A-Z of Anti-Aging

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GPCME Conference – June 2012 – Rotorua
What’s your plan to stop aging?
We Begin to Age the Moment We are Born...
And, Time Sure Does Fly...
The Golden years have come at last
I cannot see, I cannot pee
I cannot chew, I cannot screw,
My memory shrinks, my hearing stinks,
No sense of smell, I look like hell,
The body’s drooping, got trouble pooping,
The Golden years have come at last...
MILLIONS OF DEATHS

- High Blood Pressure: 7.5
- Tobacco Use: 5.1
- High Blood Glucose Level: 3.4
- Physical Inactivity: 3.2
- Overweight and Obesity: 2.8
- High Cholesterol Level: 2.6
Evidence of Failure

- Increases in incidence of obesity and diabetes and cardiovascular disease
- Childhood obesity, **1000% increase in type 2 diabetes**
- Increase in allergic, autoimmune, and inflammatory disorders
- Increase in digestive disorders (GERD)
- Increases in cancer incidence
- **Decrease in life expectancy of 2-5 years**
As compared with standard therapy, the use of intensive therapy [glucose lowering] ...increased 5-year mortality. Such a strategy cannot be recommended for high-risk patients with advanced Type 2 diabetes.

Diabetes and Insulin Resistance

- Not a disease but a **systemic disorder**
- Multi-factorial etiology
- Treat causes or downstream symptoms?
  - 10,000 diabetics intensive glucose control
  - Intensive treatment group had more deaths and heart attacks
- NAVIGATOR TRIALS: No benefit to risk factor reduction
Metaanalysis: statins increase risk of type 2 diabetes
– 5 RCTs 32,752 non-diabetic participants follow-up of 4.9 years
– 8.4% increase in diabetes
– Worse in intensive dose patients
– New ATP III guidelines – 40 million rx statins
– > 3.5 million new diabetics???

Women’s Health Initiative:
– Statins increase diabetes risk 48%
A Wise Man Once Said...

“We cannot solve our current problems with the same thinking we used to create them.”

- Albert Einstein
Traditional vs. Anti-Aging Medicine...

• Traditional medicine
  We can treat the outcomes of aging

• Anti-aging medicine
  We can change the \textit{process} of aging in the first place
The HealthSpan Curve...
“Conventional Medicine” Prolongation of Morbidity...
Goal of Anti-Aging Medicine: HealthSpan Extension, Morbidity Compression...
AAM maximizes chronological longevity while minimizing biological aging.

Prevent the preventable & delay the inevitable.
3 Simple Rules to AAM...

1. Don’t get sick.
2. Don’t get old.
3. Don’t die.
Anti-Aging Medicine IS...

- Optimal lifestyle documented by medical data
- Utilization of cutting edge technologies to detect, prevent & treat aging related disease
- Scientific
- Evidence Based
- Well Documented by peer-reviewed journals.
Anti-Aging Medicine is NOT...

- Reliant on Growth Hormone replacement therapy
- A type of “alternative” medicine
- Cosmetic medicine
- Elite medicine
Instead of Treating & Trying to Prevent...

- Coronary heart disease
- Cancer
- Dementia
- Insulin resistance (type II diabetes)
- Degenerative arthritis
- Degenerating body composition
- Osteoporosis
- Immune system decline
- Loss of libido & sexual function

Why not treat the cause?

Could there be one unifying cause?
The Outcomes:

- Heart Disease Treatment in the USA
  - 1.3 m angioplasties, $48k each, $60B in 2006
  - 448,000 bypass, $100k each, $44B in 2006
- Angioplasties and stents do not prolong life or prevent heart attacks in stable patients (95% of those who receive them).
  - N Engl J Med 2007 and JAMA recent JAMA article
- Bypass surgery prolongs life in less than 3% AND
- Changing lifestyle could prevent at least 90% of all heart disease.
  - Lancet. 2004 Sep
What We Learned From the Human Genome Project

