Old Pilots never die - they just buzz off!

New tools to achieve your goals!

Introduction - a new paradigm

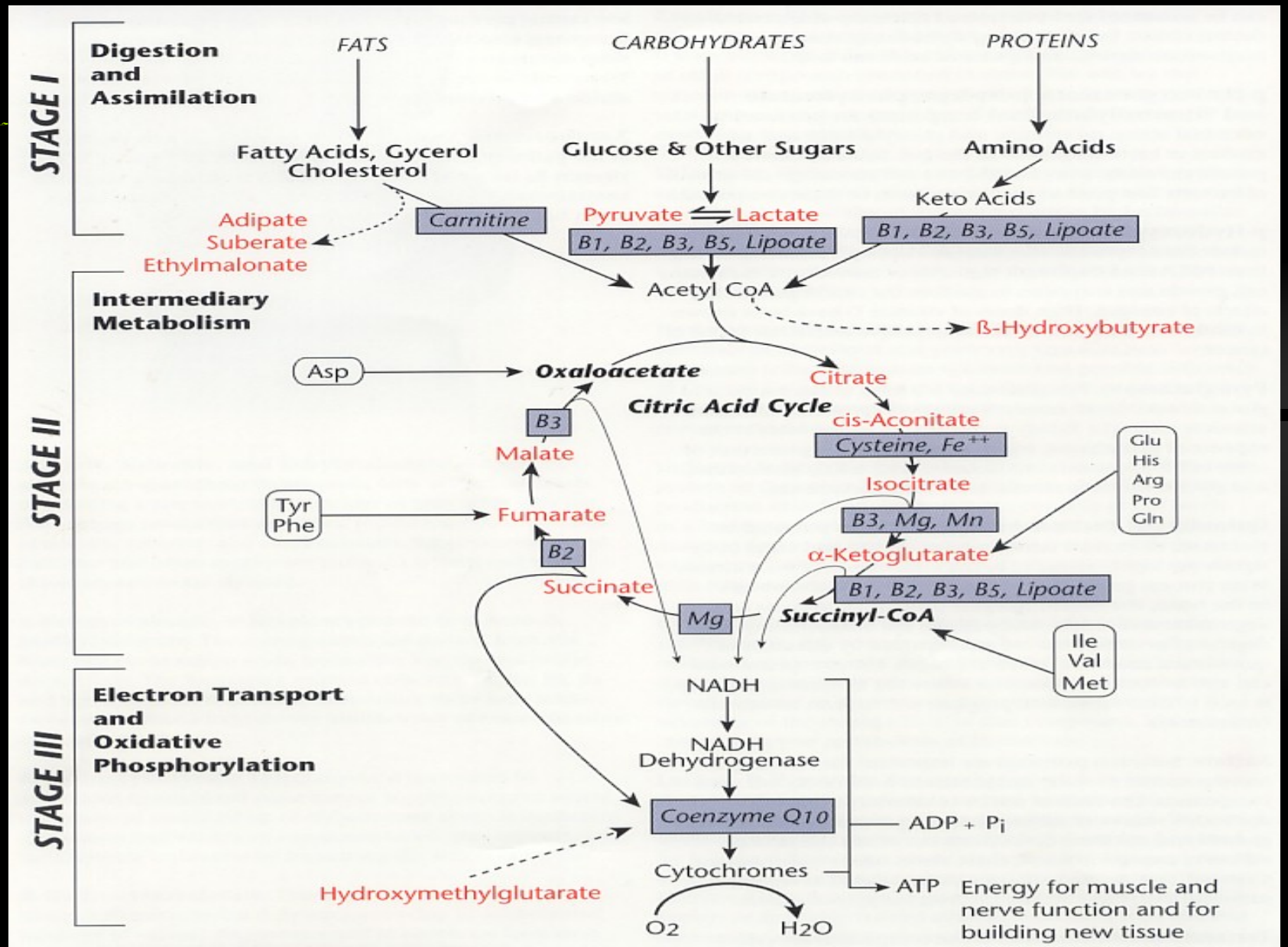
Imbalance - suboptimal physiology - diseases of civilization

Enhanced Functional Medicine

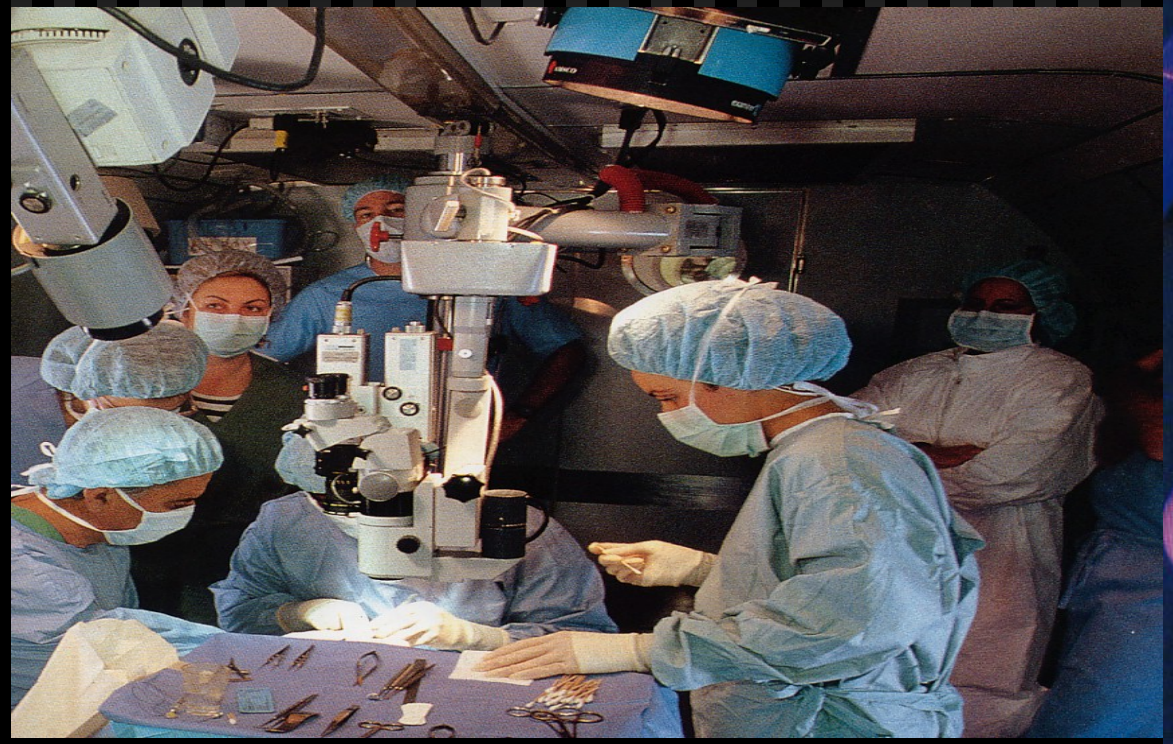
Example of power - eicosanoid balance

Anti-Aging Medicine

Energy Pathways



Conventional Medicine



WEEKLY WORLD NEWS®
June 4, 2002

Miracle mud pi
get healing po
from UFOs

BABY BORN WITH ANTLERS

'He's a little dear,' says mo

Guy finds money tree in his yard!

2-ton tubbies compete in beauty pageant for fatties

BIBLE SHOCKER! HEAD OF JOHN THE BAPTIST FOUND

$1.99 CANADA


AIR CANADA


PLANNING
CHARTS
PLOTTING
CHARTS

Aging

Natural Aging

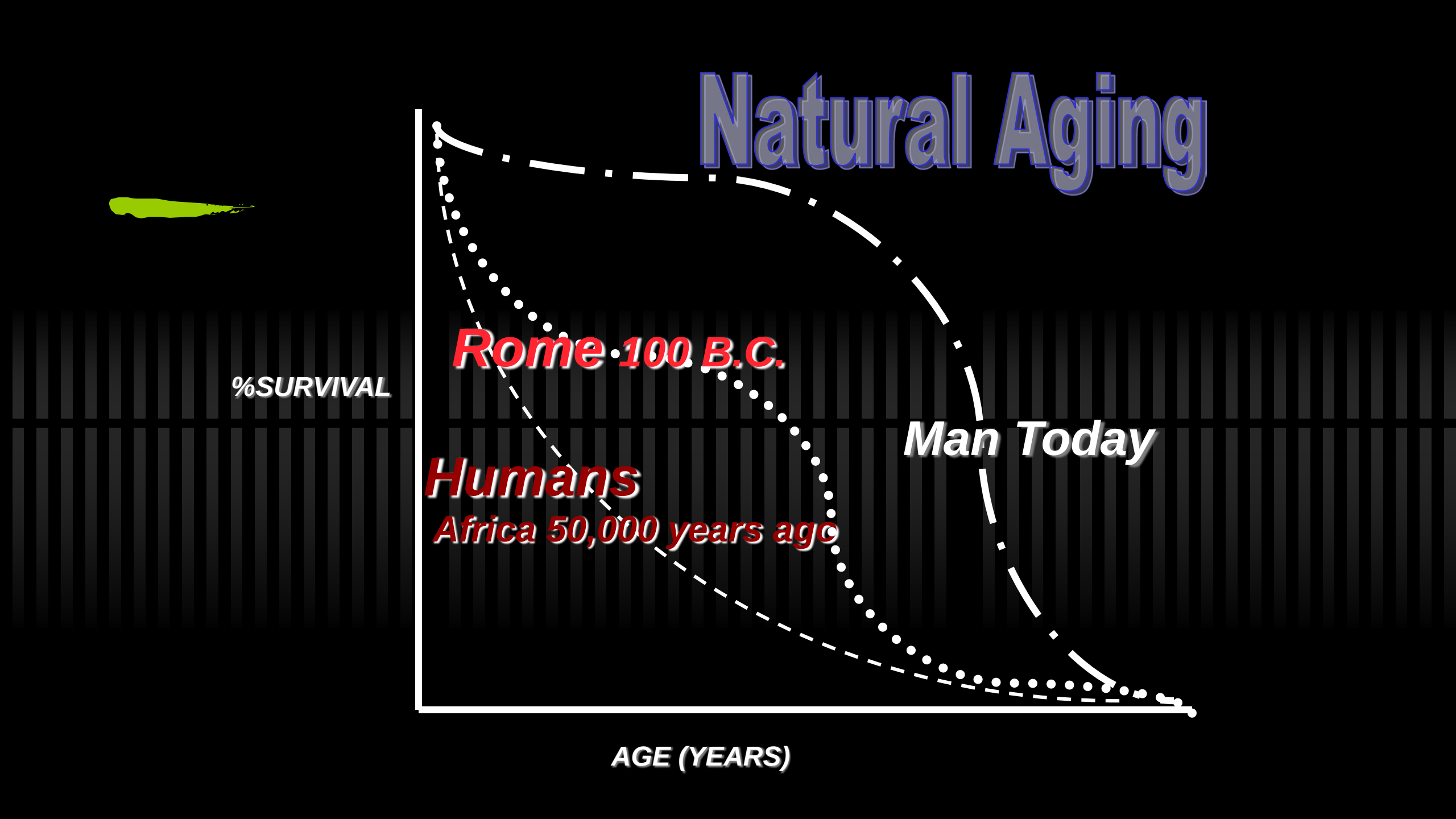
WILD

%SURVIVAL

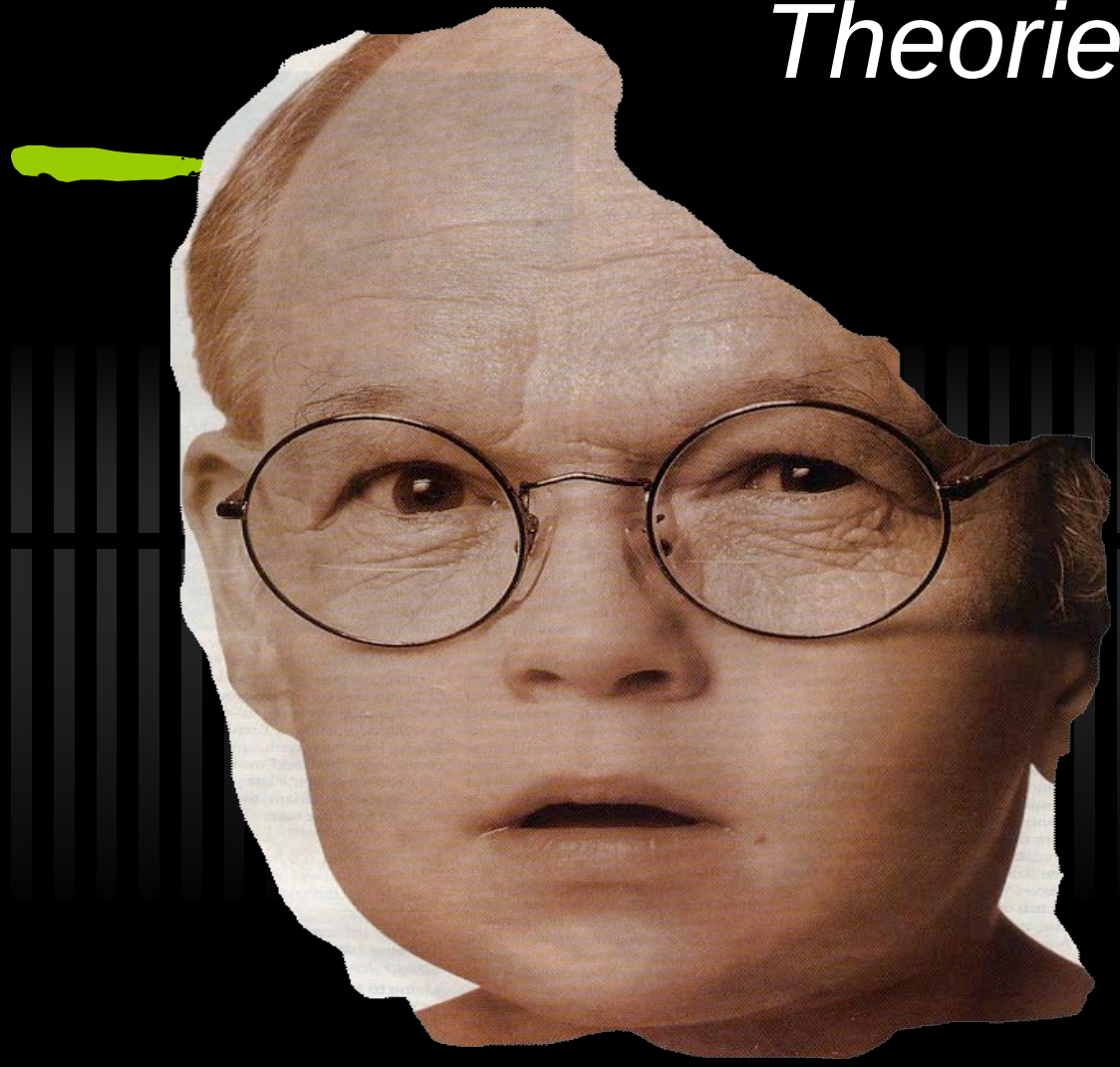
Radioactive Decay

AGE (YEARS)

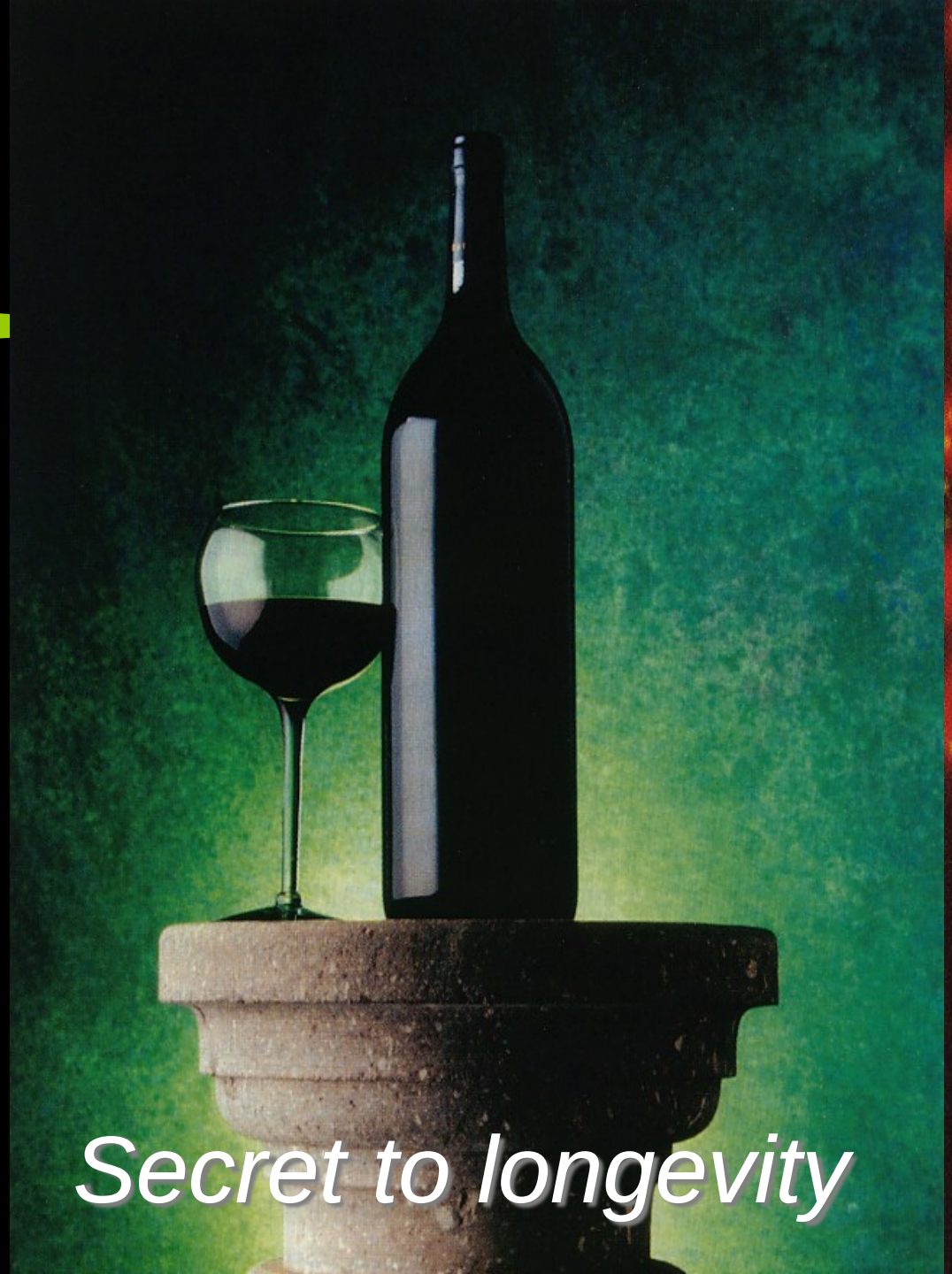
Natural Aging



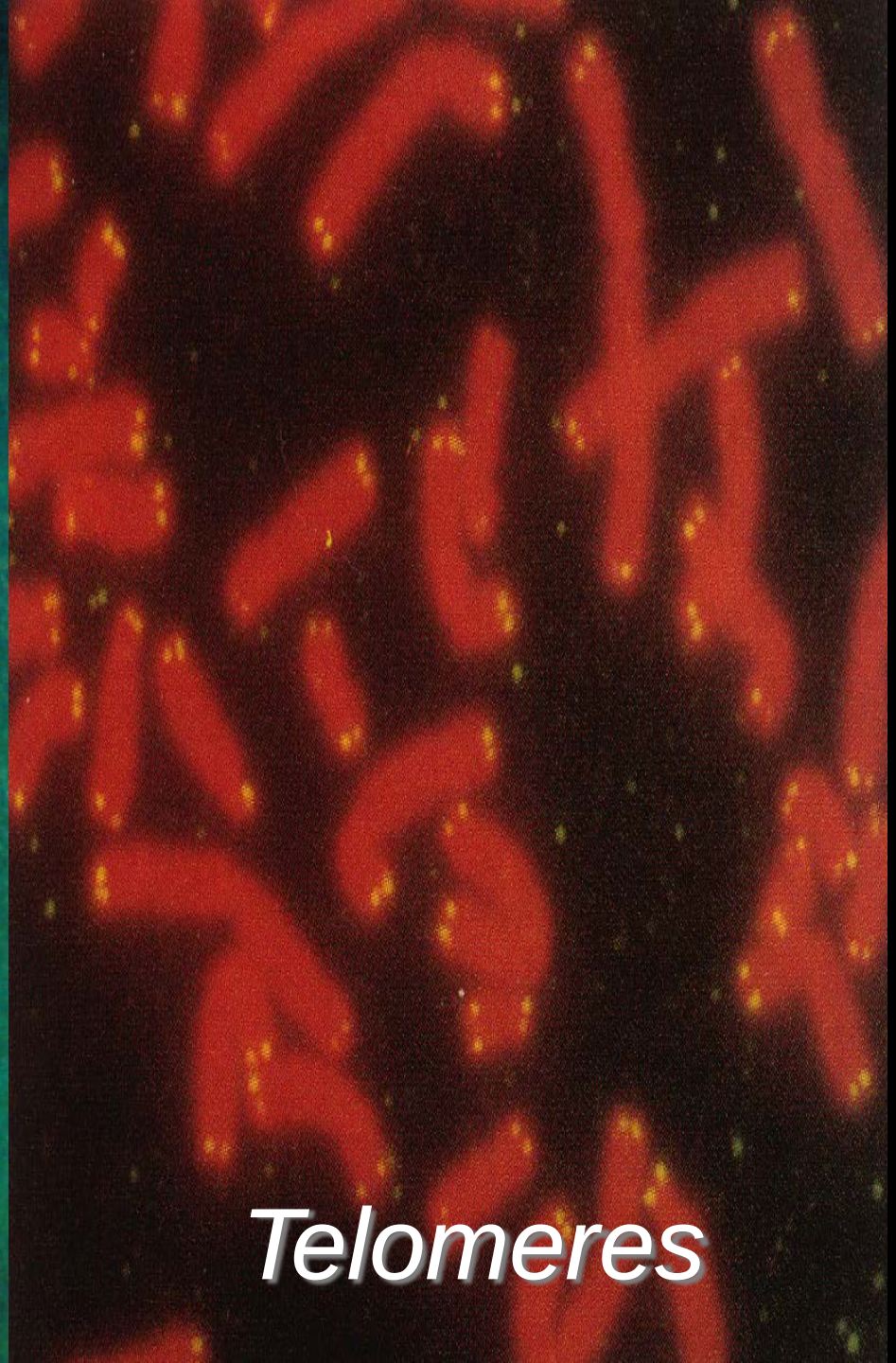
Theories of Aging



- ✓ ***Wear and Tear***
- ✓ ***Neuro-endocrine***
- ✓ ***Mitochondrial decay***
- ✓ ***Genetic Control***
- ✓ ***Free Radical***
- ✓ ***Telomere Theory***

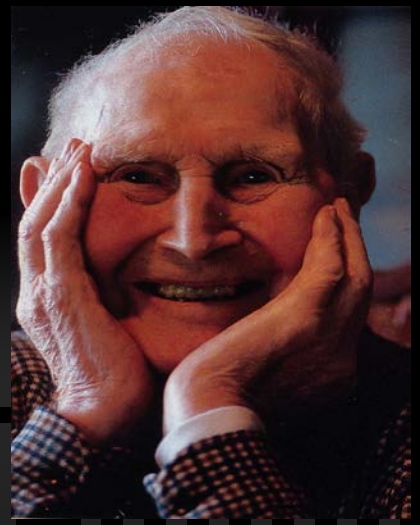


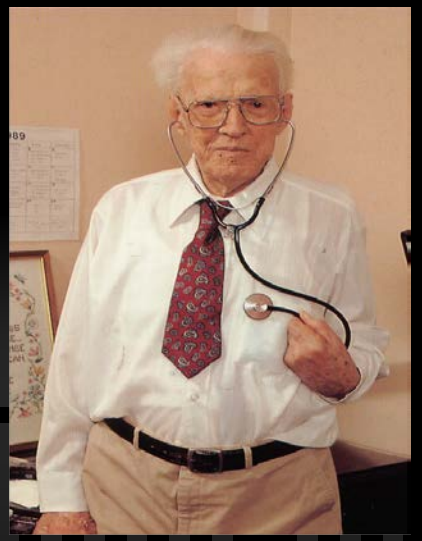
Secret to longevity



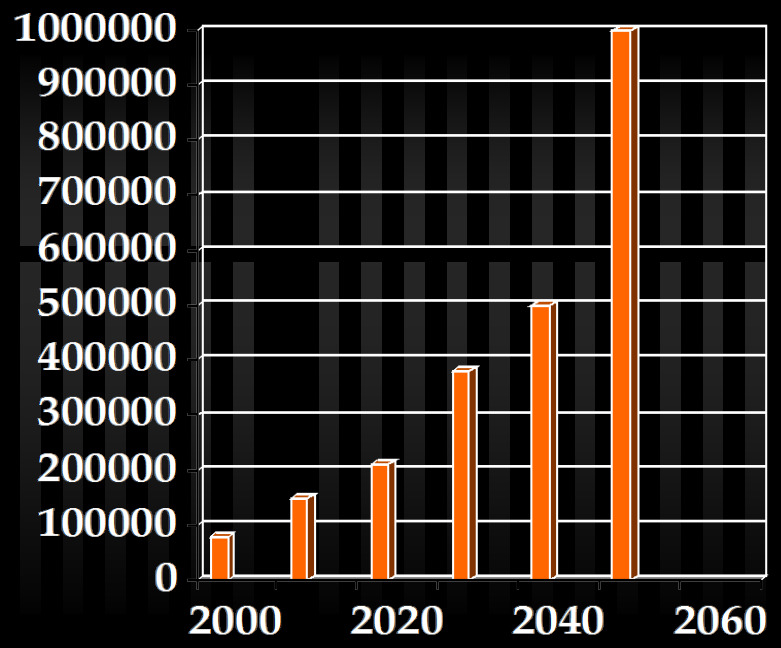
Telomeres

Centenarians





Centenarian Boom



- ✓ 18 years
  Neo-paleolithic period
- ✓ 25 years
  American Revolution
- ✓ 46 years
  1900
- ✓ 73-79 years
  Today
- ✓ US 70,000 Centenarians
- ✓ 1-4 Million Centenarians by 2050
- ✓ 50% of Baby Boomers will reach 100

But what will be your Healthspan?

