioner may understand what vectors of physiology will be influenced. In general this as another anti aging product that can reduce the decline of multiple systems over time. So clinicians using this product have observed response in skin quality, energy levels, and stress adaptation.

- Cellular Vitality:
  - Ribonucleic Acid providing triphosphates and DNA synthesis
  - B Vitamins (1, 2, 3, 6, 8, 12, etc) assisting in stress response and homocysteine management
  - Berry Seeds providing antioxidants
  - Bromelain to reducing platelet clumping and promote vascular permeability
  - Coenzyme Q10 for mitochondrial function
  - Cordyceps a mushroom powder for kidney, heart and lung support
  - American Ginseng an adaptogen to provide adrenal and immune modulation

7 – Cellular Vitality Pillar
- Protection of the cell
- Supporting membrane activity
- Mitochondrial support and protection
- Receptor site potency
- Promote heat shock resiliency

Tests & Analysis
- Bio-impedence testing for cell hydration and cellular electronics
- General Cell Support – Cellular Vitality (4)
- Trace Minerals (5)
- Membrane Potential – AC Carbimide (4), Catot (9)
- Antioxidant support – Vitanox (4)
- Enzyme Support – Multizyme (4)
- Heat shock proteins – Rhodiola (2)
- Mitochondrial support – Lipoic Acid, Resveratrol, L-Arginine
- Promote NRF2 cytoplasmic pathway – Vitanox (2), HerbaVital (2), Cruciferous Complete (2)
- Extend telomere length – Astragulus (2)
Stepping Forward

It is doing and not simply knowing
Risking based on reason
Passion because of possibility

Review - Therapeutic Rationale

- This is the reason why we do and don't do
- Therefore it is the reason why the patient will do or not what you recommend
- It is the source of hope and the starting place
- The functional practitioner serves from this rationale in all endeavors, and it becomes the practice style – making incursions into disease conditions based on a rationale and an accountable procedure
- this expands the practice and builds practitioner confidence
- Have a reason for what you recommend!

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
- Eventually promote the Nrf2/ARE pathway to promote cytoprotective mechanisms and resilience
- 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