- The genome has far fewer genes than anticipated (20,000+)
- The variation of the genes is far greater than anticipated (3 million+ SNP’s)
- Our phenotype results from genes and environment that works through our epigenome
Genetics? Exposome vs. Genome

• GWAS
  – Genome wide association studies
  – Less than 10% of risk
• Epigenetics
  – Prenatal – fetal origins of adult disease
• Early childhood programming and CVD and Diabetes
21st Century Medicine

• Emergence: How genes are translated into our health and disease patterns
• Exposome: How internal metabolic factors and environment influences on our gene expression
• Epigenetics: How our environment shapes our structure and function
• Nutrigenomics: How nutrients and phytochemicals speak to our genes
• Sociomics: How social networks influence health and disease
Chronic disease results from the emergence of a disturbed metabolism.

Lifestyle and environment are the major factors altering gene expression that results in disturbed metabolism.
Recurrent Themes in Anti-Aging Medicine...

- Control of Inflammation (Cytokines, CRP)
- Control of Eicosanoid Hormones
- Control of Glucose & Insulin
- Control of Free Radicals, Homocysteine & AGE’s
- Prevent & repair DNA damage
- Prevention of decline of Neuro-Endocrine-Immune system
Lifestyle...

• 1\textsuperscript{st} treatment in anti-aging medicine

• Diet, exercise, stress reduction

• Health does not come out of a pill or an injection
Eating... Pie Chart...

The Low Risk Eastern Way
- Whole Vegetables/Grains/Fruits/Soy 85%
- Fish 10%
- Meat/Poultry/Eggs/Dairy 5%

The Western Way
- Meat/Poultry/Eggs/Dairy 49%
- Processed food and Junk 30%
- Whole Vegetables/Grains/Fruits/Soy 20%
- Fish 1%
Anti-Aging Medicine...

- “Zone” type diet
  - 40% carbohydrate
  - 30% protein
  - 30% fat

- Less insulin secretion, fat storage, less glycation, inflammation
- No carbohydrate cravings
- Add omega-3 high dose fish oil for Eicosanoid control

-Cezanne
Zone Nutrition...

- Lifestyle not a diet  
  *Diets don’t work*

- Easy to follow from gourmet restaurant to fast food

- Less insulin secretion  
  *Less insulin resistance*  
  *Decreased fat storage*  
  *Improved lipid profile*  
  *Favourable Eicosanoid hormone balance*  
  *Vasodilation vs. constriction*  
  *Anti-inflammatory vs. inflammation*
NutriGenomics/ Epigenetics

Phytochemicals ‘talking to’ DNA

Bioactive Compounds ‘Switch On’ genes coding for key biomolecules
# Transcription – Factor Pathways Mediating Nutrient–Gene interactions

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Compound</th>
<th>Transcription factor</th>
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<tr>
<td><strong>Macronutrients</strong></td>
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<td>Fatty acids</td>
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<td>Iron</td>
<td>IRP1, IRP2</td>
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<td></td>
<td>Zinc</td>
<td>MTF1</td>
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<td>ER, NFκB, AP1</td>
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<td>Xenobiotics</td>
<td>CAR, PXR</td>
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AUSTRALIAN ABORIGINES
Calorie Restriction
Caloric restriction in primates and relevance to humans.

Roth GS, Ingram DK, Lane MA.

Laboratory of Neurosciences, Gerontology Research Center, National Institute on Aging, National Institutes of Health, Baltimore, Maryland 21224, USA.  gsroth@nir.nih.gov