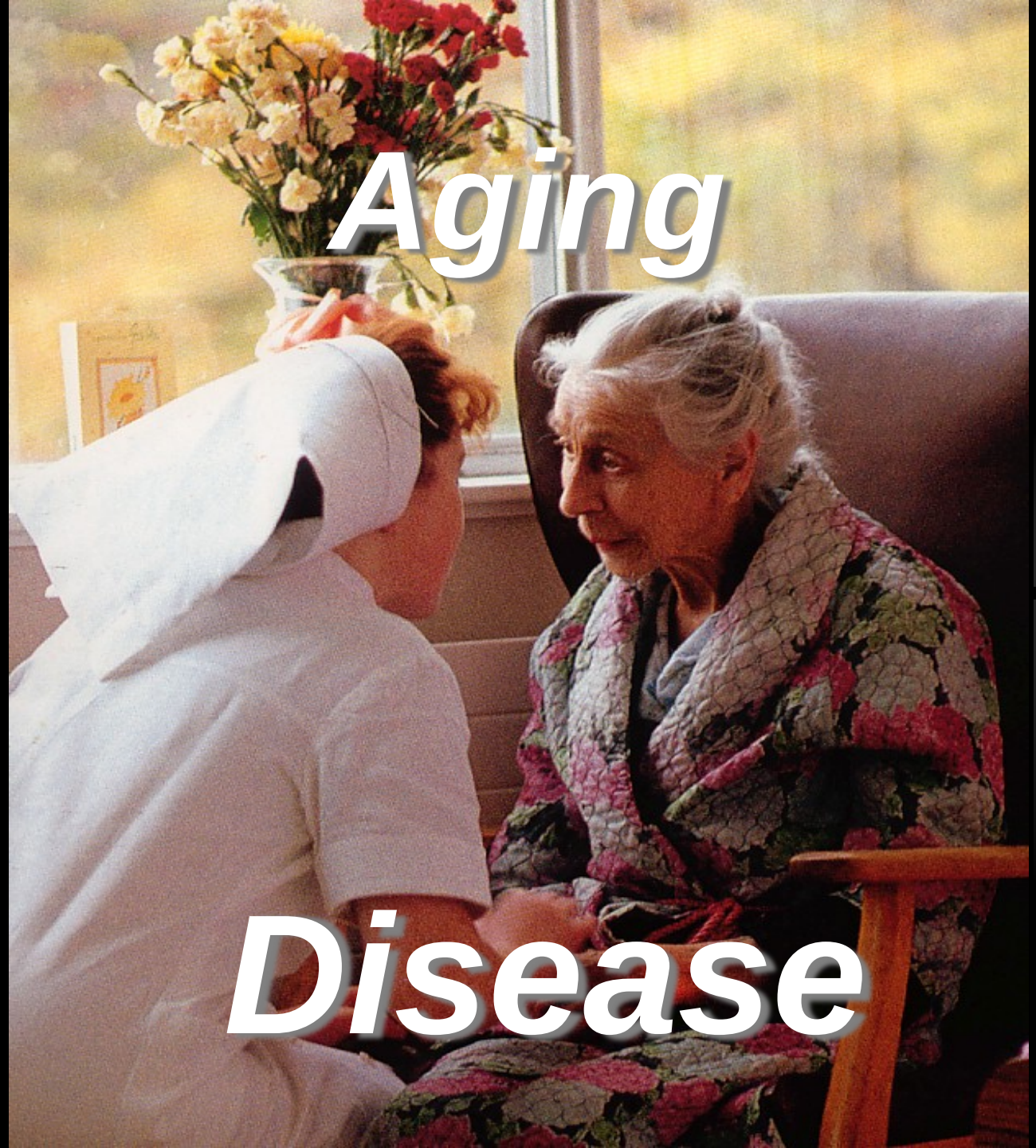
Over age 50 - lifespan - 100

Age 35 - lifespan - 107

If you have a family history of longevity - add another 7 years

Jeanne Calment

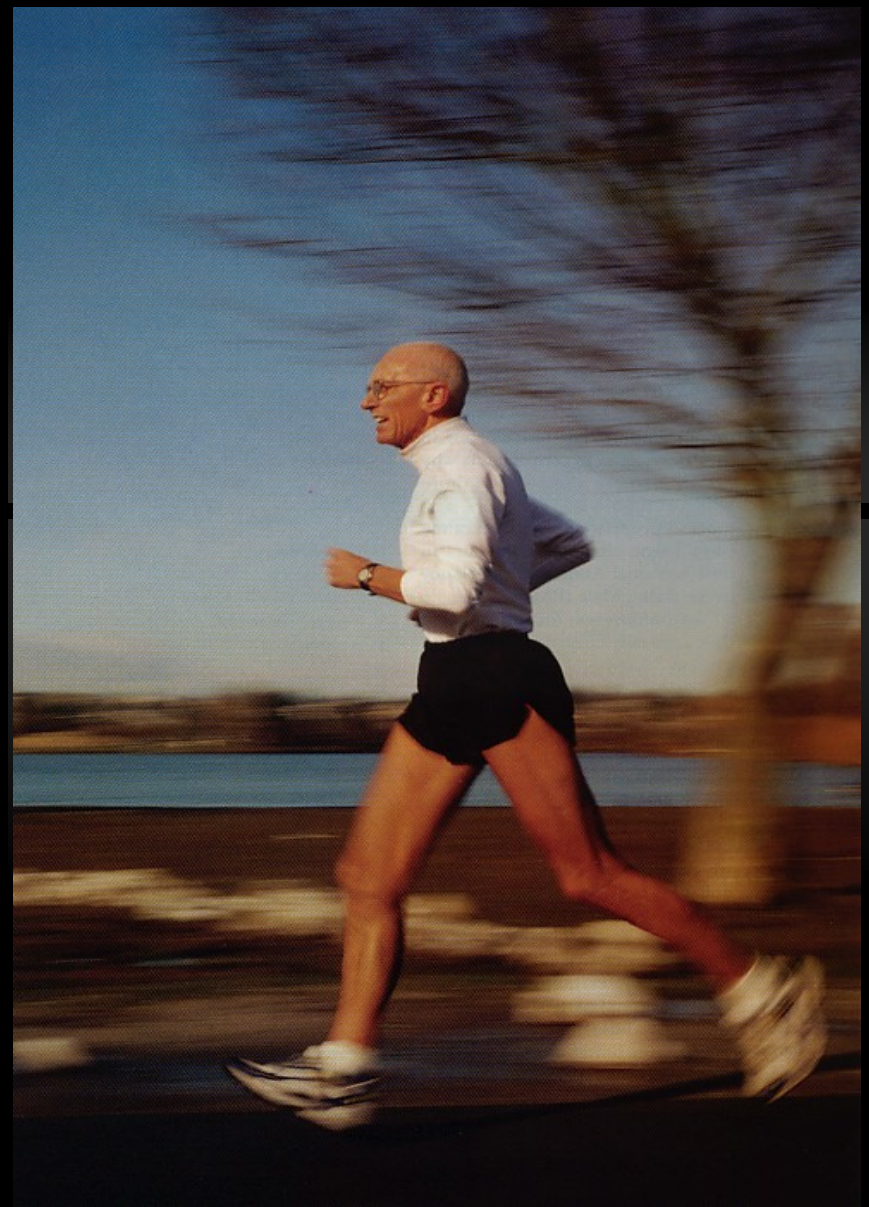
122


Aging
Disease

The Vision

- ✓ ***The three rules of ANTI-AGING***

- ✓ ***Don’t get sick***
- ✓ ***Don’t get old***
- ✓ ***Don’t die***



Biomedical Gerontology

- ✓ Cell loss, cell atrophy
- ✓ Extracellular junk
- ✓ Extracellular crosslinks
- ✓ Cell senescence
- ✓ Mitochondrial mutations
- ✓ Lysosomal junk
- ✓ Nuclear mutations

- ✓ Brody -1955
- ✓ Alzheimer -1907
- ✓ Monnier and Cerami- 1981

- ✓ Hayflick -1965
- ✓ Harmon 1972
- ✓ Strehler-1959
- ✓ Szilard-1959

20 years and nothing found!

Mus Musculus

The Methuselahmouse Prize

- ✓ Cell loss, cell atrophy
- ✓ Extracellular junk
- ✓ Extracellular crosslinks
- ✓ Cell senescence
- ✓ DNA mutations
- ✓ Lysosomal junk
- ✓ Nuclear mutations

Exercise, cell therapy, growth factors

Phagocytosis by immune stimulation

AGE-breaking molecules/enzymes

Ablation of senescent cells

Allotopic expression of 13 protein

Transgenic microbial hydrolases

Telomerase/ALT gene deletion plus periodic stem cell reseeding

All able to fixed in the mouse - in principle!

Imbalance:

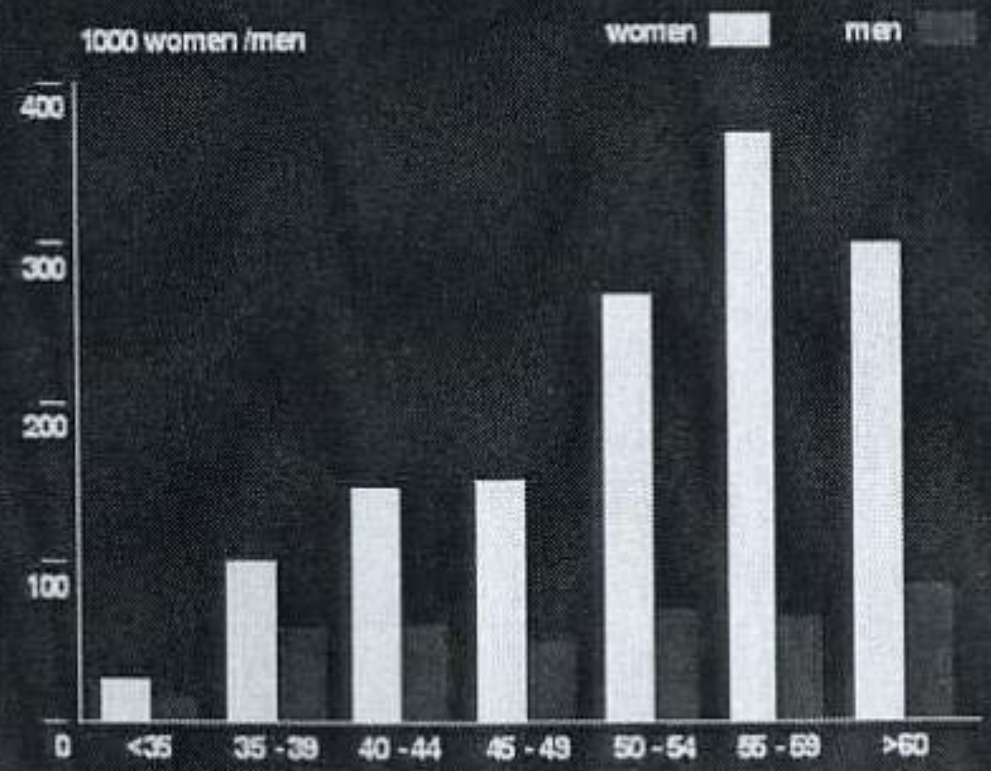
decreased function disease reduced healthspan premature death

Balance:

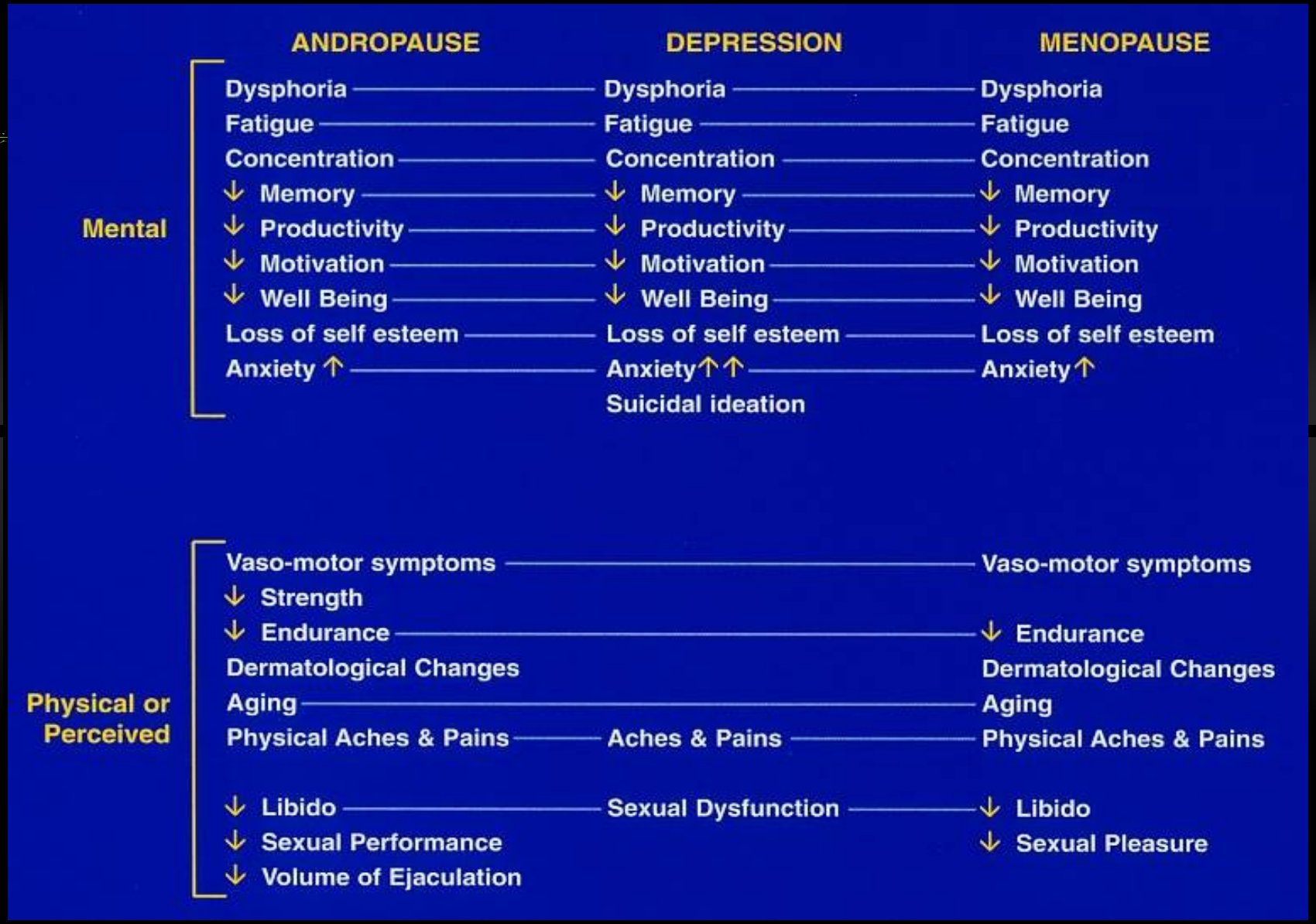
Increased healthspan

DEPRESSION

Rate of Prescription antidepressive drugs

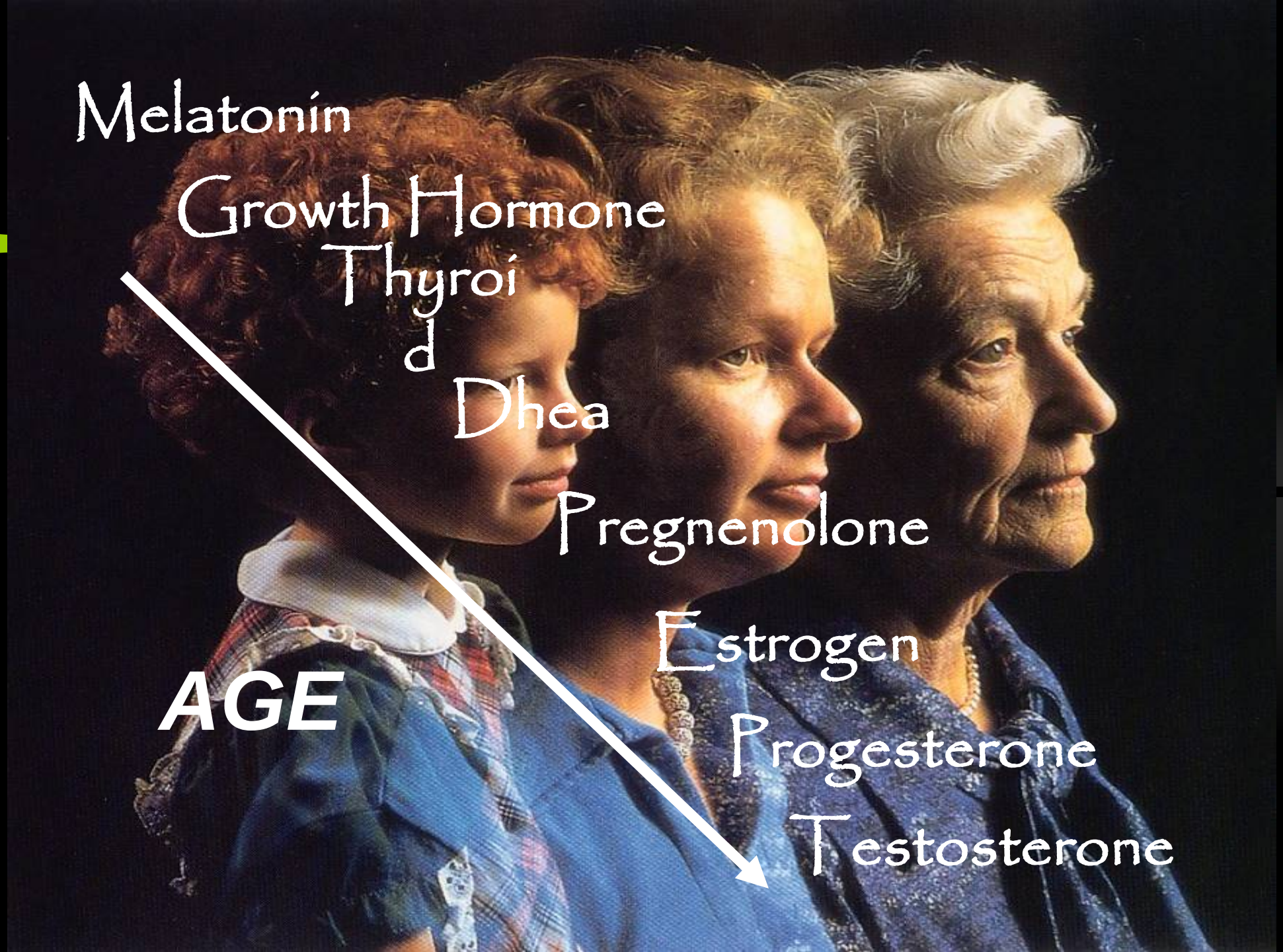


Depression ?


ANDROPAUSE
DEPRESSION
MENOPAUSE
Mental
Dysphoria
Fatigue
Concentration
↓ Memory
↓ Productivity
↓ Motivation
↓ Well Being
Loss of self esteem
Anxiety ↑
Dysphoria
Fatigue
Concentration
↓ Memory
↓ Productivity
↓ Motivation
↓ Well Being
Loss of self esteem
Anxiety ↑↑
Suicidal ideation
Dysphoria
Fatigue
Concentration
↓ Memory
↓ Productivity
↓ Motivation
↓ Well Being
Loss of self esteem
Anxiety ↑
Physical or Perceived
Vaso-motor symptoms
↓ Strength
↓ Endurance
Dermatological Changes
Aging
Physical Aches & Pains
↓ Libido
↓ Sexual Performance
↓ Volume of Ejaculation
Aches & Pains
Sexual Dysfunction
Vaso-motor symptoms
↓ Endurance
Dermatological Changes
Aging
Physical Aches & Pains
↓ Libido
↓ Sexual Pleasure

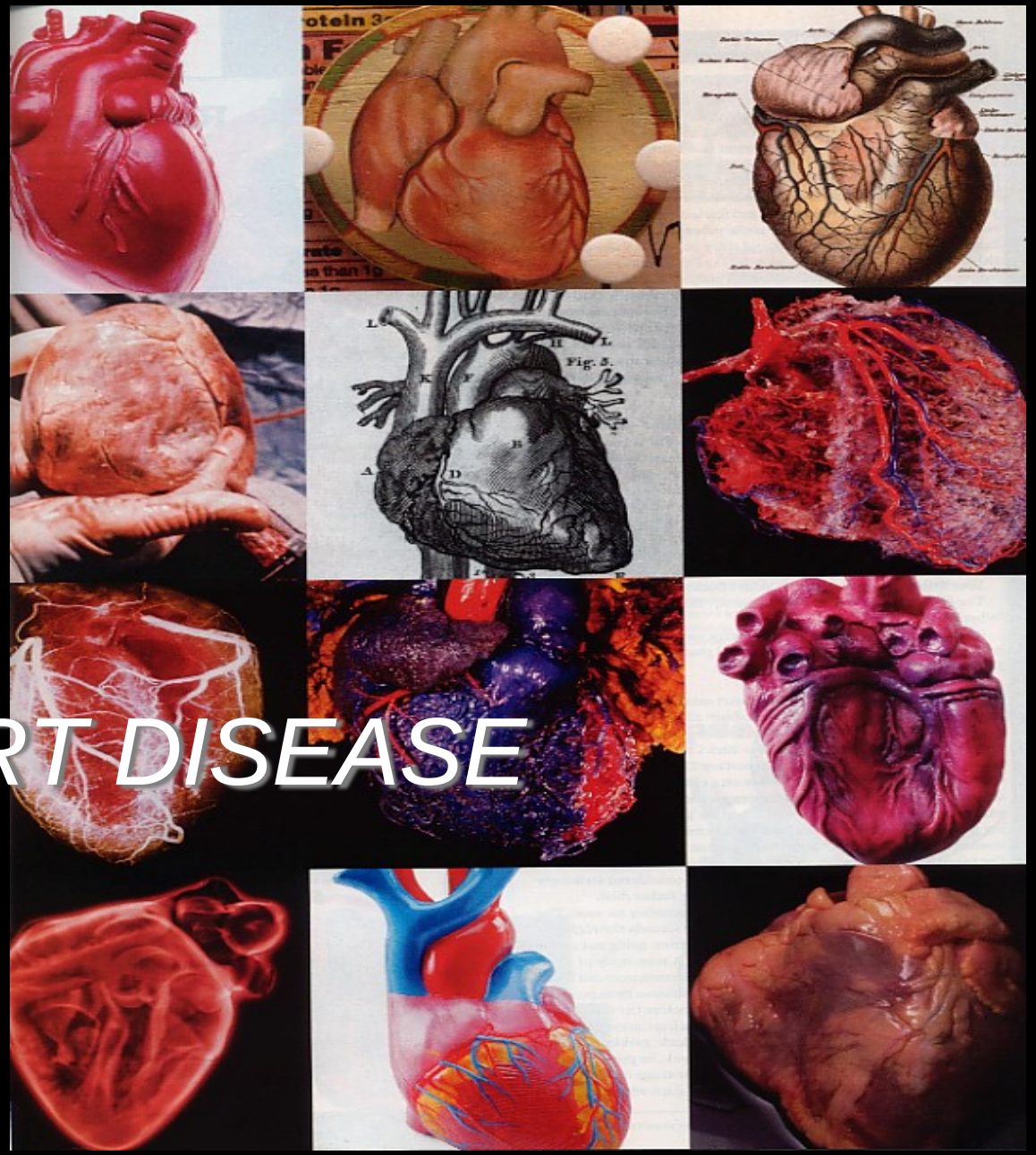
Neuro-endocrine

Melatonin
Growth Hormone
Thyroid Hormone
DHEA
17-keto DHEA
Pregnenolone
Estrogen
Progesterone
Testosterone


Melatonin
Growth Hormone
Thyroid
Dhea
Pregnenolone
Estrogen
Progesterone
Testosterone
AGE

My karma just
Ran over your Dogma

HEART DISEASE



Degree of CAD and risk factors

	Standardized coefficient	*p*
Age	0.2131	.013
Systolic blood pressure	0.0083	.913
Cholesterol	0.1327	.090
Diabetes	0.0547	.477
Smoking	-0.0126	.873
Body mass index	-0.0639	.410
HDL-cholesterol	-0.1567	.047
Free testosterone	0.2474	.002

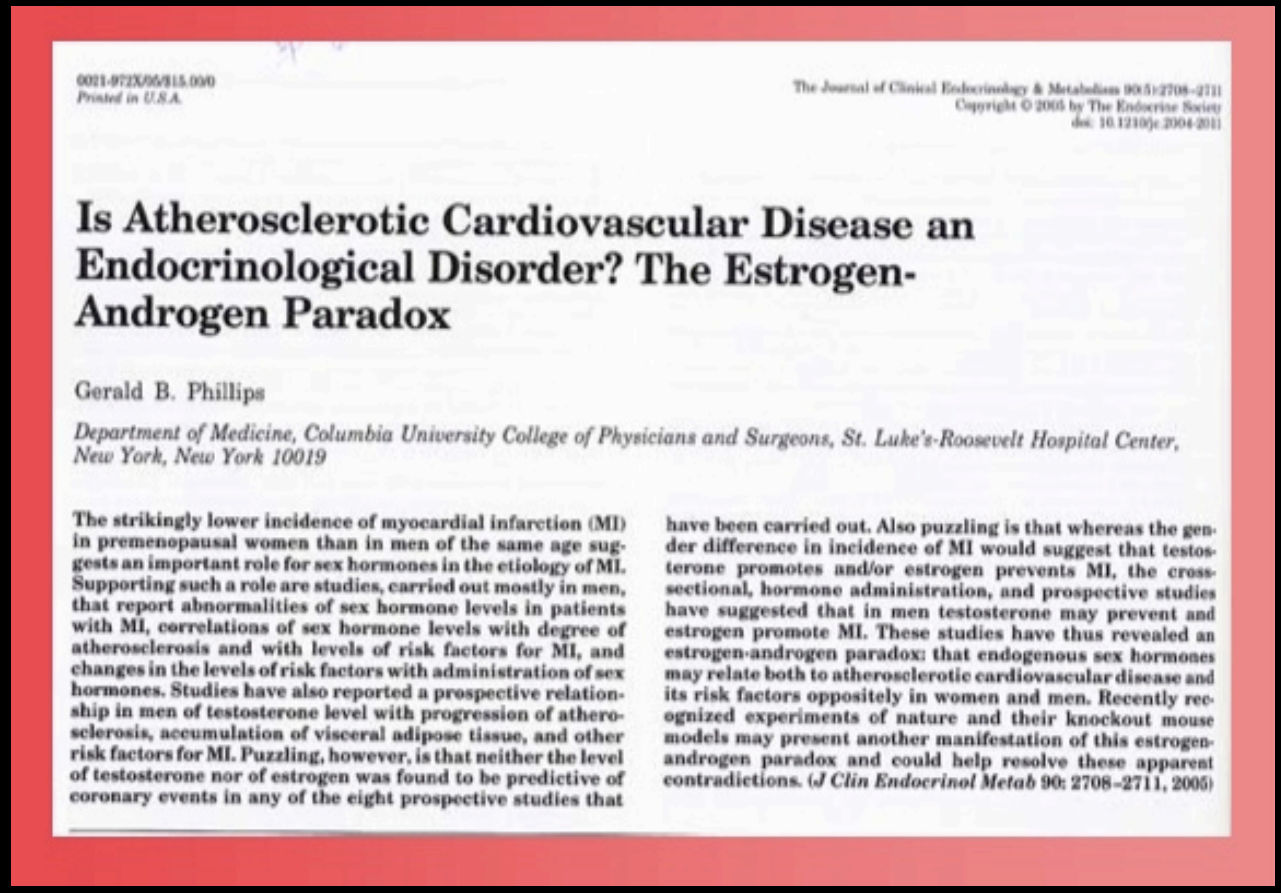
Phillips, GB, Metabolism, Vol 53, No. 3 (March), 2004 P 326

Risks for Heart Disease

- ✓ Family history
- ✓ Smoking
- ✓ High blood pressure
- ✓ Lipid profile
- ✓ Diabetes
- ✓ Obesity
- ✓ Sedentary

- ✓ Homocysteine
- ✓ C-reactive protein
- ✓ Fibrinogen
- ✓ Apolipoprotein a, B
- ✓ Antioxidant levels
- ✓ Glutathione
- ✓ Selenium
- ✓ DHA score
- ✓ AA-EPA ratio
- ✓ CoQ10
- ✓ Mitochondrial Function
- ✓ Hormonal Balance

Estrogen - Androgen Paradox



0021-972X/05/$15.00/0
Printed in U.S.A.

The Journal of Clinical Endocrinology & Metabolism 90(5):2708–2711

doi: 10.1210/jc.2004-2011

Is Atherosclerotic Cardiovascular Disease an Endocrinological Disorder? The Estrogen-Androgen Paradox

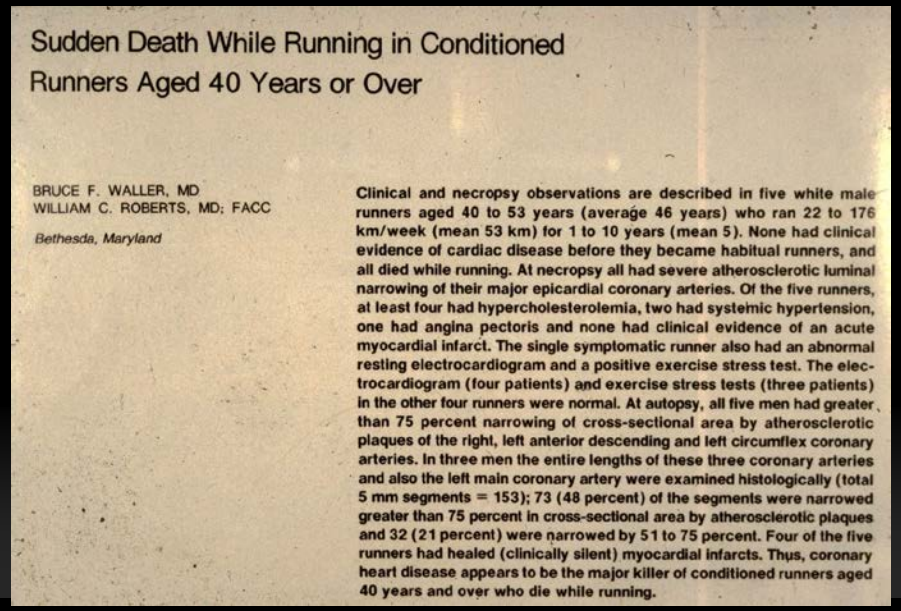
Gerald B. Phillips

Department of Medicine, Columbia University College of Physicians and Surgeons, St. Luke's-Roosevelt Hospital Center, New York, New York 10019

The strikingly lower incidence of myocardial infarction (MI) in premenopausal women than in men of the same age suggests an important role for sex hormones in the etiology of MI. Supporting such a role are studies, carried out mostly in men, that report abnormalities of sex hormone levels in patients with MI, correlations of sex hormone levels with degree of atherosclerosis and with levels of risk factors for MI, and changes in the levels of risk factors with administration of sex hormones. Studies have also reported a prospective relationship in men of testosterone level with progression of atherosclerosis, accumulation of visceral adipose tissue, and other risk factors for MI. Puzzling, however, is that neither the level of testosterone nor of estrogen was found to be predictive of coronary events in any of the eight prospective studies that have been carried out. Also puzzling is that whereas the gender difference in incidence of MI would suggest that testosterone promotes and/or estrogen prevents MI, the cross-sectional, hormone administration, and prospective studies have suggested that in men testosterone may prevent and estrogen promote MI. These studies have thus revealed an estrogen-androgen paradox: that endogenous sex hormones may relate both to atherosclerotic cardiovascular disease and its risk factors oppositely in women and men. Recently recognized experiments of nature and their knockout mouse models may present another manifestation of this estrogen-androgen paradox and could help resolve these apparent contradictions. (*J Clin Endocrinol Metab* 90: 2708–2711, 2005)

Coronary Disease in Conditioned Athletes

- ✓ Reported in 1980 in Am J Cardiology - Sudden Death while running in conditioned runners age 40 years or over
- ✓ Coronary disease is asymptomatic in 90 %
- ✓ Death is the presenting symptom in 50 %

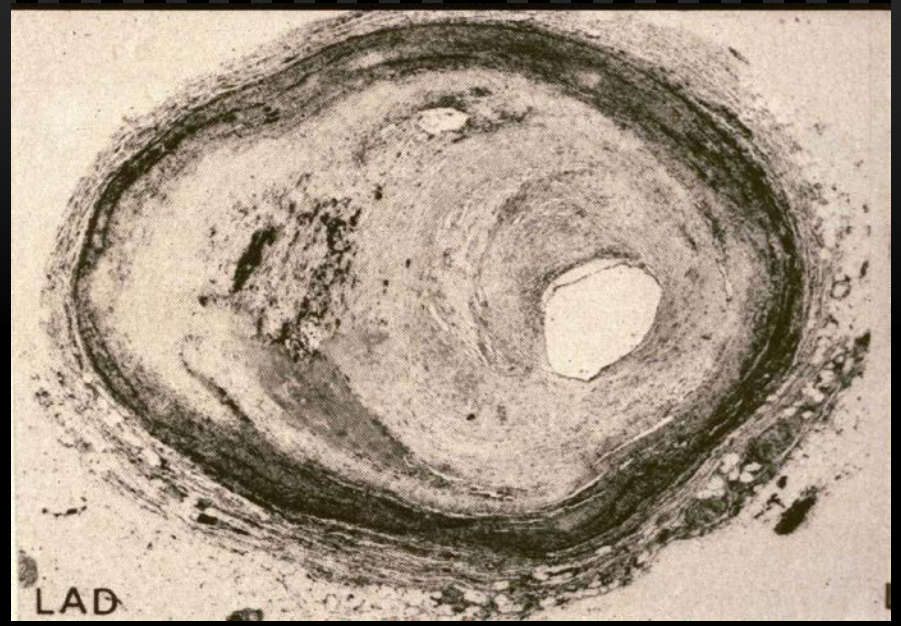


Sudden Death While Running in Conditioned Runners Aged 40 Years or Over

BRUCE F. WALLER, MD
WILLIAM C. ROBERTS, MD; FACC

Bethesda, Maryland

Clinical and necropsy observations are described in five white male runners aged 40 to 53 years (average 46 years) who ran 22 to 176 km/week (mean 53 km) for 1 to 10 years (mean 5). None had clinical evidence of cardiac disease before they became habitual runners, and all died while running. At necropsy all had severe atherosclerotic luminal narrowing of their major epicardial coronary arteries. Of the five runners, at least four had hypercholesterolemia, two had systemic hypertension, one had angina pectoris and none had clinical evidence of an acute myocardial infarct. The single symptomatic runner also had an abnormal resting electrocardiogram and a positive exercise stress test. The electrocardiogram (four patients) and exercise stress tests (three patients) in the other four runners were normal. At autopsy, all five men had greater than 75 percent narrowing of cross-sectional area by atherosclerotic plaques of the right, left anterior descending and left circumflex coronary arteries. In three men the entire lengths of these three coronary arteries and also the left main coronary artery were examined histologically (total 5 mm segments = 153); 73 (48 percent) of the segments were narrowed greater than 75 percent in cross-sectional area by atherosclerotic plaques and 32 (21 percent) were narrowed by 51 to 75 percent. Four of the five runners had healed (clinically silent) myocardial infarcts. Thus, coronary heart disease appears to be the major killer of conditioned runners aged 40 years and over who die while running.



High Intensity exercise - what causes plaque?

- ✓ Known enormous anti-oxidant insufficiency
- ✓ Deficiency CoQ10 magnesium Vit E
- ✓ Recreational athletes also show similar deficiencies
- ✓ Decreased levels of CoQ10 and Vit E the same in both highly trained athletes and individuals with cardiac disease
- ✓ CoQ10 levels higher in sedentary individuals

Stopping CANCER

The Contribution of Cytotoxic Chemotherapy to 5-Year Survival in Adult Malignancies

Clinical Oncology, 2004, Dec

Study Conclusions

- Contribution to 5-year survival in Australia was 2.3%
- Contribution to 5-year survival in US was 2.1%
- Median survival in lung cancer has increased by 2 months in the past 20 years
- Overall survival benefit of less than 5% has been achieved in the adjuvant treatment of breast, colon, and head and neck cancers.

Cancer Prevention

Table 1: The Relative Risks for Death by Cancer	
Avoidable Causes of Cancer	**% of US Cancer Deaths**
Smoking, chewing tobacco & second-hand smoke	33%
Obesity and inactivity	25%
Nutrient deficits and poor diet	15%
Chronic viruses and other infections	7%
Environmental pollution in foods, air and water	5%
Sunlight	2%
Prescription drugs	2%
Illicit drugs and excess alcohol	1%
Radon gas	1%
Radiation	1%
Unavoidable Causes of Cancer	**% of US Cancer Deaths**
Infections & viruses	7%
Genetic defects	2%

Stopping CANCER

Diet: Is cancer a metabolic disease ?
Caused by excess carbohydrates?

Decrease DNA adducts non-mutagenic

Protective nutrients: plant based diet
selenium CoQ10
Vit D curcumin phytonutrients

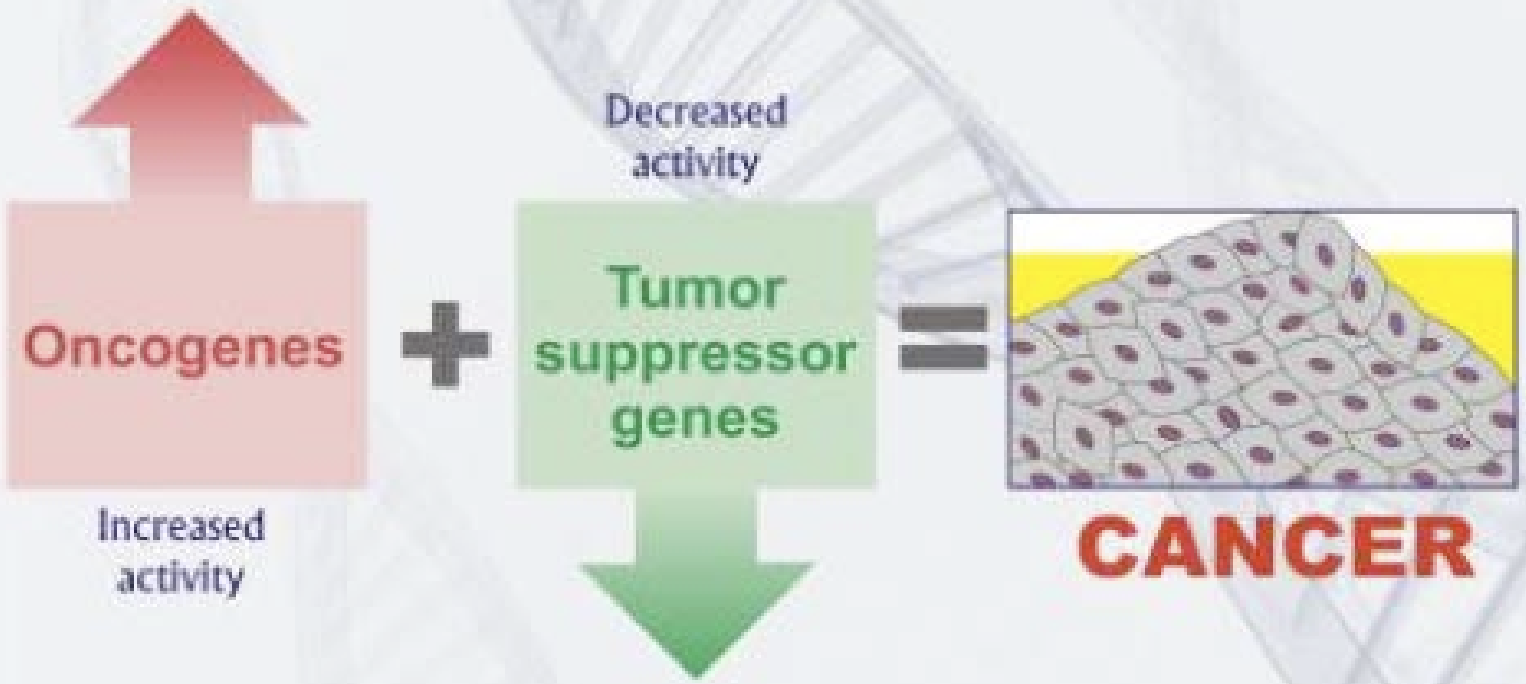
Energy: Mitochondrial function
DNA repair immune system function

Epigenetics - overcoming gene silencing

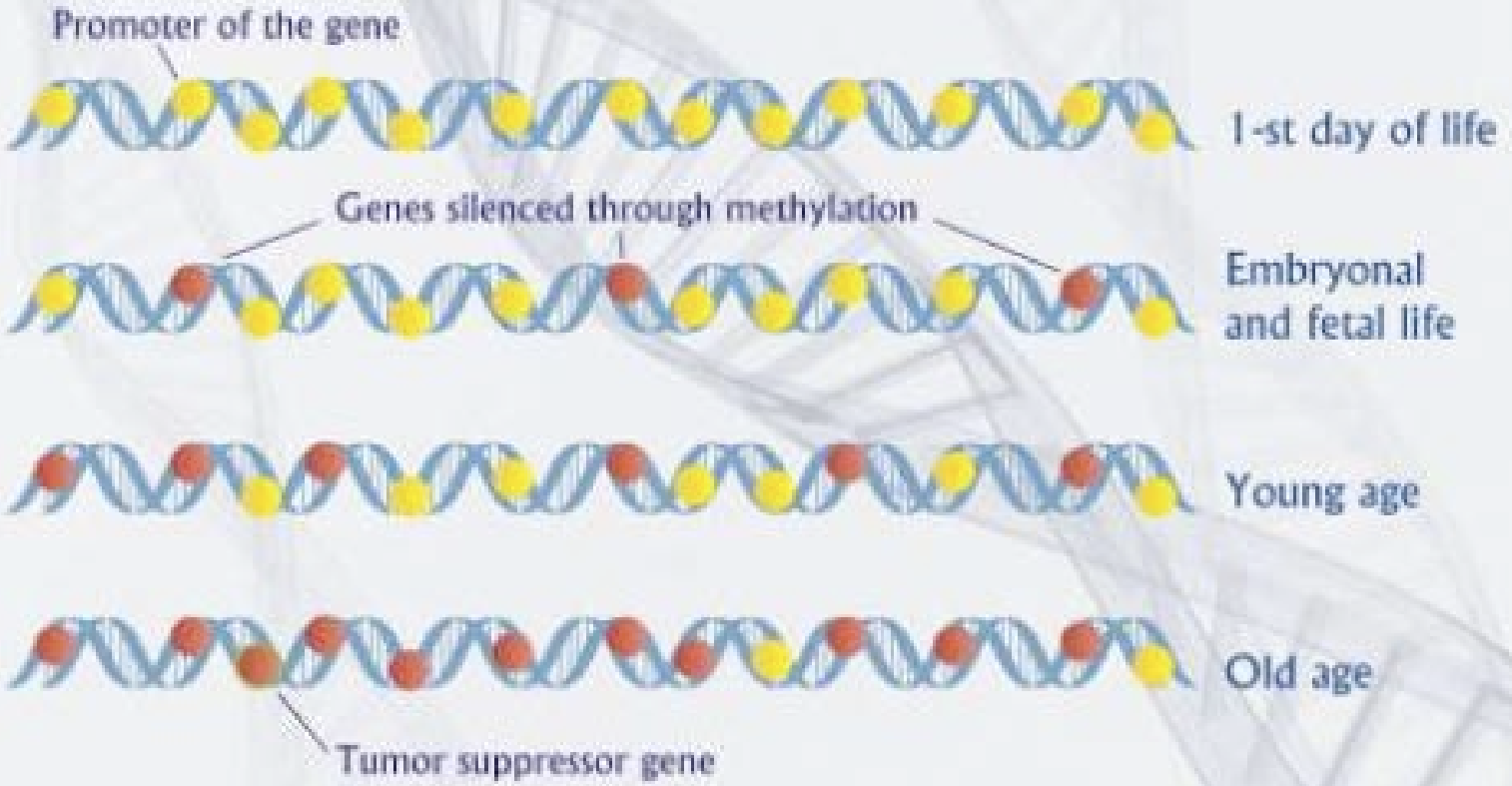
Genome and Cancer

Increased activity of oncogenes and decreased activity of tumor suppressors lead to cancer.