Dietary caloric restriction (CR) is the only intervention conclusively and reproducibly shown to slow aging and maintain health and vitality in mammals. Although this paradigm has been known for over 60 years, its precise biological mechanisms and applicability to humans remain unknown. We began addressing the latter question in 1987 with the first controlled study of CR in primates (Rhesus and squirrel monkeys, which are evolutionarily much closer to humans than the rodents most frequently employed in CR studies). To date, our results strongly suggest that the same beneficial "antiaging" and/or "antidisease" effects observed in CR rodents also occur in primates. These include lower plasma insulin levels and greater sensitivity; lower body temperatures; reduced cholesterol, triglycerides, blood pressure, and arterial stiffness; elevated HDL; and slower age-related decline in circulating levels of DHEAS. Collectively, these biomarkers suggest that CR primates will be less likely to incur diabetes, cardiovascular problems, and other age-related diseases and may in fact be aging more slowly than fully fed counterparts. Despite these very encouraging results, it is unlikely that most humans would be willing to maintain a 30% reduced diet for the bulk of their adult life span, even if it meant more healthy years. For this reason, we have begun to explore CR mimetics, agents that might elicit the same beneficial effects as CR, without the necessity of dieting. Our initial studies have focused on 2-deoxyglucose (2DG), a sugar analogue with a limited metabolism that actually reduces glucose/energy flux without decreasing food intake in rats. In a six-month pilot study, 2DG lowered plasma insulin and body temperature in a manner analogous to that of CR. Thus, metabolic effects that mediate the CR mechanism can be attained pharmacologically. Doses were titrated to eliminate toxicity, a long-term longevity study is now underway. In addition, data from other laboratories suggest that at least some of the same physiological/metabolic end points that are associated with the beneficial effects of underfeeding may be obtained from other potential CR mimetic agents, some naturally occurring in food products. Much work remains to be done, but taken together, our successful results with CR in primates and 2DG administration to rats suggest that it may indeed be possible to obtain the health- and longevity-promoting effects of the former intervention without actually decreasing food intake.
Resveratrol...

• Resveratrol (3,5,49-trihydroxystilbene) extends the lifespan of diverse species including: *Saccharomyces cerevisiae*, *Caenorhabditis elegans*, *Drosophila melanogaster*.

• In these organisms, lifespan extension is dependent on Sir2, a conserved deacetylase proposed to underlie the beneficial effects of caloric restriction.
Harvard study...

- Old mitochondria emit more free radicals, while the new ones convert energy in cells more cleanly (Like changing your old car for a powerful & environmentally friendly hybrid model).

- Resveratrol activates the anti-aging gene (SirT-1) which is normally activated by calorie restriction. A reported 31% increase in small mammal life span.
Sarcopenia—muscle loss with ageing—is multifactorial with contributing factors that may include:

- Loss of alpha-motor neuron input
- Changes in anabolic hormones
- ↓ intake of dietary protein
- ↓ in physical activity
Muscle Mass Maintenance Recommendations...

- Protein requirements in older people should be maintained above 1 g/kg/d.

- Physical activity can significantly assist in reversing this deficit and may improve the regeneration potential of muscle fibre-as of skeletal muscle mass in elderly people.
Exercise...

- Can be 10-20 years younger than biological age with regular exercise: aerobic, anaerobic, flexibility
- Exercise promotes longevity & compression of disability into fewer years (Vita, NEJM 1998 Apr)
- ↑ production of GH
- ↑ Sense of well being & cognition
- ↓ Inflammation, CRP
Strenuous exercise increases inflammation, TNF-alpha & IL-1beta & IL-6.

Trained athletes have less inflammatory response.

Antioxidant treatment for 60 days eliminated increase in inflammatory markers.

“Every time I think of exercise, I lie down until the feeling passes.”

–Oscar Wilde
Old Rats

- Moderate physical exercise was effective in (a) limiting fat mass gain and (b) inducing an increase in the capacities of the soleus to oxidize fatty acids.

- Supplementation with L-carnitine at 30 mg/kg body weight for 12 weeks.

- Allowed the restoration of L-carnitine level in muscle cells.

- Restored muscle oxidative activity in the soleus.

- Induced positive changes in body composition:
  - ↓ abdominal fat mass
  - ↑ muscle capabilities without any changes in food intake.

Maintaining Energy through Life...