The reversal of this condition controls cancer.



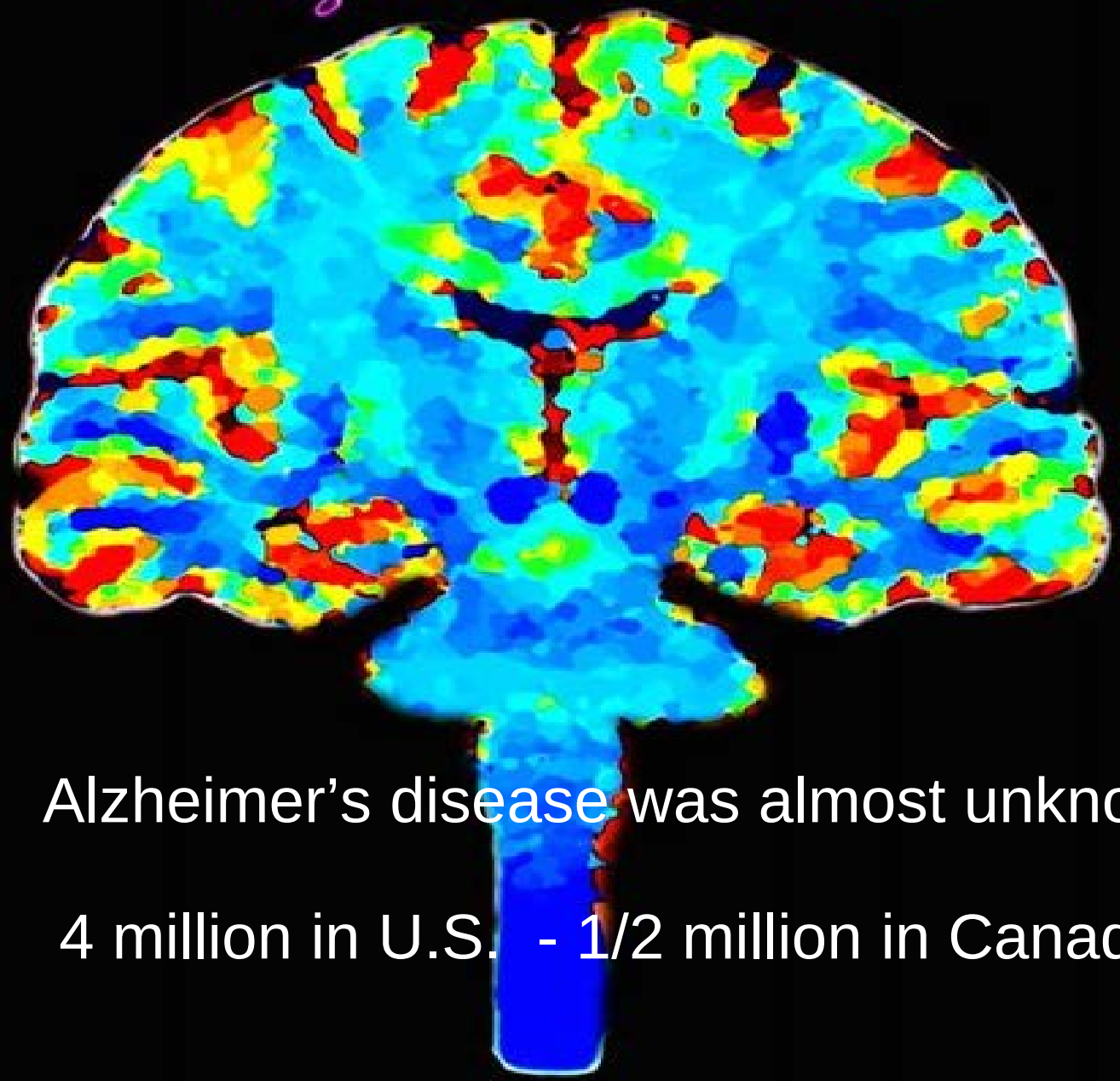
Silencing of Genes During Development and Aging



Epigenome and Cancer

- Epigenome is a system of molecular switches that target gene expression.
- The normalization of gene expression based on epigenetic mechanisms is a very attractive approach to control of cancer.

Alzheimers Disease

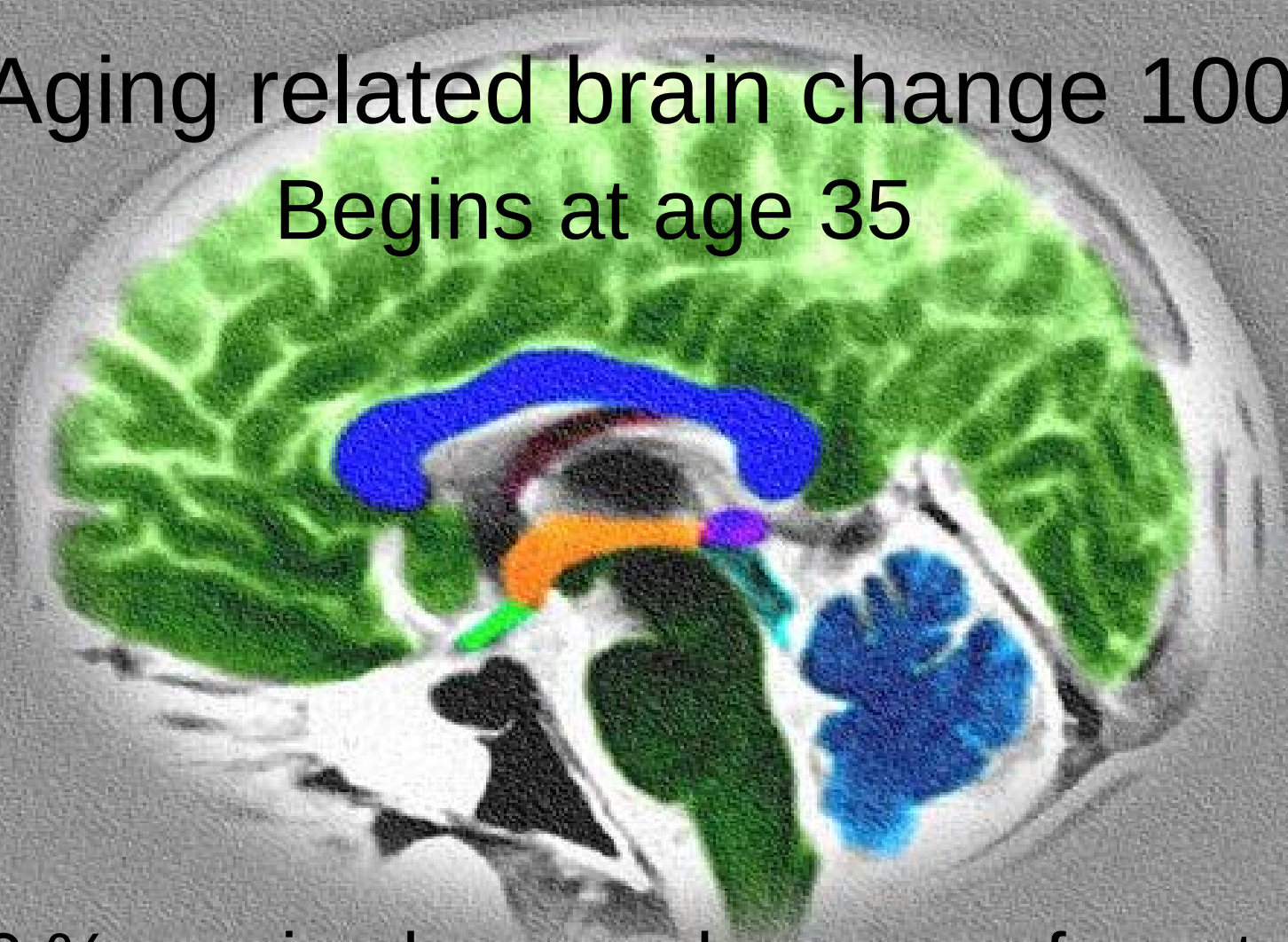


Alzheimer’s disease was almost unknown

4 million in U.S. - 1/2 million in Canada

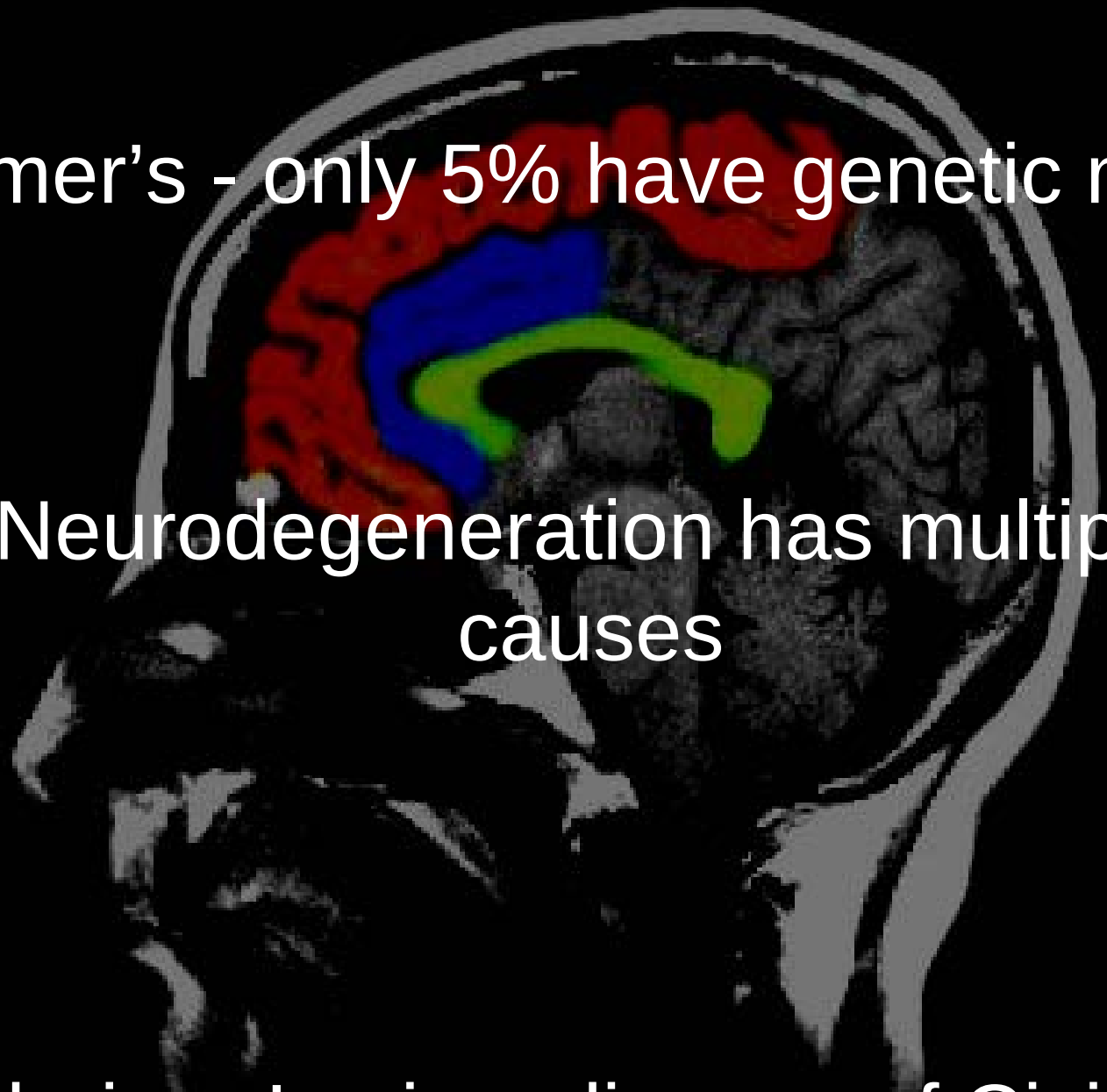
Aging related brain change 100%

Begins at age 35



50 % nursing homes - because of mental decline

Alzheimer’s - only 5% have genetic markers



Neurodegeneration has multiple causes

Alzheimer’s - is a disease of Civilization

Saving the Brain

Diet

Antioxidants

Mitochondrial and DNA Protection

Hormones

Exercise

Nitric Oxide Protection

Mental Exercise

Quiet Mind
Stress reduction

Vitamins and Minerals

Anti-Inflammatory

Brain Antioxidants

- ✓ Melatonin 1 - 12 mg
- ✓ Vitamin E 400 - 800 mg
- ✓ Phosphatidylserine 300 - 800 mg
- ✓ Piracetam 400 - 1200 mg
- ✓ Carnosine 50 - 200 mg
- ✓ Centrophenoxine 200 - 400 mg

Anti-inflammatory protection

- ✓ S-adenosylmethionine 400 -800 mg
- ✓ Docosahexanoic acid 500-1000 mg
- ✓ L - carnosine 500 - 1000 mg
- ✓ Curcumin 150 - 300 mg
- ✓ Xanthorrizol 150 - 300 mg
- ✓ Beta-tumerone 150 - 300 mg
- ✓ With piperine 200 - 500 mg
- ✓ Gingerol 200 - 400 mg
- ✓ Saffron stigma extract 200 - 400 mg
- ✓ Tryptergium extract 10 - 20 mg

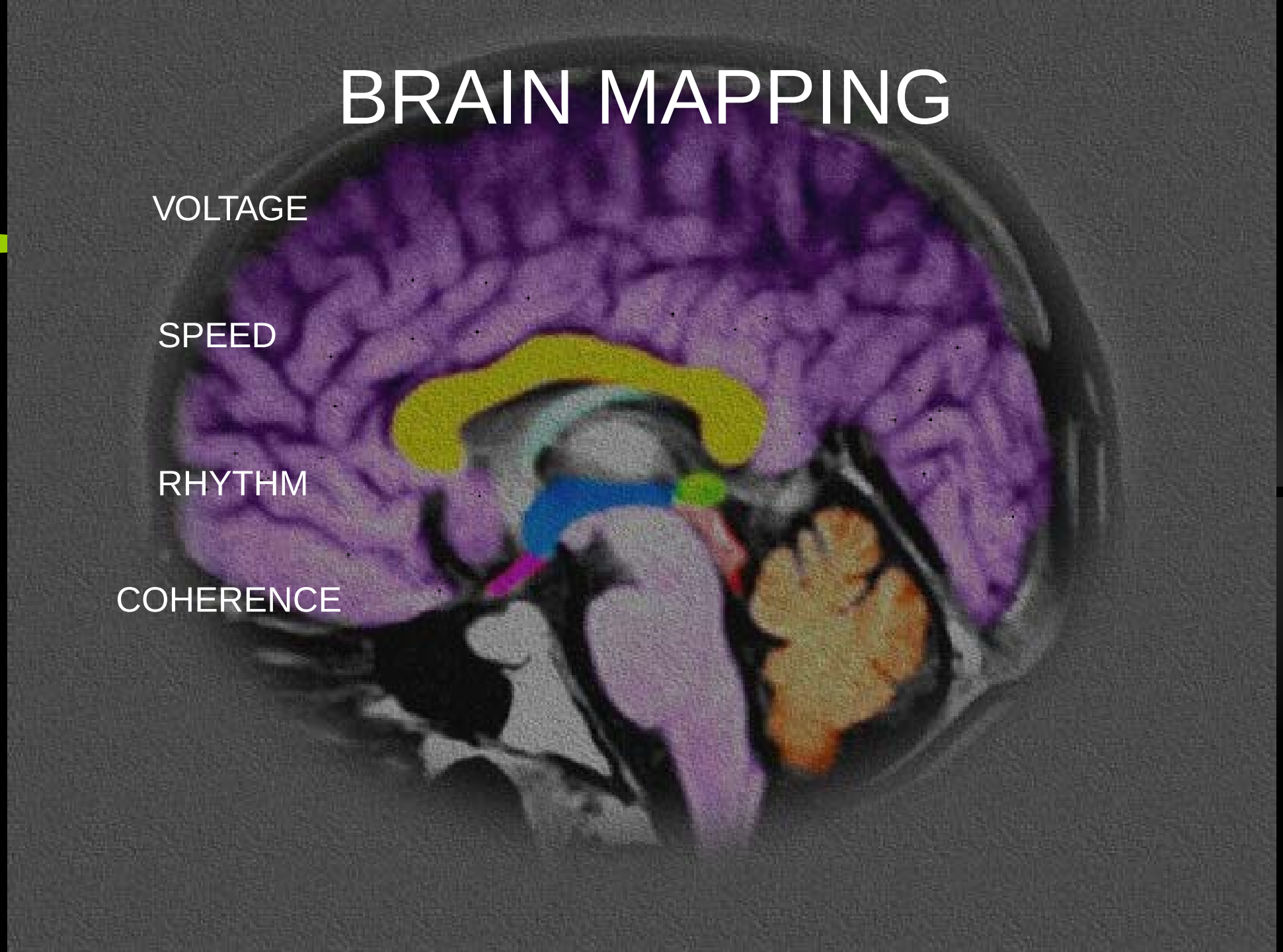
Nitric Oxide protection

- ✓ Docosahexanoic acid 500 - 1000 mg
- ✓ Gingko 120 - 240 mg
- ✓ Aspirin 150 - 650 mg
- ✓ Genestein 10 - 50 mg
- ✓ Allicin 50 - 150 mg
- ✓ Silymarin 150 - 480 mg
- ✓ Aminoguanidine 150 - 450 mg

Mitochondria & DNA Protectors

- ✓ Alpha lipoic acid 200-800 mg
- ✓ Acetyl-l-carnitine 500-2000 mg
- ✓ N-acetyl-cysteine 200-400 mg
- ✓ Idebenone/CoQ10 200-400mg
- ✓ Selegiline 1.0- -7.5 mg
- ✓ CDP-choline 500 - 1000 mg

BRAIN MAPPING



VOLTAGE

SPEED

RHYTHM

COHERENCE


Meet your Brain

Dopamine Nature: Voltage

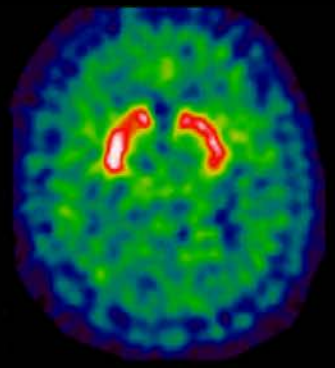
High voltage beta waves
Powerful
Reflexively fast
Quick-witted

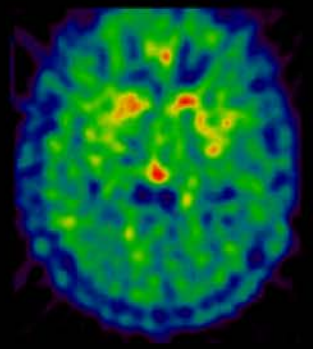
Thrive on Energy
Strong-willed
Know what you want
Highly rational
Comfortable with facts and figures
Less with emotions/feelings
Self critical
Poor response to criticism / negative feedback

You are tireless
Hyperalert
Require less sleep

Strategic thinking
Masterminding
Inventing
Problem Solving
High function under stress

Knowledge / Intellect
Play chess
Listen to podcasts
Brain games



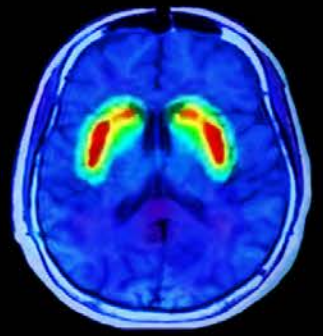


Normal

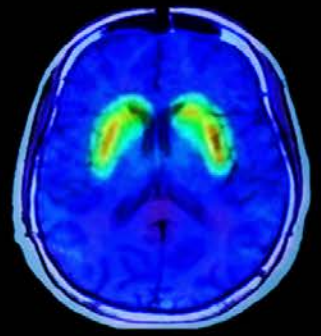
Parkinson's Disease

Low Dopamine

Normal

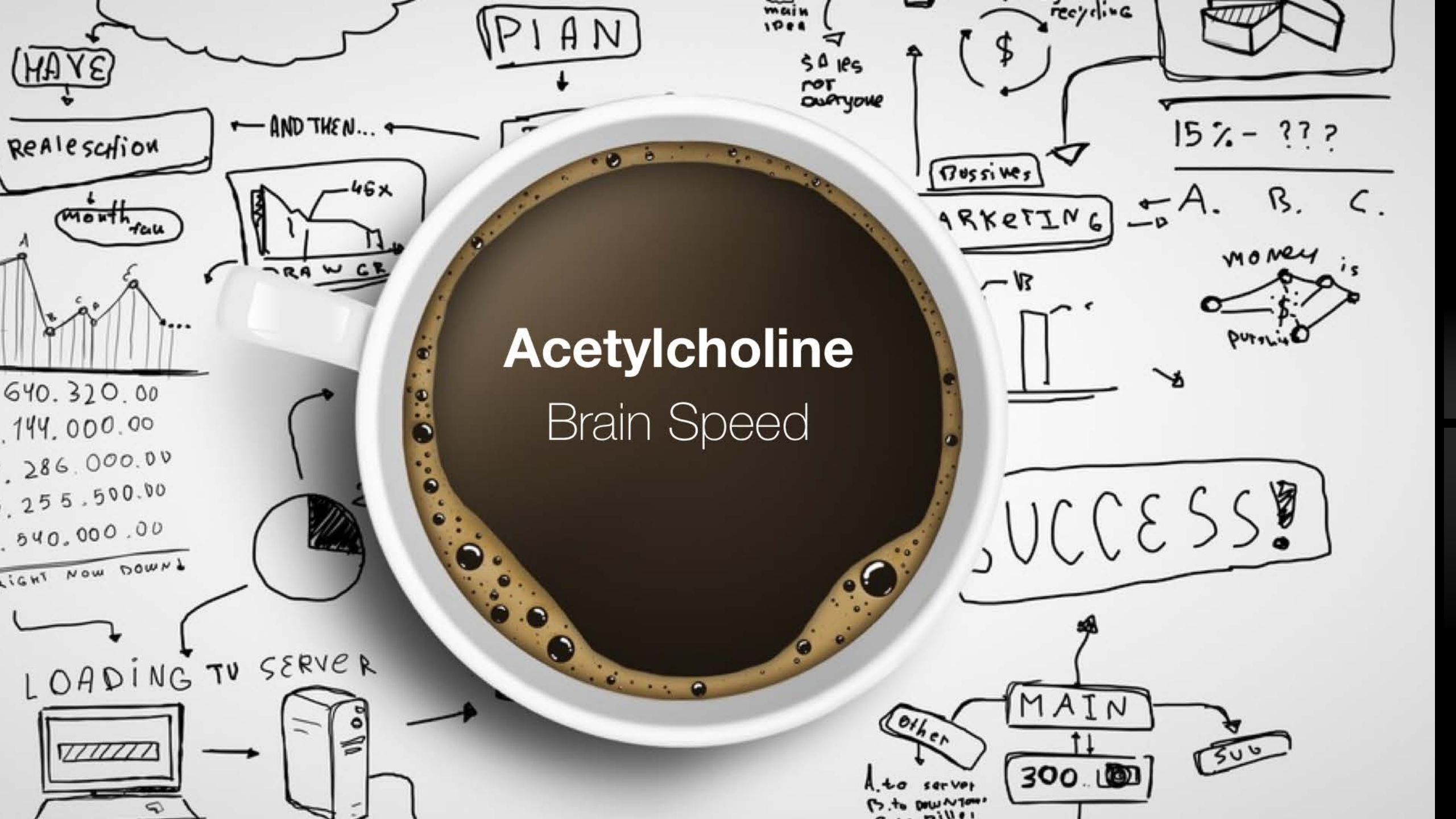


Obese



Voltage Deficit / Decay

1. Blues, Mild Hypertension, fatigue, cognitive deficit
2. Insomnia, Nicotine addiction, Panic disorder, Bipolar disorder
3. Obesity, OCD, Mild Depression
4. Moderate addiction, Major depression, various personality disorders
5. Toxic metal exposure, menopause, chronic fatigue
6. Multiple Sclerosis, Chronic depression,Diabetes
7. Parkinsons disease
8. ADD, Alzheimers disease
9. Schizophrenia, Drug abuse
10. Coma, Global brain disease



Acetylcholine

Brain Speed

Optimal Speed

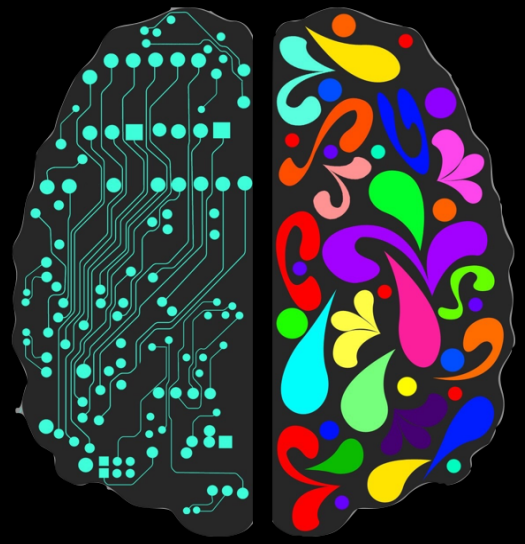
Human beings process:
Light - 50 milliseconds
Sound - 100 milliseconds
Thinks - 300 milliseconds

Once we think at 400 milliseconds we can no longer process logical thoughts.