The Mitochondria Connection

- Produce useable energy in the form of ATP
- Exercise increases mitochondrial function & mitochondrial biogenesis
- Repeated metabolic demand on skeletal muscle activates PGC-1α
Nutritional Supplement Approach to Stimulate Mitochondrial Biogenesis...

- L-Arginine
- A-Ketoglutarate
- Whey Protein Fractions
- Resveratrol
- Quercetin
- Dimethylresveratrol
- Lipoic Acid
- Biotin

Exercise

↑ NO

↑ SIRT1

↑ AMPK

↑ PGC-1α

↑ Mitochondrial Biogenesis
↓ ROS/Oxidative Stress
↑ Metabolic Function
↑ Energy Level
↑ Exercise Performance
↓ Body Fat/Lean Muscle Mass
↓ Age-Related Deterioration
↑ Lifespan (?)
Chronic Inflammation
Unified Theory of Wellness...

- Chronic Inflammation is the cause & the effect of illness & the diseases of aging

- Anti-inflammation = Wellness
Inflammation Can Save Your Life...

- Acute inflammation is the body’s response to injury or serious illness, infection, or stress (threat of serious injury etc.)
- Cytokines are released to defend the body
If a Shark Bites You, You Need Inflammation Right Now...

- Blood vessels constrict to stop bleeding
- Fibrinogen & clotting factors increase to stop bleeding
- White blood cells fight infection
- Pain reminds you “Don’t swim with sharks”
Acute inflammation keeps us alive,
Chronic inflammation kills us slowly,

Why do we have all this inflammation anyway?
Antagonistic Evolutionary Benefit...

• What helped our Palaeolithic ancestors make it to reproductive age...is killing us now

• Insulin Resistance- helped store fat & survive famine

• Anti-inflammation resistance- helped survive acute infectious disease & trauma
Antagonistic Evolutionary Benefit...

• Lifestyle difference

• Today in NZ: sedentary, high carb, lower infections, stress from “perceived threats”

• Palaeolithic: active, high protein, more infections, stress from “really dangerous threats”
Where does Inflammation Come from?

- Antagonistic evolutionary benefit
- Infection
- Lifestyle: Lack of Exercise, Visceral Fat
  
  **Stress**
  
  **Diet:** Glucose, Omega 6’s, Trans Fats
  Free Radicals, AGE’s
  Decreased Testosterone & Estrogen, Growth Hormone
  Hypertension

- Anti-Inflammatory Cytokine Decrease (IL-10) with aging
  *Centenarians have high levels or IL-10*

- Inflammatory Cytokine Increase (IL-6) with aging
Anti-Inflamm.

- ↓ CRP, IL-6, TNFa
- Omega 3
- ↓ Homocysteine
- ↑ B vitamins
- ↓ FR, ↑ Antioxidant
- Insulin Sensitivity
- Statins (side effects)
- NSAID’s
- ↑ IL-10
- Youthful T, E2, E3, GH, M, DHEA
- Tranquility

Inflamm.

- ↑ CRP, IL-6, TNFa
- Omega 6
- ↑ Homocysteine
- ↓ B vitamins
- ↑ FR, ↓ Antioxidant
- Insulin Resistance, DMtype2
- ASCVD, Syndrome X
- Arrhythmias, sudden death DEMENTIA
- Depression
- Cancer
- Osteoporosis
- Obesity
- Autoimmune
- Declining hormones
- Stress
Calorie Restriction (CR) Decreases Inflammation...

- CR is the most documented method of extending lifespan & healthspan in all species studied

- CR decreases inflammatory cytokines

The Acute Phase Response...

- Inflammatory cytokines produced by white blood cells & other tissues
- Cytokines cause liver to produce Acute Phase proteins
- Gets animal ready for "combat" with enemies or micro-organisms
C-Reactive Protein...

- Risk factor for illness
- Produced in liver in response to inflammatory cytokines
- Can rise 1000 x with acute inflammation
  - IL-6
  - TNFα
- Others
- What is your CRP?
CRP Worse than LDL...

Ridker PM et al. Comparison of C-reactive protein & low-density lipoprotein cholesterol levels in the prediction of first cardiovascular events.