We begin to lose our edge at age 40

Language
Intelligence
Attention
Highly creative
Open to new ideas

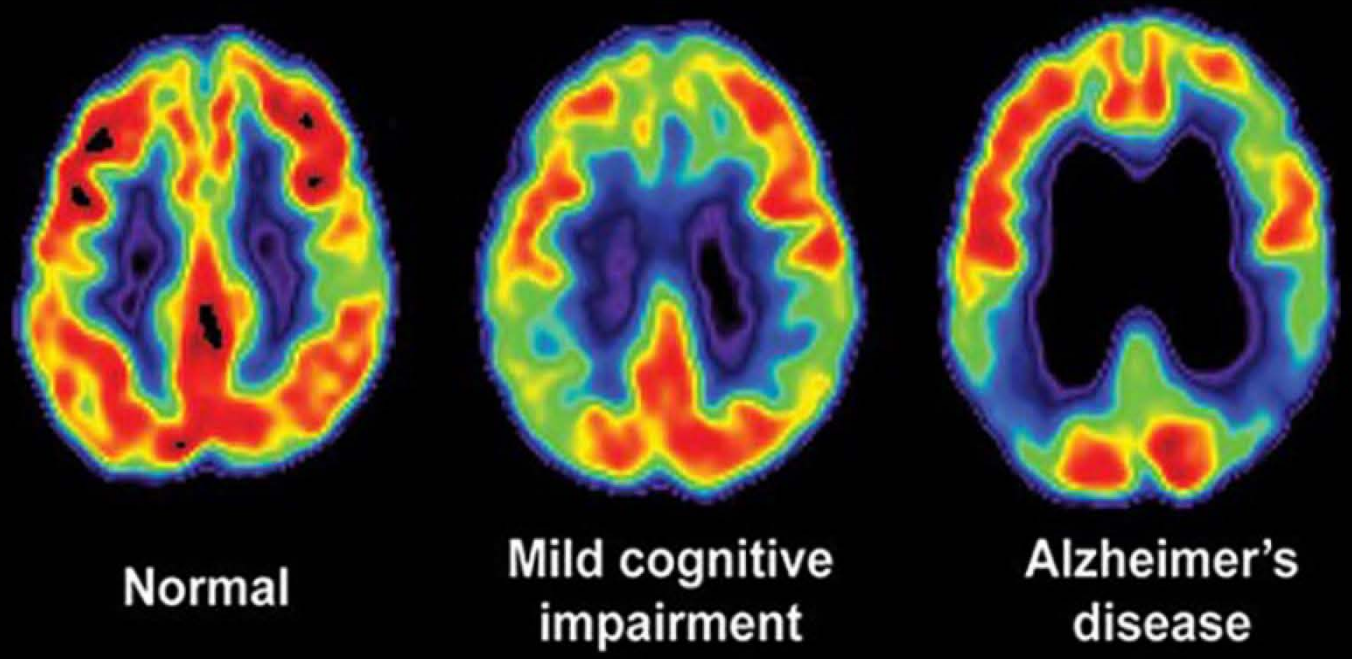
Quick Thinker
Intuitive
Innovative
Words
Ideas
Communication



Sociable
Charismatic
Authentic
Grounded
Eternal Optimist

Romantic
Altruistic
Lifelong Learner
Adventure

Acetylcholine Deficit



Acetylcholine : Brain Speed

275 m/sec - Overstimulation, cocaine / amphetamines

280 m/sec - Anxiety, Panic disorder

300-320 m/sec - NORMAL

320 m/sec - Hyperthyroidism, PTSD, Learning difficulties

340 m/sec - Fatigue, Hypothyroidism, Obesity

350 m/sec - ADD, Diabetes, Heart Disease, Hypertension

370 m/sec - Multiple Sclerosis, Epilepsy, Dementia

380 m/sec - Parkinson's disease, Schizophrenia

400 m/sec - Alzheimers, Dementia's

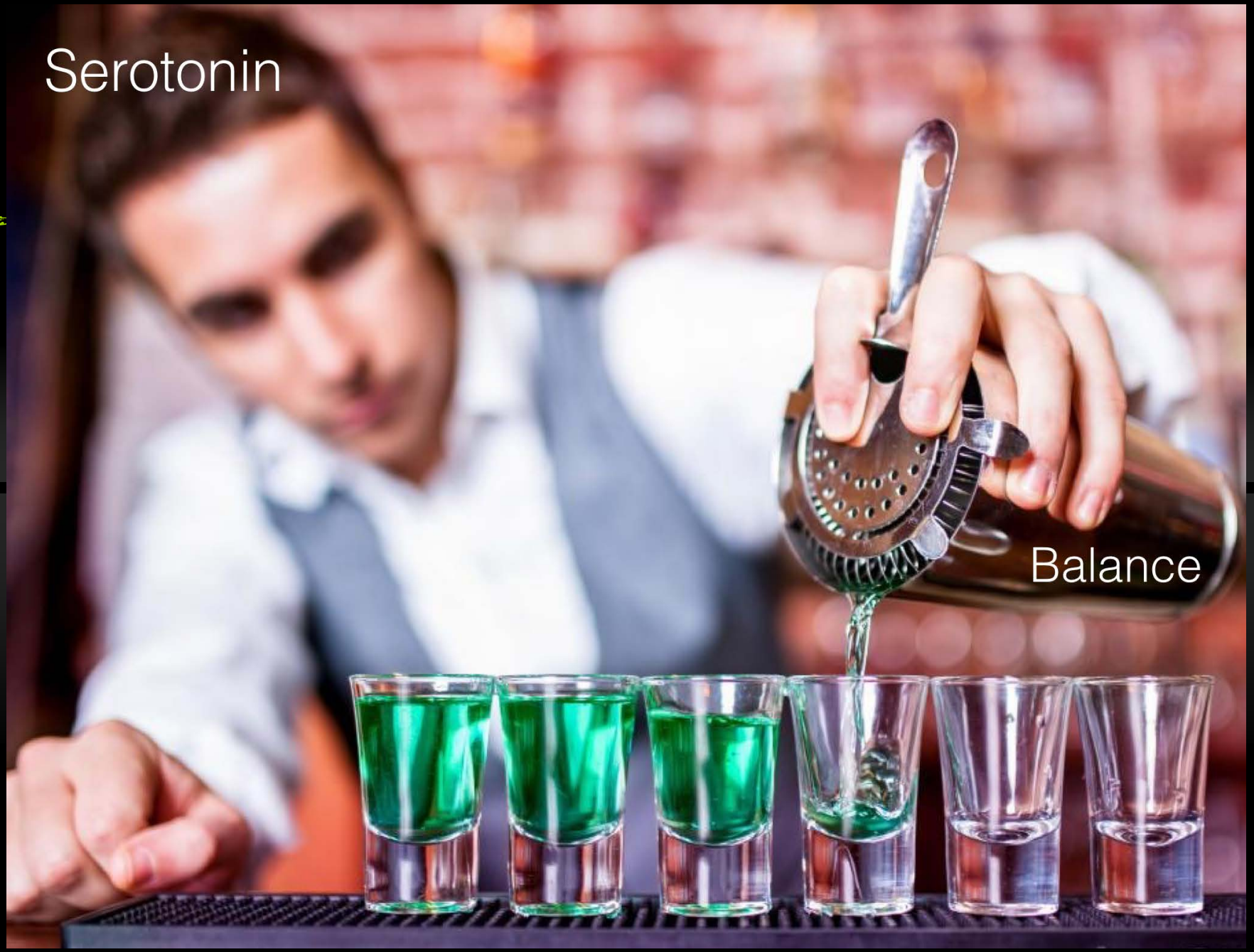
GABA

Rhythm

GABA Imbalance

GABA Deficit

1. Allergies, Light-headed, Muscle tension
2. Feelings of dread, clammy hands, lump in the throat
3. Dizziness, TMJ syndrome, Parathesia
4. IBS, Night sweats
5. Tachycardia, Mild pain syndromes, Anxiety disorder
6. Delusions, Chronic pain, Trigeminal Neuralgia
7. Insomnia, Neuropathy, Fibromyalgia
8. Severe heart arrhythmia's, Migraines
9. Severe Tinnitus, Manic Depression, Seizures
10. Marijuana abuse, alcoholism


Serotonin
Balance

Love to Play
Live in the moment
Impulsive
Coordinated

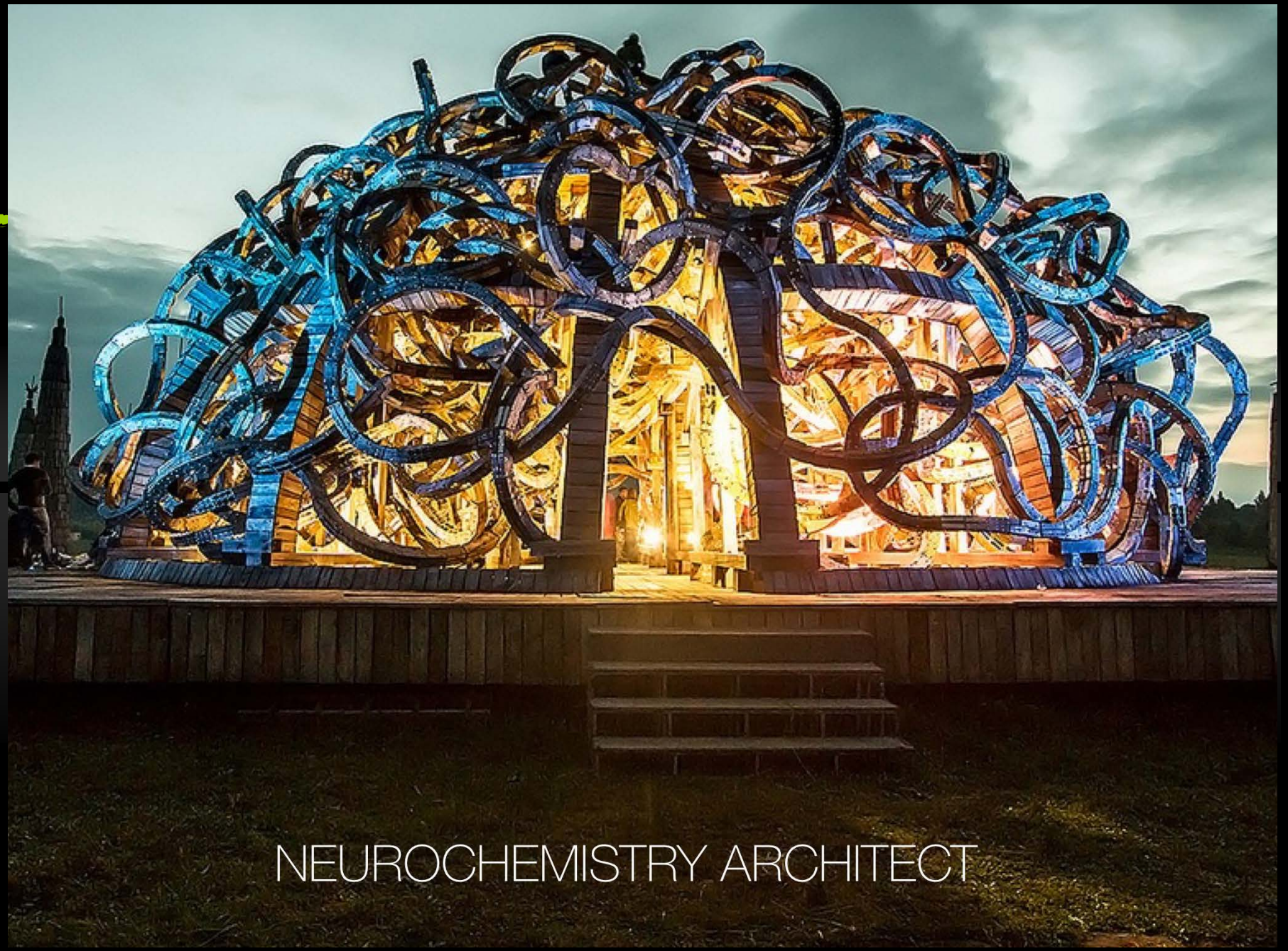
Hand-eye coordination
Flexibility
Crisis Management

High Motor skills
Receptive to stimuli
Mind / Body connection
Resourceful

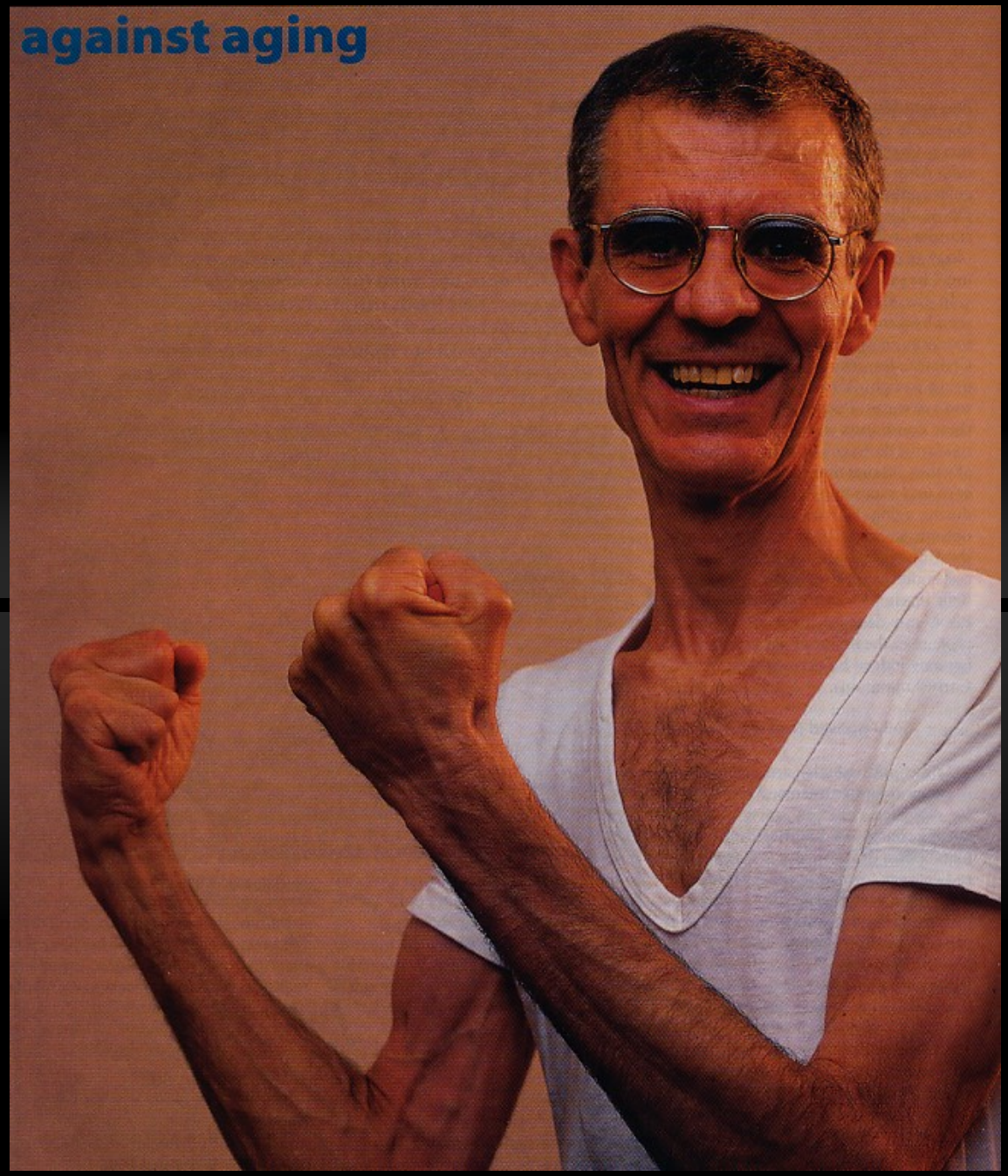
Professional Athletes
Ballerina's
Photographers
Surgeons
Chiropractors

Serotonin Deficit

1. Perfect Brain - complete left / right synchrony
2. Constipation, IBS
3. Nausea, Poor temperature regulation, blues
4. Mild Osteoarthritis, Hypertension, Overemotional
5. Insomnia, Poor coordination, Tinnitus, Dysthymia
6. OCD, Irregular heartbeat, PMS
7. Loner behaviours, Severe Osteo / Rheumatoid Arthritis
8. Addiction, Learning disabilities, Severe mood disorders
9. Alcoholism, Major depression, Hypersomnia
10. Stroke, No sleep for days, Schizoaffective disorder
11. Thought confusion, Extensive hallucinogen use, Schizophrenia

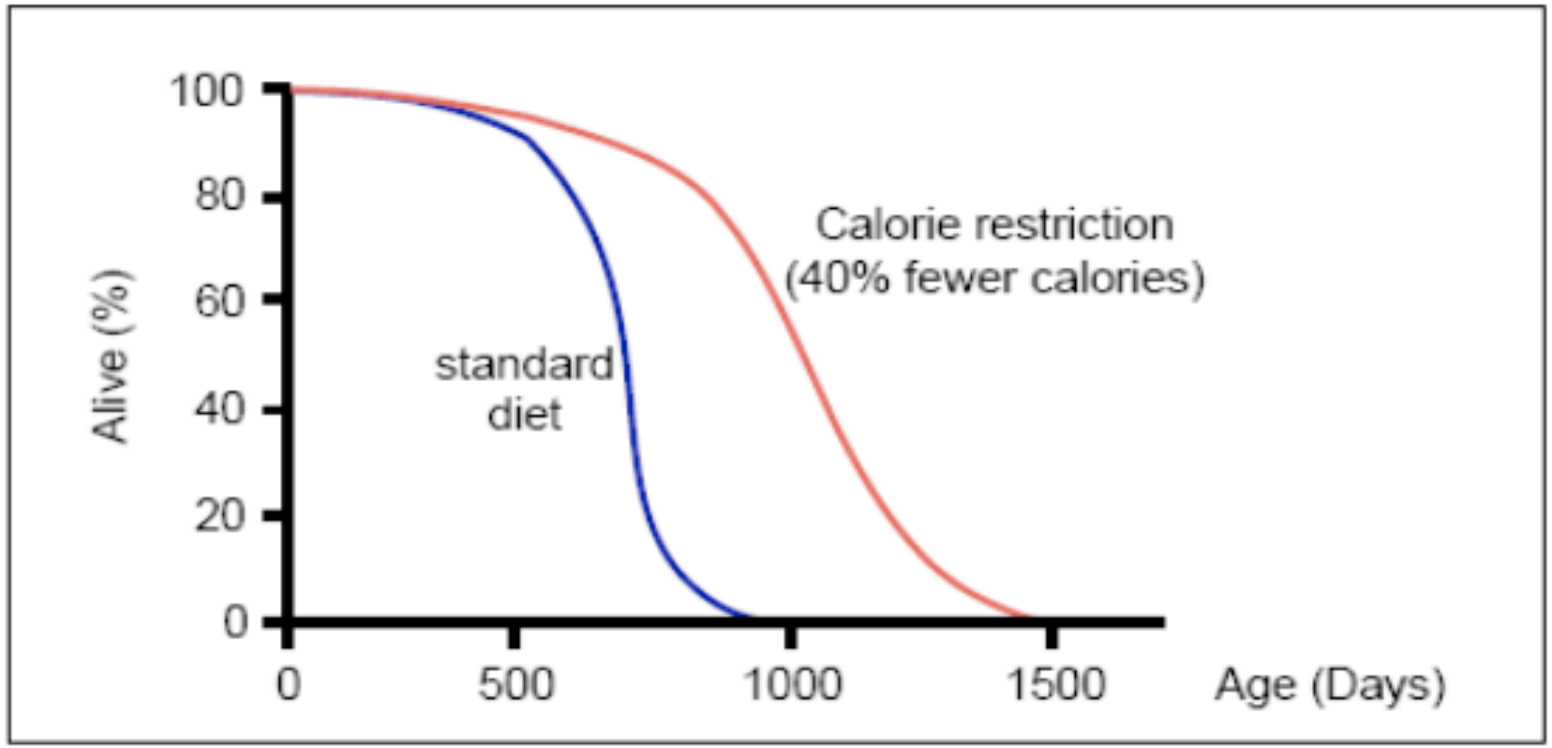

NEUROCHEMISTRY ARCHITECT


CAN WE SLOW AGING?
The Scientific Facts


against aging

Calorie Restriction Increases Longevity

McCay CM, et al: The affect of retarded growth upon the length of life span and upon the ultimate body size. J Nutr 10, 63-79, 1935.