CRP More than Just a Marker...

- Initially thought of as an inactive downstream marker of the inflammatory cascade, emerging evidence suggests that CRP may be directly involved in atherogenesis, & that arterial plaque can produce CRP, independent of traditional hepatic pathways.

Rheumatoid Arthritis & Cardiovascular Disease...

- Nurses health study > 100,000 pts

- RA = 2 x risk of MI (heart attack)

- Solomon DH et al. Cardiovascular morbidity & mortality in women diagnosed with rheumatoid arthritis

_Circulation 2003 Mar 11;107(9):1303-7_

- Why?
CRP & Cognitive Function...

- CRP- negative correlation with mental performance.

- Teunissen CE et al. Inflammation markers in relation to cognition in a healthy aging population.

  *J Neuroimmunol 2003 Jan;134(1-2):142-50*
Alzheimer’s & Inflammation...

- Elevated levels of inflammatory cytokines in blood vessels
- IL-6, IL-1beta, TNF α
- Grammas P et al. Inflammatory factors are elevated in brain microvessels in Alzheimer's disease

Cytokines & Cognition...

- Brain is part of Neuro-endocrine-immune system, not isolated
- Systemic Inflammation effects Brain
- Brain can effect distant organs
- Cytokines affect cognition

Wilson, CJ et al. Journal of the American Geriatrics Society 50:2041-2056, 2002
CRP Predicts Dementia 25 Years Later...

• Schmidt R Early inflammation & dementia: a 25-year follow-up of the Honolulu-Asia Aging Study.

Mortality and Gluten
JAMA. 2009;302(11):1171-1178

- Latent celiac -
  positive antibodies or inflammation without villous atrophy
- 19-35% increased risk of cardiovascular disease
- 41 to 132% increased risk of malignancy
Leaky Gut Diabetes

- Impaired intestinal permeability
- Access of infectious agents and dietary antigens to mucosal immune elements
- Immune reactions with damage to pancreatic beta cells
- Increased cytokine production and insulin resistance
Inflammation

Brain Dysfunction
Stress

75 to 90% of all visits to health care providers result from stress-related disorders.

American Institute of Stress
The Stress Response

Enhanced coagulation

Trophic effects

High Renin Angiotensin

High blood pressure

Weight increase

Tachycardia arrhythmia

Insulin resistance

Abnormal lipids

↓ Parasympathetic tone

↑ Sympathetic
Psychoneuroimmunology and Psychosomatic Medicine: Back to the Future

• Proinflammatory cytokine production can be directly stimulated by negative emotions & stressful experiences

Janice K. Kiecolt-Glaser
Stress, Diabetes, Heart Disease...

- Visceral obesity correlated with IL-6 TNF alpha & CRP

- Black PH: The inflammatory response is an integral part of the stress response: Implications for atherosclerosis, insulin resistance, type II diabetes & metabolic syndrome X.

Stress

Heart disease, Hypertension, Diabetes

Inflammation
25% increase in myocardial infarction admissions in London on the day of the match when England lost to Argentina in penalty shootout during 1988 World Cup
Warning Signs

- Loss of focus and mental clarity
- Lack of ability to relax and sleep
- Loss of self esteem
- Feeling tired and on edge/Anger
Turning Stress Into Strength

- Exercise: Preferable in Nature
- Guided Imagery
- Meditation and Yoga
- Breath Work
- Mudras and Mantras
- Practice Appreciation
- Don’t Make Assumptions
- Get Plenty of Sleep
- Avoid Excess Caffeine
- Practice Effective Communication
- Remember The Serenity Prayer
- Love and Social Support
Darwin said...

“It is not the strongest of the species that survives, nor the most intelligent, but the one most responsive to change.”
How Do We Neutralize the Stress Response

- Breathing controls the nervous system. With each inhalation, the HR increases.
- With each exhalation, the heart rate slows down.
Social Connection and The HPA Axis

The social environment can have a buffering effect on stress. The same stressor that when given to an animal who is alone increases plasma cortisol by 50%, does not increase the cortisol level at all when the animal is surrounded by familiar companions.

Women in support groups showed less depression, anger, and anxiety.

Women in support groups lived twice as long (18 months compared to 9 months) as controls!

Inflammation-Energy-Stress Pathways are Linked

Insulin imbalance $\rightarrow$ Hormone imbalance

Aging Causes Inflammation Youthful Hormones Protect...

- IL-6 proinflammatory cytokine
- Stays low in youth except for trauma, infection, stress
- Testosterone & Estrogens downregulate IL-6 gene expression

Environmental Toxins...

- Many of the Chronic Degenerative Diseases that we now are seeing more & more, can be attributed to the effects of continual & accumulative exposure to Xenobiotic Chemicals.

- We are ALL Victims of the Greatest Uncontrolled & Unauthorized Clinical Trial to which Humanity has EVER been exposed.
Environmental Toxins...

400+ Chemicals have been identified in Human Tissues:

- 48 in Breast Milk
- 40 in Fat Tissue
- 73 in Liver
- 250 in Plasma
The Real Reason Dinosaurs became Extinct...
Lead and CVD
Circulation 2006;114:138-1399

- Low level exposure blood lead > 2 ug/dl
- 55% increase CVD
- 89% increase in MI
- 151% increase stroke
- Affects 39% of population
Rapid Insulinotropic Action of Low Doses of Bisphenol-A on Mouse and Human Islets of Langerhans: Role of Estrogen Receptor b

Sergi Soriano1, Paloma Alonso-Magdalena1, Marta García-Arévalo1, Anna Novials1, Sarheen J. Muhammed2, Albert Salehi1, Jan-Ake Gustafsson4, Ivan Guesada1, Ñel Nadal1

Abstract

Bisphenol-A (BPA) is a widespread endocrine-disrupting chemical (EDC) used as the base compound in the manufacture of polycarbonate plastics. It alters pancreatic b-cell function and can be considered a risk factor for type 2 diabetes in rodents. Here we used BRR-2 cells to study whether BPA is involved in the rapid regulation of KATP-channel activity, calcium signals and insulin release elicited by environment-relevant doses of BPA (1 nmol/L). We also investigated these effects of BPA in b-cells and islets of Langerhans from humans. 1 nmol/L BPA rapidly decreased KATP-channel activity, increased glucose-induced calcium signals and insulin release in b-cells from human islets, but not in cells from BRR-2 cells. The rapid reduction in the KATP-channel activity and the insulinotropic effect was seen in human cells and the insulinotropic effect was not observed in BRR-2 cells. BPA actions were stronger in human islets compared to mouse islets when the same BPA concentration was used. Our findings suggest that BPA behaves as a strong estrogen via nuclear ERs and indicate that results obtained with BPA in mouse b-cells may be extrapolated to human islets. These supports that BPA should be considered as a risk factor for metabolic disorders in humans.

Insulinogenic Effect of Low Doses of Bisphenol A on Human Islet Cells

PLoS ONE 7(2): e31109.
Treatment of Toxicity...

• Avoid Exposure
• Detoxification
• Increased Excretion
‘Nutrigenomic’ molecules at work

Nrf2 aligns with A.R.E. on DNA and "Switches On" > 200 genes.

Nrf2 attaches to DNA and "Switches Off" pro-inflammatory and other disease-related genes.

Food Molecule

Transcription Factors, such as:
- Nrf2
- NF-kB

Nutrigenomic biomolecules ‘Switch On’ cytoprotective genes and ‘Switch Off’ pro-inflammatory genes.

2011 - Christine Houghton ©
How does Nrf2 activate cellular defences?

Pro-oxidant
Activator of Nrf2

1994

Sulforaphane as most potent phytochemical activator of Nrf2.

Nrf2 activates > 200 cytoprotective genes

2011 - Christine Houghton ©
Rx for Longevity...