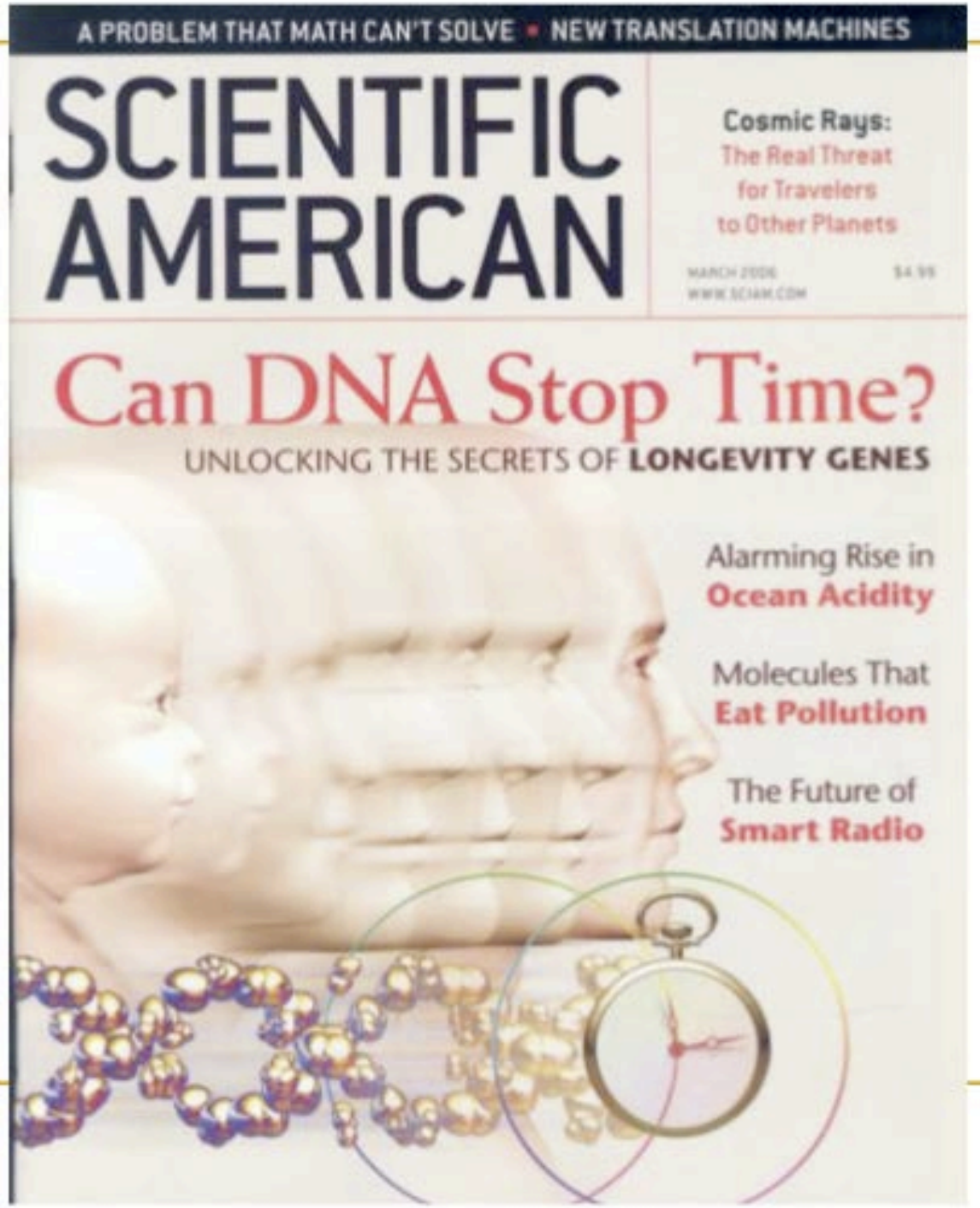


Calorie restriction prevents

- Vascular Disease
- Cancer
- Neurodegenerative Disease
- Diabetes
- Osteoporosis
- Kidney failure
- Cataracts

David Sinclair, Ph.D., Associate Professor of Pathology at Harvard Medical School and an associate member of the Harvard-MIT Broad Institute for Bioinformatics
Director of Biomedical Mechanisms of Aging Lab

David A. Sinclair, Toward a unified theory of caloric restriction and longevity regulation Mechanisms of Ageing and Development
Volume 126, Issue 9 , September 2005, Pages 987-1002


A PROBLEM THAT MATH CAN'T SOLVE • NEW TRANSLATION MACHINES
SCIENTIFIC AMERICAN
Cosmic Rays:
The Real Threat
for Travelers
to Other Planets
MARCH 2006
WWW.SCIAM.COM
$4.95
Can DNA Stop Time?
UNLOCKING THE SECRETS OF LONGEVITY GENES
Alarming Rise in
Ocean Acidity
Molecules That
Eat Pollution
The Future of
Smart Radio

Unlocking the Secrets of Longevity Genes

A handful of genes that control the body's defenses during hard times can also dramatically improve health and prolong life. Understanding how they work may reveal the keys to extending human life span while banishing diseases of old age

By David A. Sinclair and Leonard P. Guarente

"TAPPING THE POWER of longevity genes could alter the arc of a typical human lifetime: instead of youth and growth culminating in maturity then giving way to the decline of old age, a person might be able to retain the youthfulness he feels at 50 when he is 70, 90 or well past 100."

Scientific America, March 2006

THE SCIENCE OF AGING

Key antiaging medical advances:

- **1935:** Cornell scientists (McCay) report calorie restriction's antiaging effect in rodents.

- **1956:** University of Nebraska researcher (Harman) proposes that "free radicals" cause aging, indicating that antioxidants may slow it.

- **1989:** U.S. and British scientists (Walford) propose that calorie restriction triggers an evolutionarily ancient "starvation response" to slow aging.

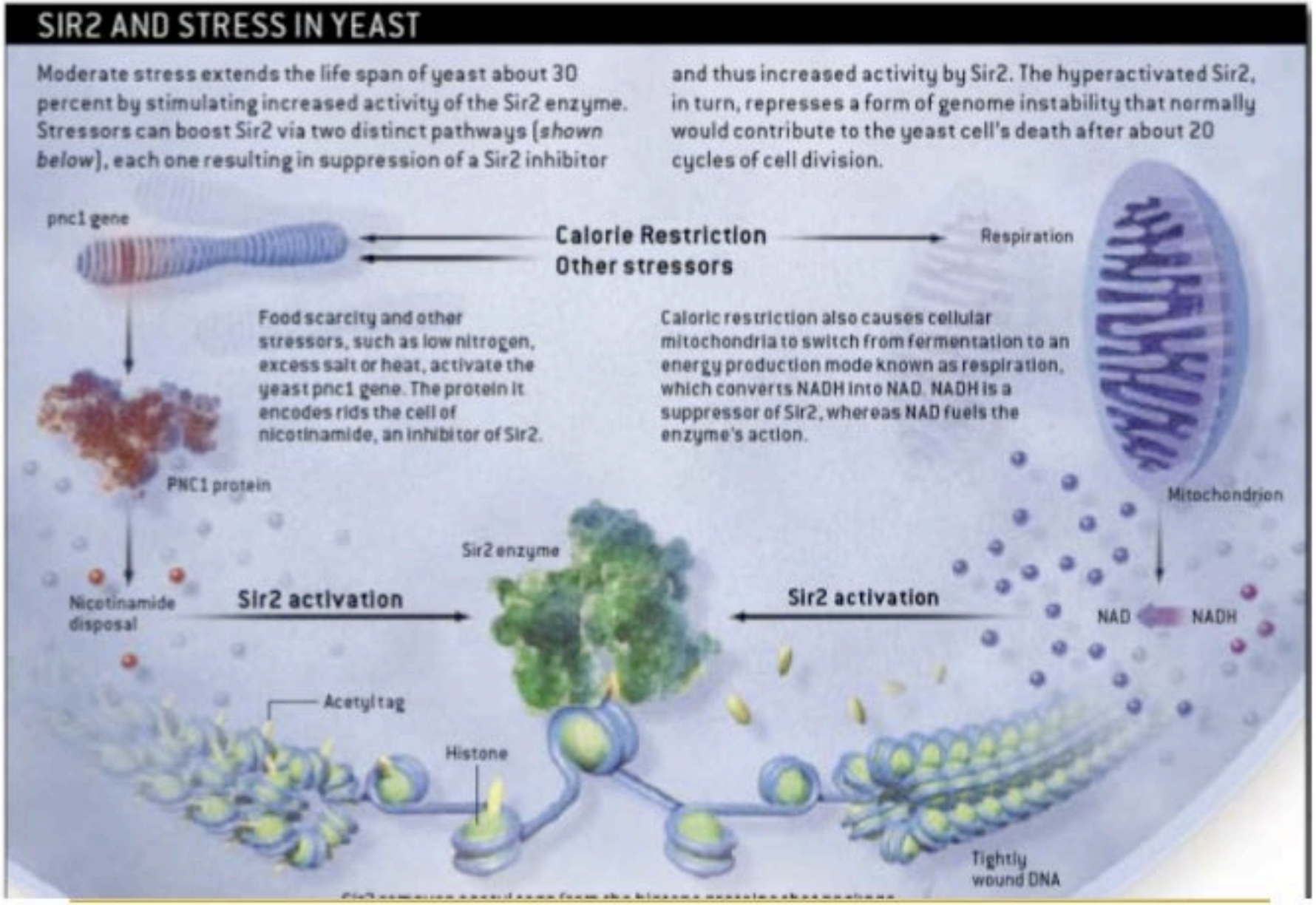
- **1992:** University of California at San Francisco researchers find a gene mutation that doubles life span in roundworms.

- **1996:** Southern Illinois University scientists report gene mutation that extends life span in mice.

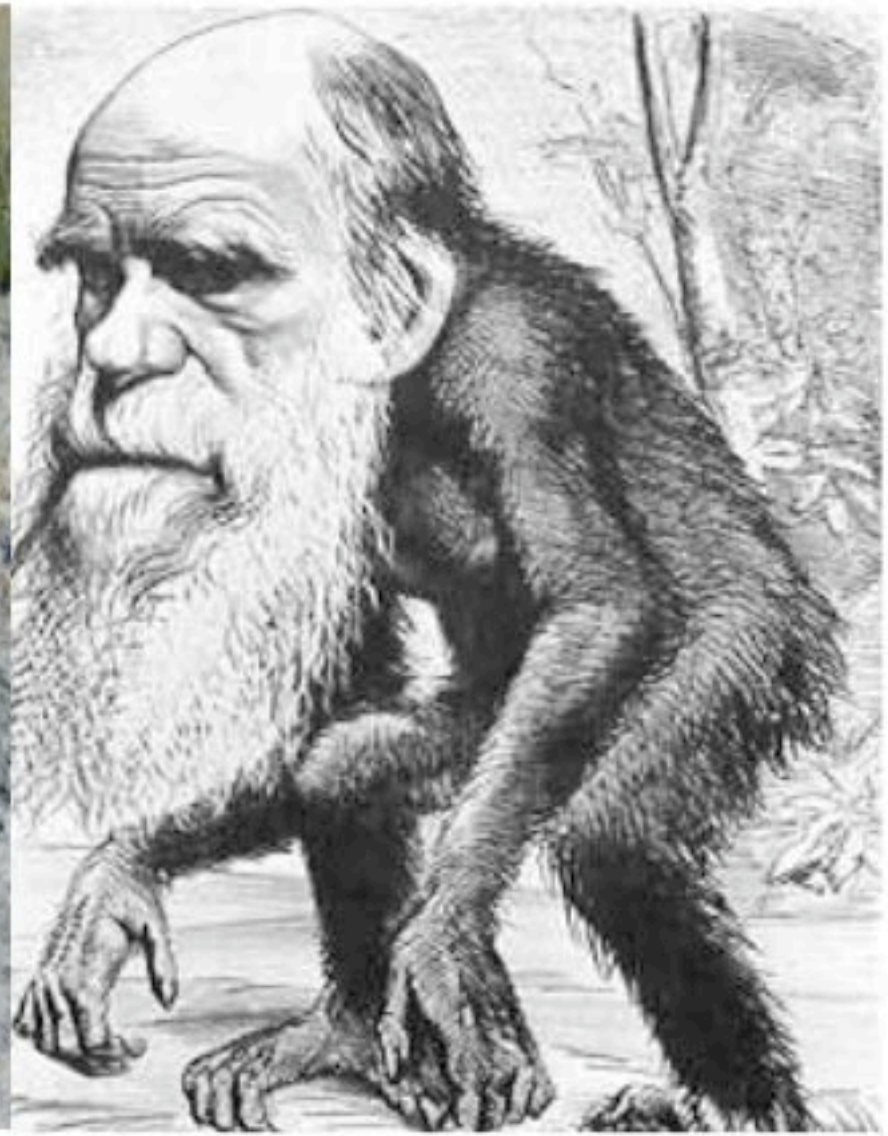
THE SCIENCE OF AGING

Key antiaging medical advances:

- **2000:** MIT's Leonard Guarente and colleagues report that "SIR" genes actuate calorie restriction's antiaging effects in yeast.
- **2003:** Harvard's David Sinclair and others report that resveratrol, a substance in red wine, extends yeast life span.
- **February 2006:** Italian scientists report resveratrol extends life span of a fish species
- **November 2006:** Sinclair resveratrol study on mice – "Have your cake and eat it too"
- **November 2006:** Auwerx – resveratrol can increase endurance and strength.



Scientific America, March 2006



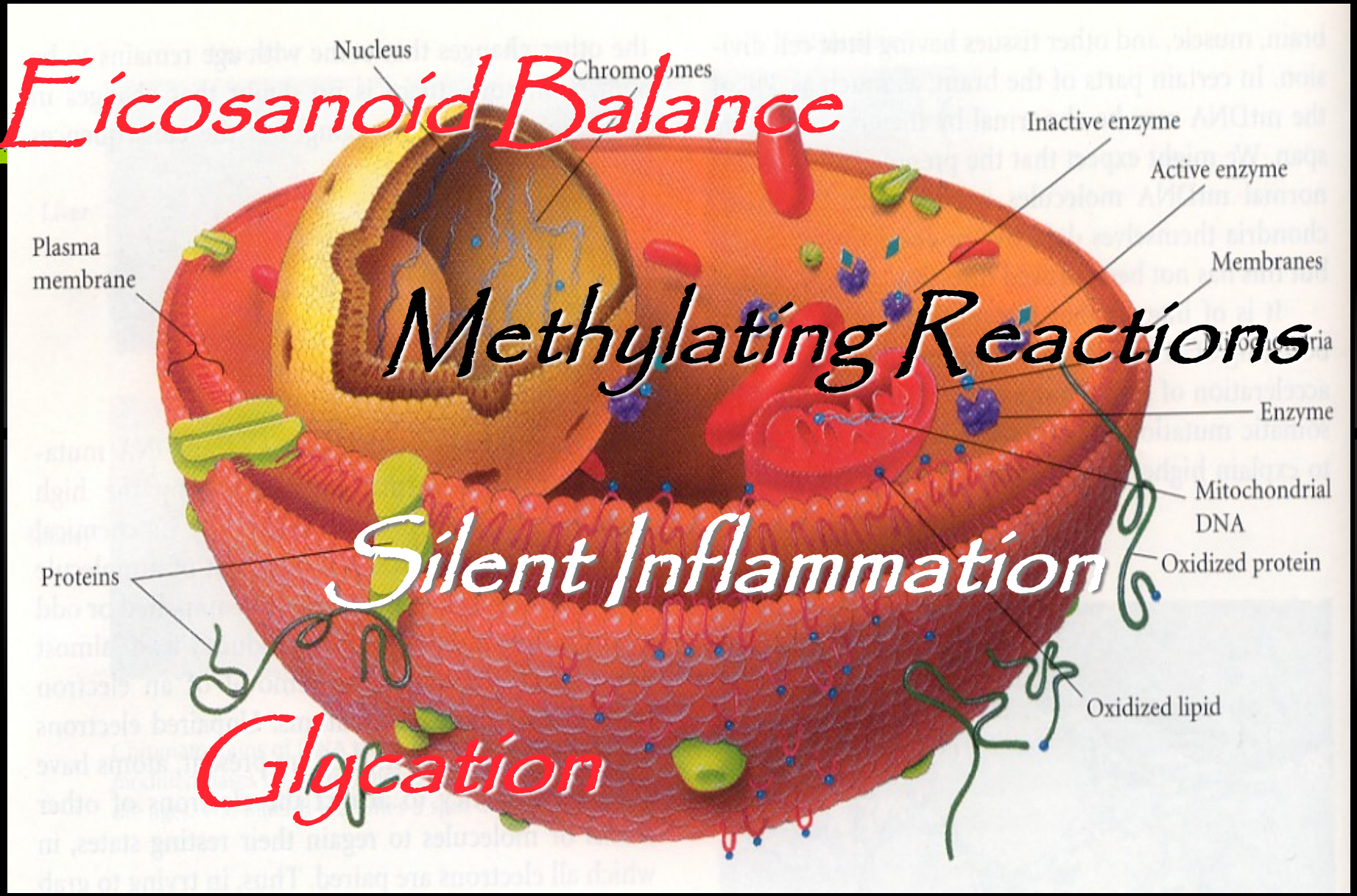
Simultaneous Evolution of Man and Plants

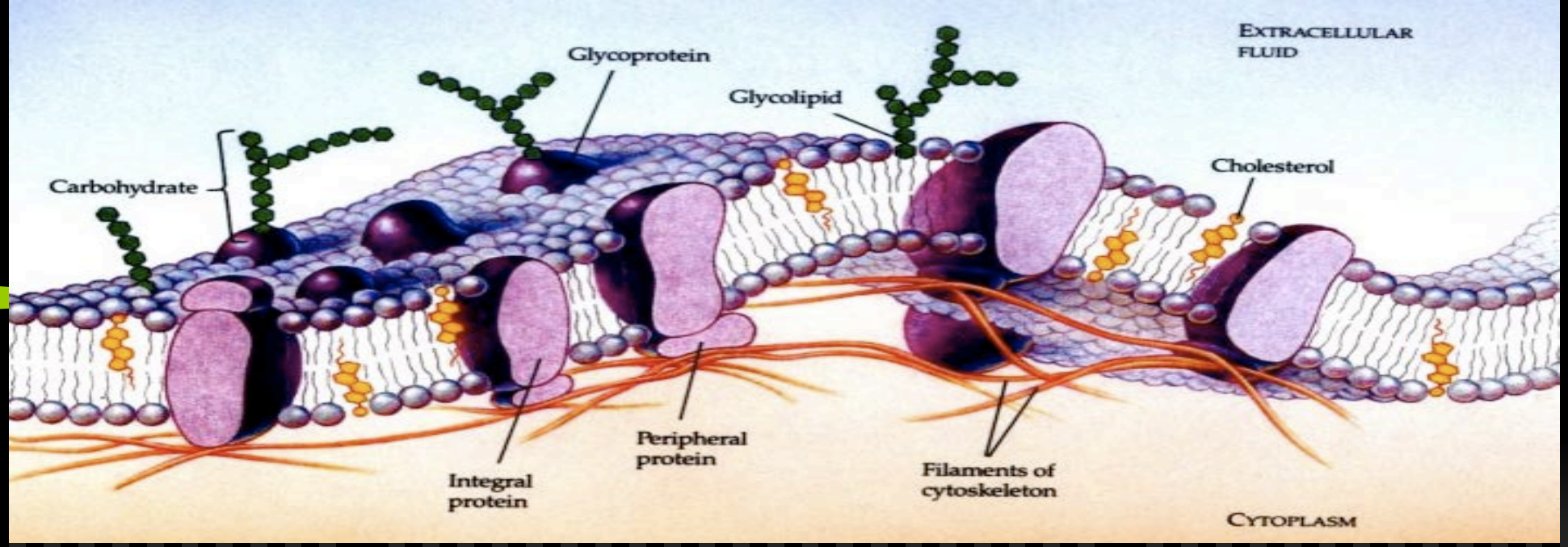
Stress

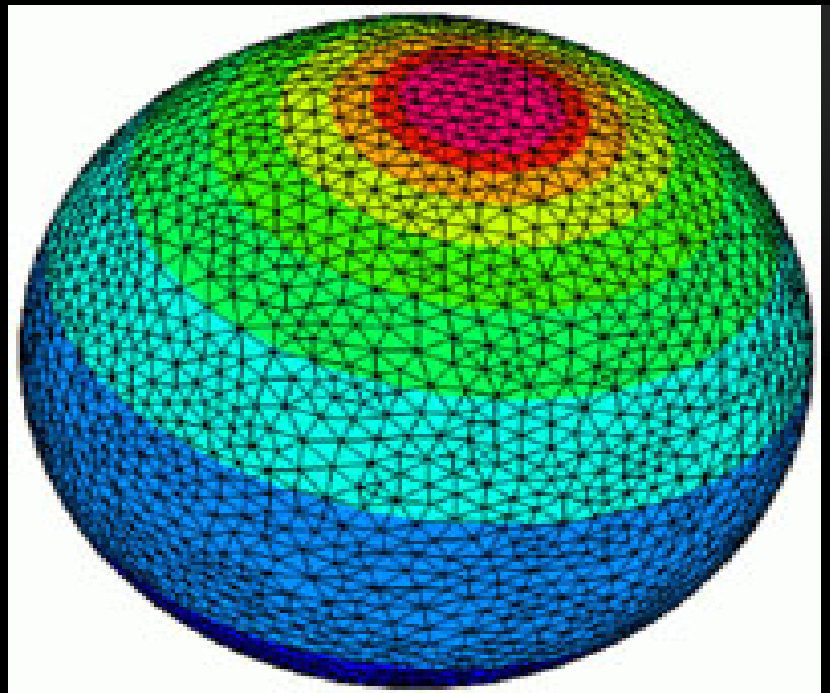
"That which does not kill me makes me stronger"

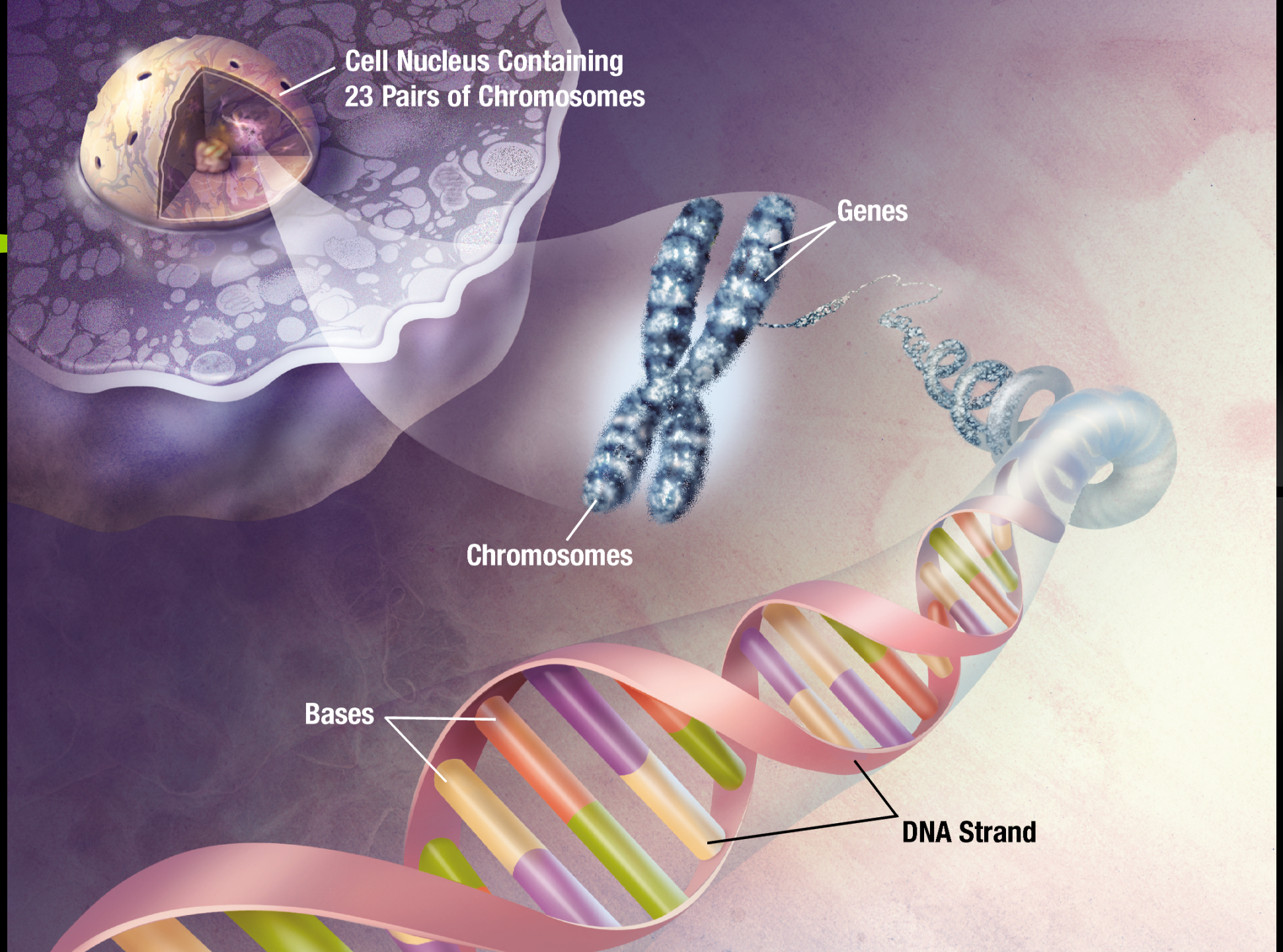
Friedrich Wilhelm Nietzsche
1844 –1900

ENHANCED FUNCTIONAL MEDICINE

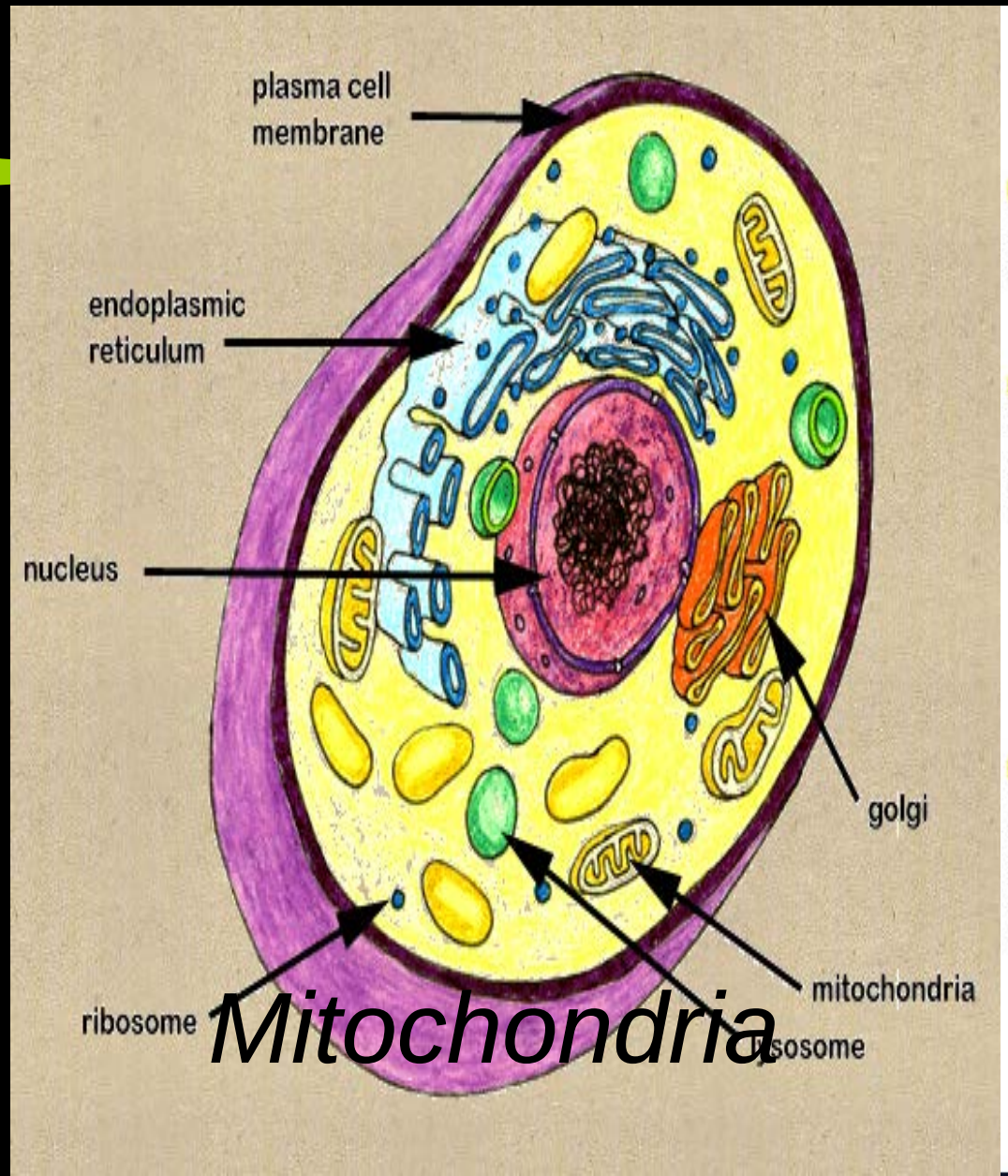


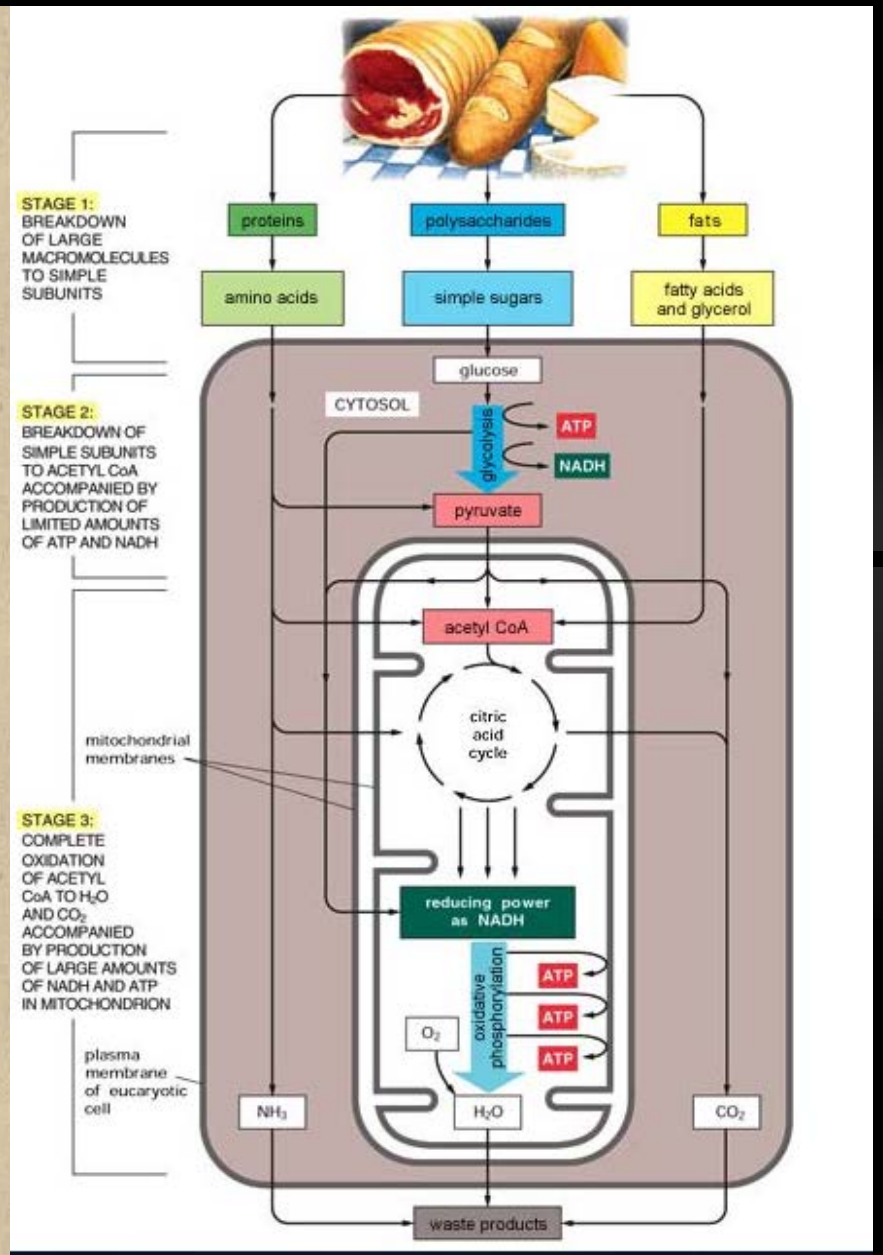

Extracellular fluid
Glycoprotein
Glycolipid
Carbohydrate
Cholesterol
Peripheral protein
Integral protein
Filaments of cytoskeleton
Cytoplasm




Cell Nucleus Containing
23 Pairs of Chromosomes
Genes
Chromosomes
Bases
DNA Strand

Burnout - Mitochondrial decay





LIVE TO 100

nd love every minute

Our long-life experts tell you how

LONGEVITY QUIZ P. 33

THE 50 MOST EXCITING TRIPS N THE WORLD

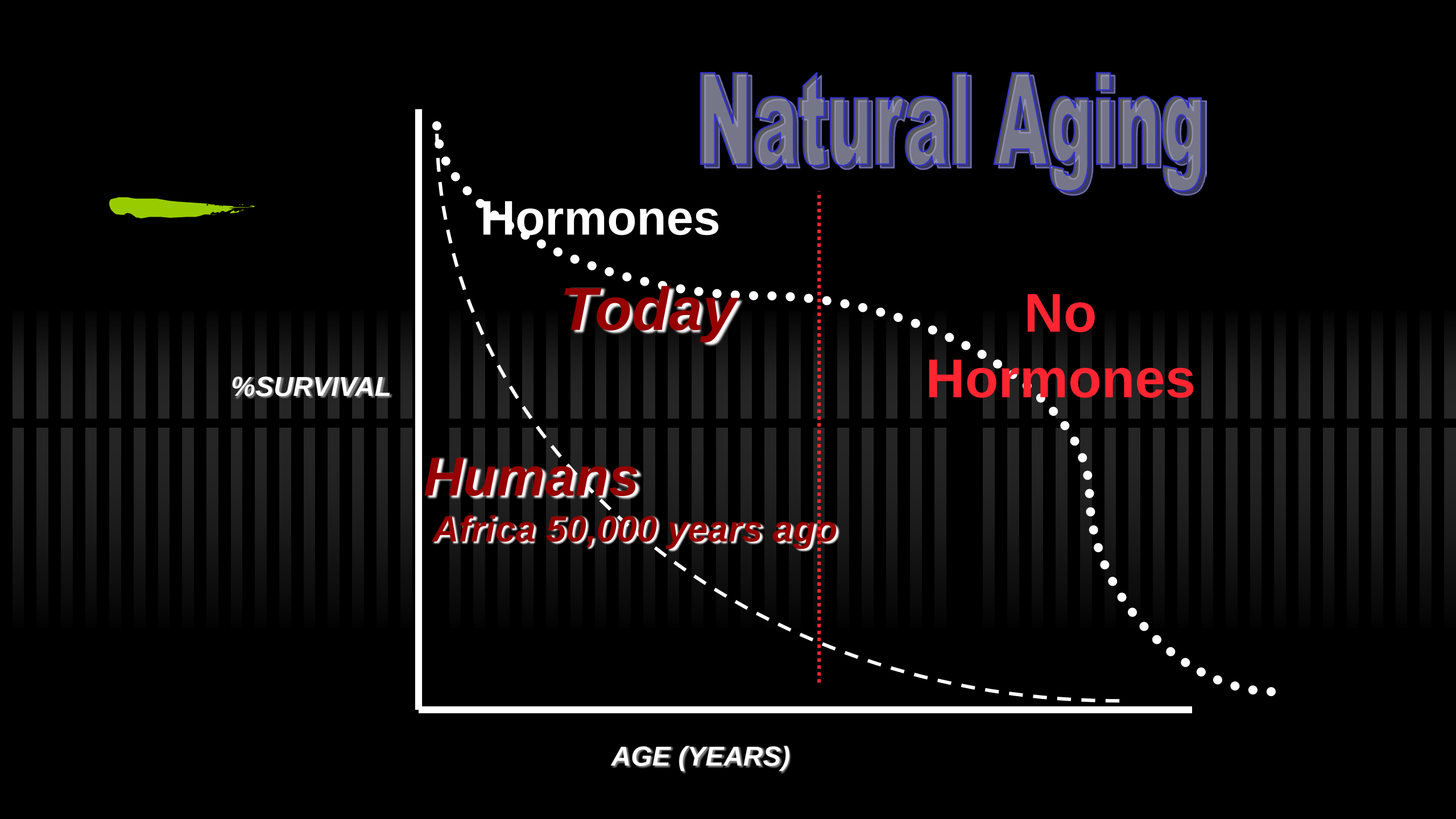
TALKING WITH JACK about *Tuesdays with Morrie*

Sophia's AGE-DEFYING Secrets

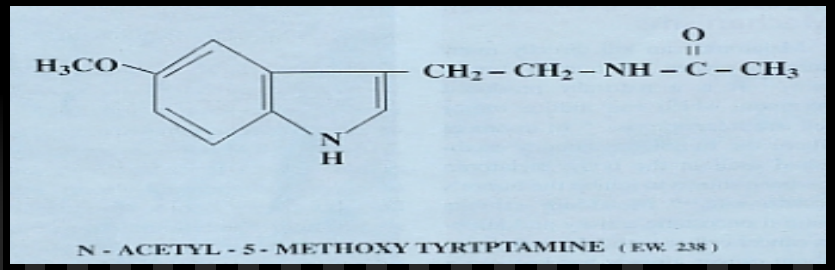
*BXBCJHE**********CAR-RT SORT**C-001


257-8426

Natural Aging



MELATONIN


H3CO
CH2 – CH2 – NH – C – CH3
O
N
H
N - ACETYL - 5 - METHOXY TYRTPTAMINE (EW. 238)

Melatonin

- ✓ Declines rapidly with usual aging
- ✓ Deficiency-disrupts cognition, immune function and emotions
- ✓ Synchrony of your other hormones
- ✓ Powerful antioxidant - especially brain
- ✓ Boosts immunity-effective in cancer, AIDS,
- ✓ Lowers cholesterol and protects heart
- ✓ Improves sleep and slows the decline of Growth Hormone with usual aging

A 15-25% reduction in melatonin leads to a significant stimulation of cancer growth

This has implications for:

1. Aged individuals where melatonin levels are depressed

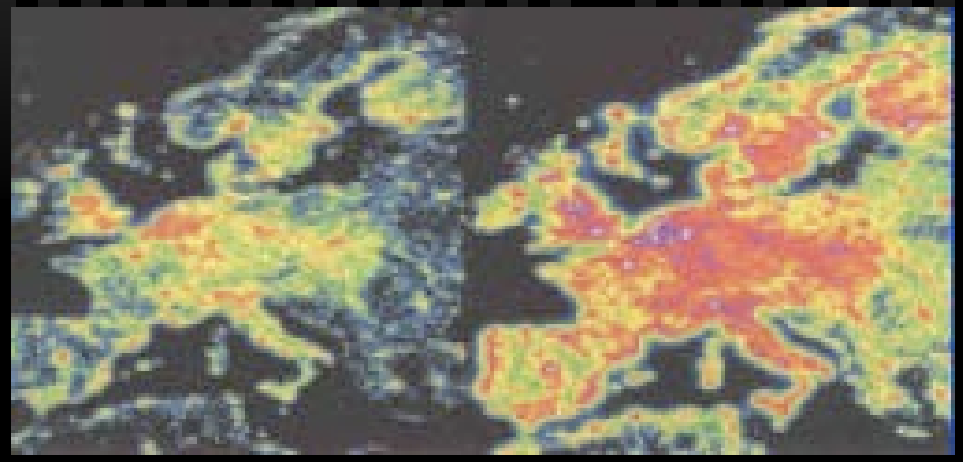
2. Individuals who have a genetically depressed melatonin rhythm

BRIGHT LIGHTS, BIG CANCER !

Light pollution around the world

Light pollution in Europe

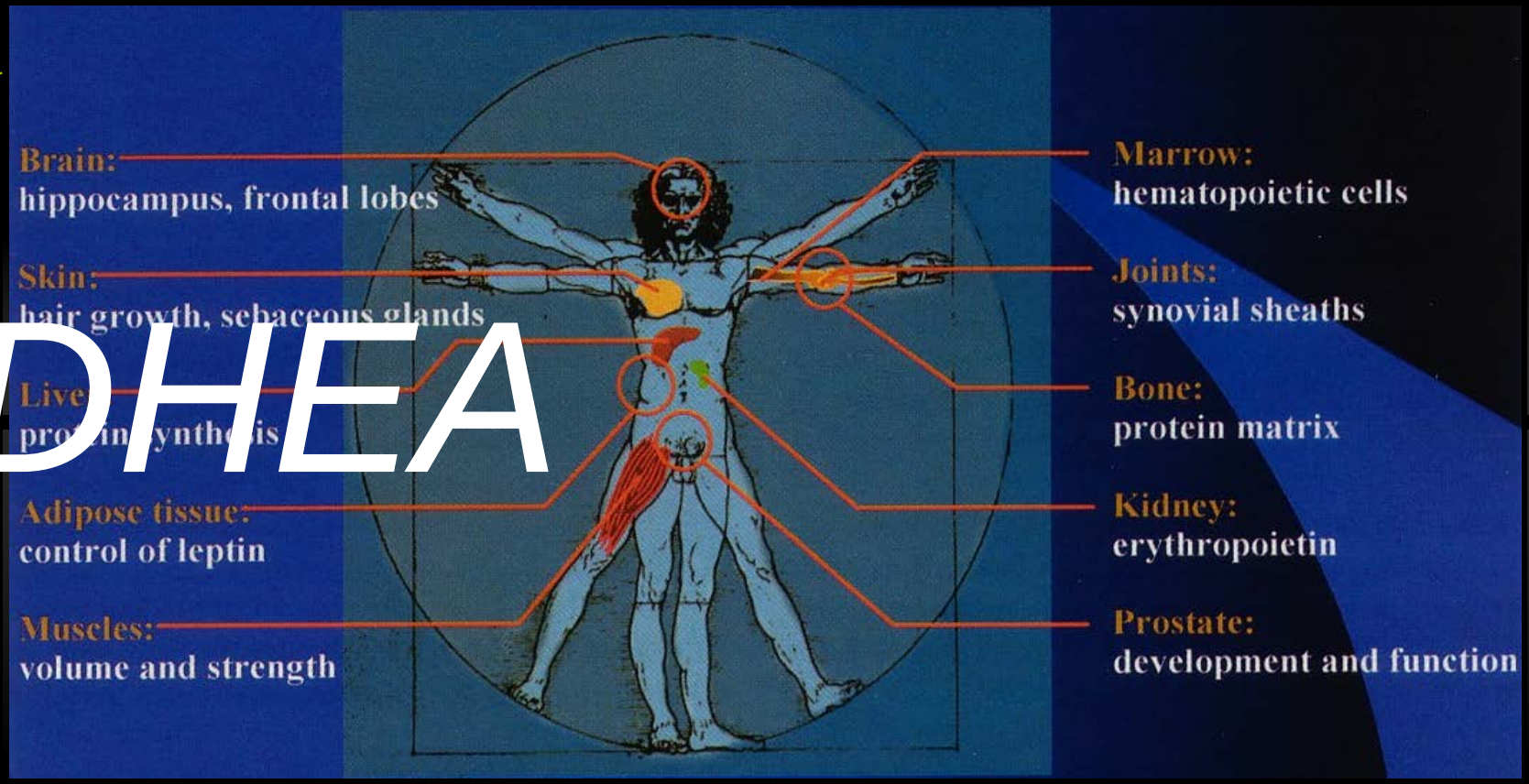
1998 2005



DHEA

- ✓ Known and used for more than 50 years
- ✓ DHEA hype-not the cure for aging
- ✓ Bandwagon 1986 men with naturally high levels had only half as many heart attacks and lived much longer
- ✓ It is an important intermediate in the hormonal cascade eg. Base material for testosterone and estrogen
- ✓ Called a mother steroid - most abundant steroid hormone - declines reliably with age
- ✓ Accurate predictor of aging, disease and death
- ✓ Key in Hormonal cascade and balances effects of stress - Cortisol
- ✓ Protects against cancer and heart disease when needed and combined environment of hormone replacement
- ✓ Boosts mood, muscle and immunity

DHEA


Brain:
hippocampus, frontal lobes
Skin:
hair growth, sebaceous glands
Live
protein synthesis
Adipose tissue:
control of leptin
Muscles:
volume and strength
Marrow:
hematopoietic cells
Joints:
synovial sheaths
Bone:
protein matrix
Kidney:
erythropoietin
Prostate:
development and function


COLUMBINE A YEAR LATER:
CAN YOU SPOT A KILLER KID?
STOCKS: IS THIS
DIP DIFFERENT?
TESTOSTERONE
It restores sex drive.
It boosts muscle mass.
And soon you can get it
as a gel. But it also
can be dangerous.
Is the edge worth it?