- Principles:
  
  * Control Oxidative Stress*
  
  * Decrease Inflammation*
  
  * Detoxification*
  
  * Endocrine Rejuvenation*
  
  * Smart Nutrient*
In a Nutshell...

- Lifestyle

  Zone Type Calorie Diet

  Exercise

  Stress Reduction
Key Supplements to Decrease Inflammation...

- Fish Oils
- Curcumin
Key Supplements to Reduce Oxidative Stress...

- B Vitamins
- Antioxidants
- Polyphenols
- Glutathione- NRF2 Activator
Endocrine Rejuvenation...

- Youthful bio-identical hormones
- Treat a “deficiency disease”
- Improve Quality of Life
- Decrease Inflammation
- Do not increase cancer risk
- Do not increase heart disease risk
- Are a matter of personal choice
- Must be given by the correct route
- Are a “work in progress”
Endocrine Rejuvenation...

Balanced Hormone Optimization

- All hormones restored to 25-30 year old level & monitored by regular serum levels

- Natural (Bioidentical) hormones
  - Identical molecular structure to hormones produced by human female or male.
  - Not xeno hormones or horse hormones

- Synthetically produced
Balanced Hormone Optimization

- Growth hormone
- DHEA, Pregnenolone, Melatonin
- Testosterone in men & women
  - Estrogens & Progesterone in women (Bio-identical hormones)
  - Not Premarin or Provera (MPA)
- Thyroid (T3 & T4, not just T4)
Endocrine Rejuvenation...

GH Replacement Improves

- Brain
- Bone
- Atherosclerosis
- Heart Function
- Immune System
- Body Composition
- Exercise Capacity
- Wound Healing
- Well Being
- Quality of Life
- Cosmetic Appearance
Endocrine Rejuvenation...

Testosterone Replacement in men improves:

- Libido
- Erectile function
- Mood, depression
- Memory, Alzheimer’s
- Angina, Heart disease
- Type 2 diabetes
- Muscle mass, Fat, Bone
- Inflammation
- Quality of life
Middle Age...

You know you have arrived when you are asked to suck in your middle & you already have!
Smart Nutrients for Brain Function...

• Acetyl-L-Carnitine
• Phosphatidyl Serine
• Ashwagandha
• Others
“Irving, remember when we used to chase after young ‘chicks’ like that?”

“Oh, sure, I remember doing it....I just can’t remember why!”
With a bit of care....

Your body will last you a lifetime.
What Do I Do in Anti-Aging Medicine?

• Design customized preventive medicine programs with our patients
• Advanced lab testing
• Nutrition
• Exercise
• Stress reduction
• Neutraceuticals
• Inflammation control
• Bio-identical youthful hormones
My Anti-Aging Plan...

• Diet

• Exercise

• Sunshine – Vitamin D connection

• Stress Reduction – Meditation
My Anti-Aging Plan (continued)...

- Avoid Toxins – smoking, alcohol, drugs
- Nrf2 Activator
Nutritional Support...

- Functional Foods - OptiCleanse
- ProOmega D
- Mito Resus Kit
- CoQ10, Smart Nutrients
- Osaplex for bone/collagen support
We are becoming increasingly aware that...

- Beauty is achieved from the inside out
- The current medical system is a sickness system, not a health system
- There is great potential for optimising our health and performance
- We can prevent disease and slow ageing
- As a society, we must invest in wellness
- We are PERSONALLY responsible for our own health and well-being
My personal experience has been that treating the symptoms of the degenerative diseases of modern living, e.g. Type 2 diabetes, obesity, high blood pressure did not restore my health.

I have now changed my lifestyle with no processed foods or sugars and refined flour, but added beneficial foods and exercise programs along with a nutritional and hormonal program, designed by Dr. Karl.

I am now medication free and feel the best I have in the last 30 years.

-Rodney Hide
Fountain of Youth...
Resources

• Alternative Medical Review Journal
• Textbook of Nutritional Medicine by Dr. Alan Gaby