Natural Hormone Stimulation

Exercise

Diet & Supplements

Correct Sleep patterns

Meditation

Bio-identical Hormone Replacement

Balanced Lifestyle

Diets

Mediterranean Diet

Vitamins

Vegetable-Fruit Complex

Broccoli concentrate *(1.5 mg sulforaphane, 25 mg D-glucarate)*	500 mg
Raspberry extract (38.5% ellagic acid)	130 mg
Alpha carotene	89 mcg
Beta-carotene (natural D. Salina)	5000 IU
Bromelain	15 mg
Calcium D-glucarate	200 mg
Labiatae extract *(10-18 mg apigenin & apigenin glucoside/1.5-4.0 mg luteolin)*	300 mg
Lutein Complex (marigold) *(15.4 mg lutein/75 mcg zeaxanthin)*	300 mg
Milk thistle extract (85% silymarin)	100 mg
Lycopene (tomato extract)	3 mg
Citrus Bioflavonoids *(470 mg hesperidin/140 mg naringin & 10 mg naringenin 7-B-Rutioside)*	1300 mg
Acerola juice powder	300 mg
Bilberry (25% anthocyanidin)	30 mg
Grapeseed extract (Leucoselect®) *(95% proanthocyanidin)*	25 mg
Grape extract (Biovin®) *(84-93% proanthocyanidin index/46% polyphenol/500 ppm resveratrol)*	25 mg
Ginger extract (5% gingerols)	200 mg

Water-Soluble Vitamins and Enzymatic Activators

Vitamin C *as: ascorbic acid (Roche), calcium, magnesium & niacinamide, ascorbate, acerola juice powder*	2605 mg
Folic acid	800 mcg
Biotin	3000 mcg
Trimethylglycine (TMG)	100 mg
Vitamin B1 (thiamine HCL)(Roche)	125 mg
Vitamin B2 (riboflavin) (Roche)	50 mg
Supplying: Riboflavin 5-phosphate	2 mg
Vitamin B3 (niacinamide) (Roche)	100 mg
Vitamin B3 (niacin) (Roche)	75 mg
Vitamin B5 (calcium pantothenate)(Roche)	600 mg
Pantothene	5 mg
Vitamin B6 (pyridoxine HCL) (Roche)	100 mg
Pyridoxal 5-phosphate	2.5 mg
Vitamin B12 (cyanocobalamin)	250 mcg
Vitamin B12 (hydroxyl cobalamin)	250 mcg
Vitamin B12 (ion exchange resin)	100 mcg
PABA (paraaminobenzoic acid)	200 mg

Fat-Soluble Vitamins

Vitamin A (acetate)	5000 IU
Vitamin D3 (cholecalciferol)	400 IU
Ascorbyl Palmitate (fat-soluble vitamin C)	250 mg
Vitamin E (natural d-alpha tocopherol succinate)	400 IU

Amino Acid Complex

N-acetyl-cysteine	600 mg
Taurine	500 mg
L-Lysine	500 mg

Mineral Complex

Selenium (from Se-Methylselenocysteine)	100 mcg
Selenium (from selenomethionine—Nutrition 21)	50 mcg
Selenium (from sodium selenate)	50 mcg
Zinc (methionate) (OptiZinc)	20 mg
Zinc succinate	15 mg
Calcium	227 mg
Boron (amino acid chelate)	3 mg
Copper (amino acid chelate)	1 mg
Chromium (polynicotinate)	200 mcg
Potassium aspartate (11.4 mg elemental)	50 mg
Potassium chloride (26 mg elemental)	49 mg
Molybdenum (sodium molybdate)	125mcg
Manganese (gluconate)	3 mg
Iodine (potassium iodide)	75 mcg
Magnesium oxide (260.96 mg elemental)	400 mg
Magnesium citrate (15.66 mg elemental)	100 mg
Magnesium aspartate (19.62 mg elemental)	100 mg
Magnesium glycinate (11.74 mg elemental)	100 mg
Magnesium taurinate (7.83 mg elemental)	100 mg
Magnesium arginate (5.87 mg elemental)	100 mg
Magnesium ascorbate (3.40 mg elemental)	57.69 mg

Cholinergic Complex

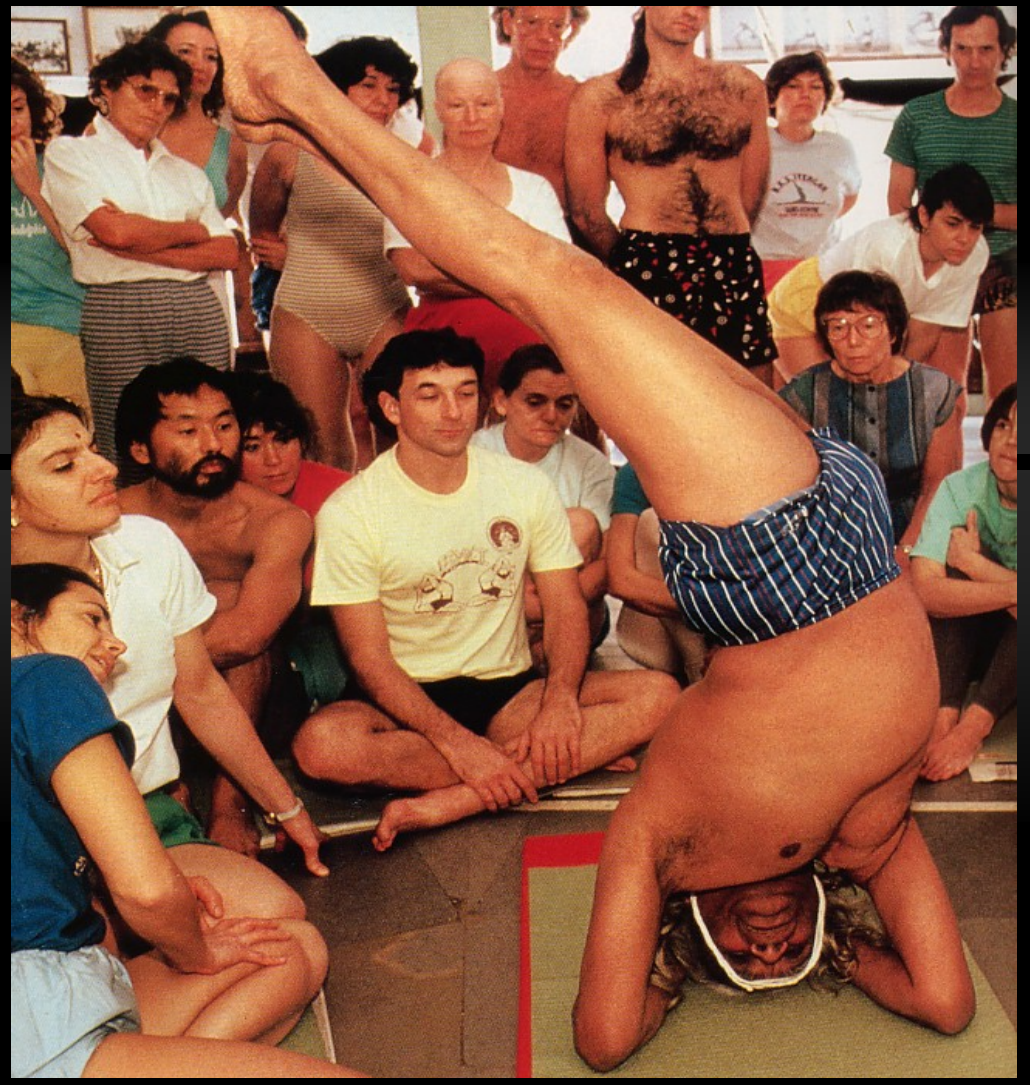
Choline (from bitartrate)	117.5 mg
Phosphatidylcholine	150 mg
Inositol	250 mg

Secondary Antioxidants

Dilaurylthiodipropionate	25 mg
Thiodiproprionic acid	25 mg

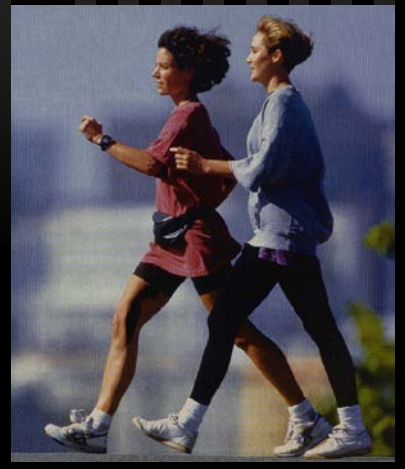
Exercise

BKS Iyengar



Foofie Harlan

Exercise




Personal Training
Pro Aerobic Workout
Systems

Whole Body Vibrational Training - Power Plate

Eicosanoid Balance

Methylating Reactions

Silent Inflammation

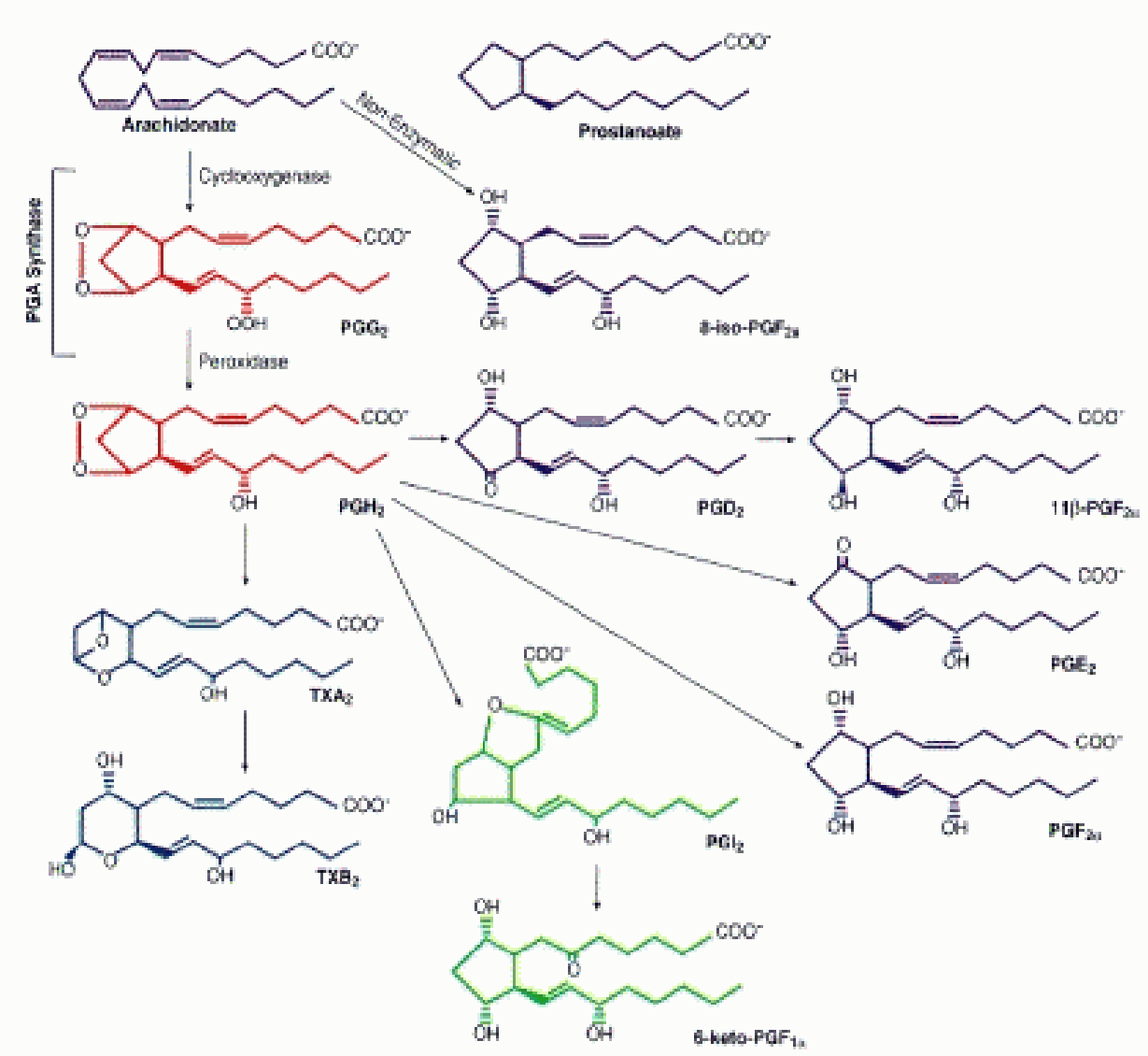
Glycation

Mitochondrial decay

What Are Eicosanoids?

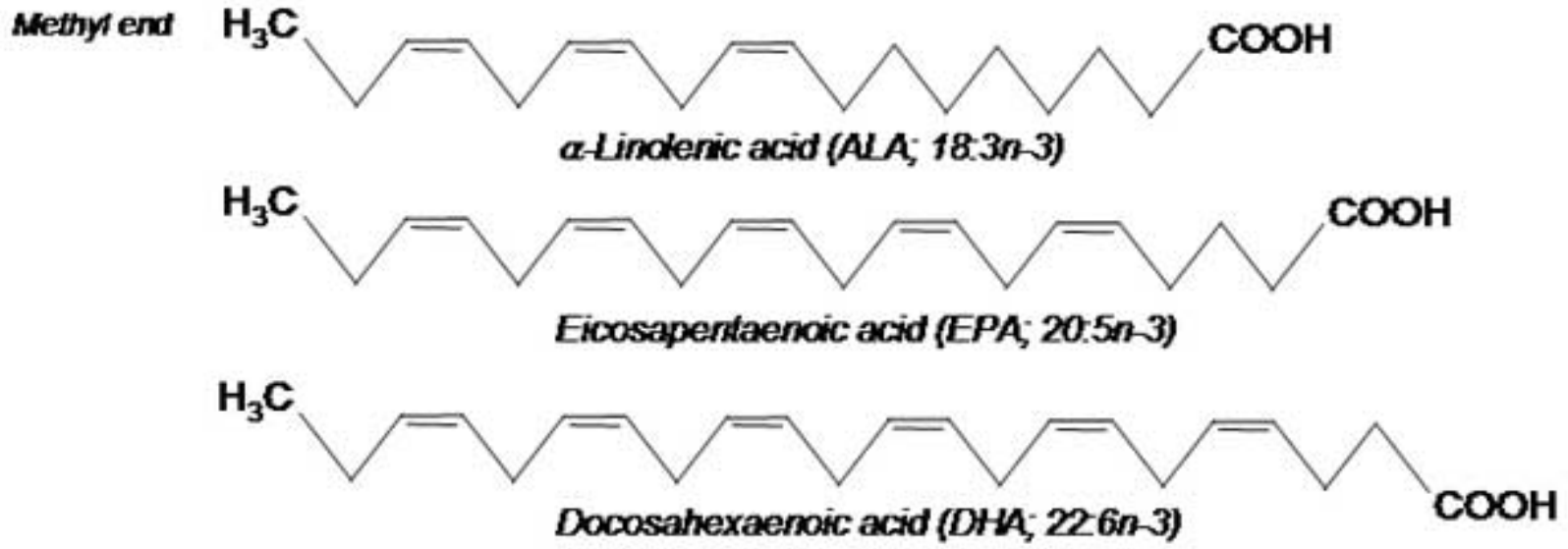
- ✓ Prostaglandins
- ✓ Thromboxanes
- ✓ Leukotrienes
- ✓ Hydroxylated Fatty Acids
- ✓ Lipoxins
- ✓ Aspirin-triggered lipoxins
- ✓ Prostamides
- ✓ Isoprostanoids

Eicosanoids



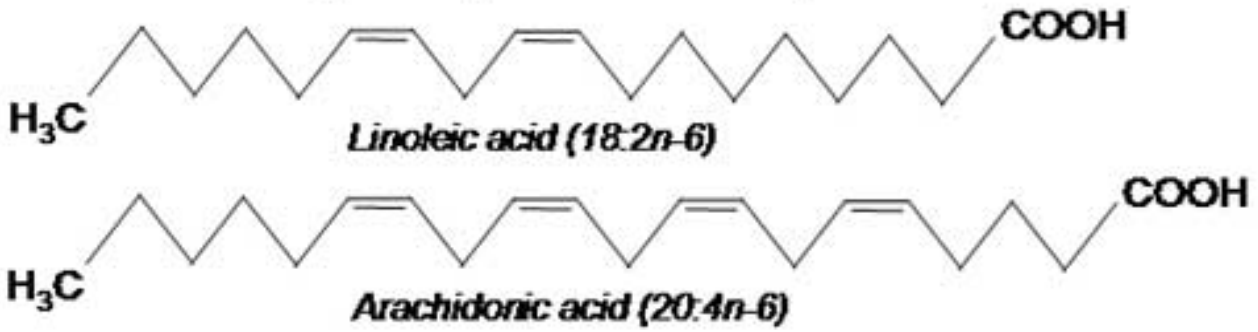
Structures of Omega-3 and Omega-6 Polyunsaturated Fatty Acids

Omega-3 Polyunsaturated Fatty Acids

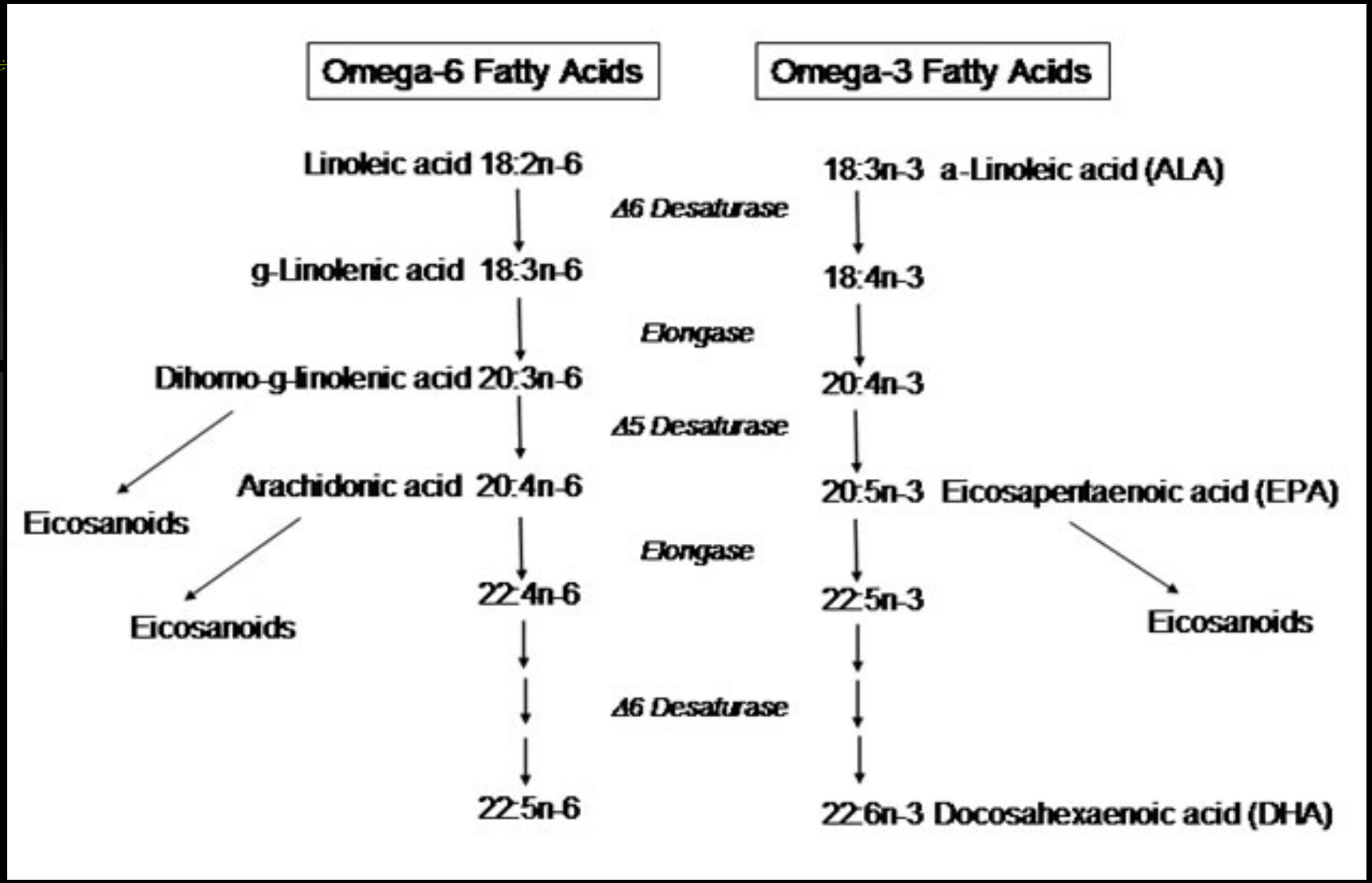


Omega 3 and 6 Fatty Acids

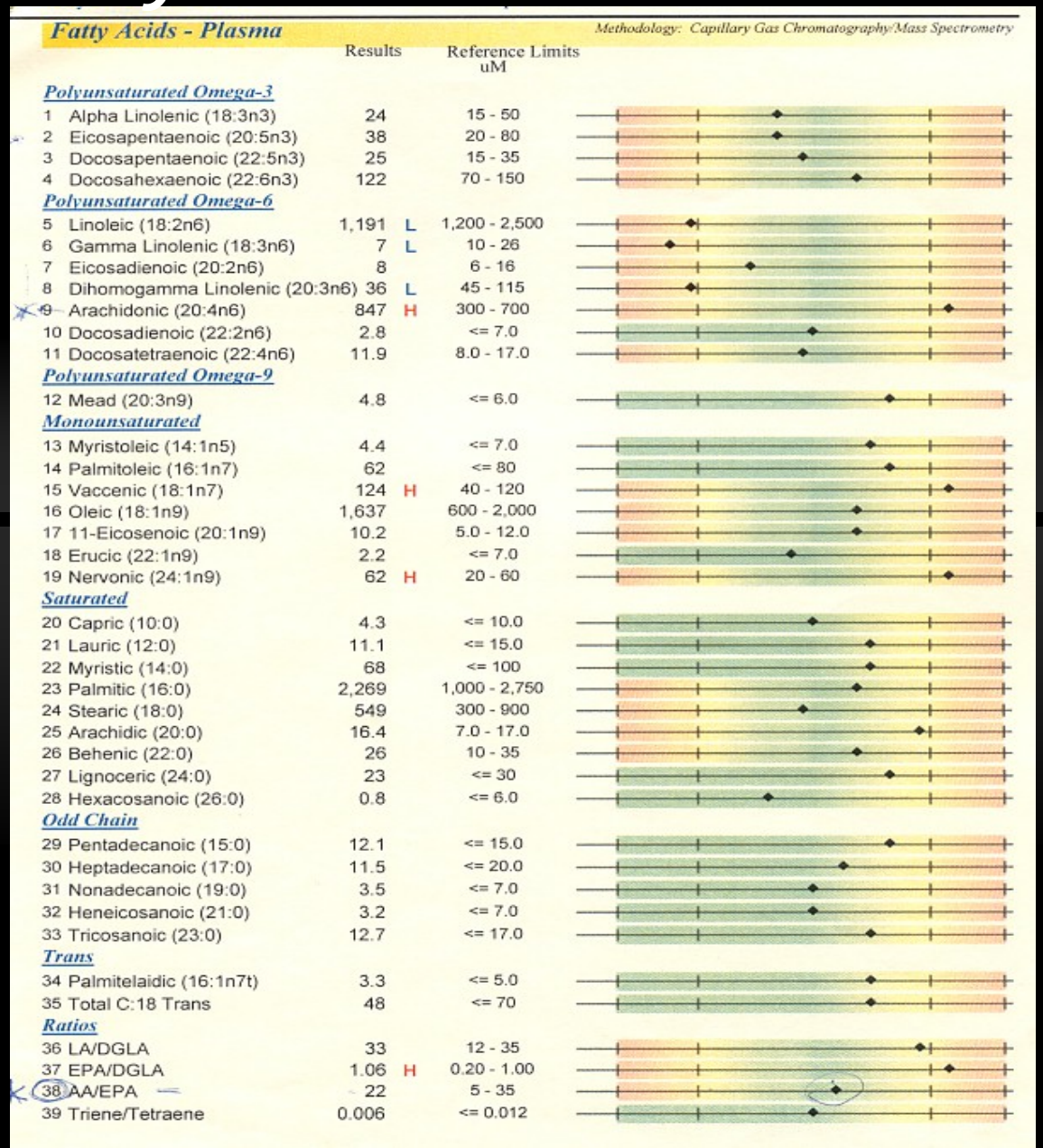
Omega-6 Polyunsaturated Fatty Acids



Biosynthesis of Omega Fatty Acids



Ion Fatty Acids



Fatty Acids - Plasma

Methodology: Capillary Gas Chromatography/Mass Spectrometry

		Results		Reference Limits uM
Polyunsaturated Omega-3				
1	Alpha Linolenic (18:3n3)	24		15 - 50
2	Eicosapentaenoic (20:5n3)	38		20 - 80
3	Docosapentaenoic (22:5n3)	25		15 - 35
4	Docosahexaenoic (22:6n3)	122		70 - 150
Polyunsaturated Omega-6				
5	Linoleic (18:2n6)	1,191	L	1,200 - 2,500
6	Gamma Linolenic (18:3n6)	7	L	10 - 26
7	Eicosadienoic (20:2n6)	8		6 - 16
8	Dihomogamma Linolenic (20:3n6)	36	L	45 - 115
9	Arachidonic (20:4n6)	847	H	300 - 700
10	Docosadienoic (22:2n6)	2.8		<= 7.0
11	Docosatetraenoic (22:4n6)	11.9		8.0 - 17.0
Polyunsaturated Omega-9				
12	Mead (20:3n9)	4.8		<= 6.0
Monounsaturated				
13	Myristoleic (14:1n5)	4.4		<= 7.0
14	Palmitoleic (16:1n7)	62		<= 80
15	Vaccenic (18:1n7)	124	H	40 - 120
16	Oleic (18:1n9)	1,637		600 - 2,000
17	11-Eicosenoic (20:1n9)	10.2		5.0 - 12.0
18	Erucic (22:1n9)	2.2		<= 7.0
19	Nervonic (24:1n9)	62	H	20 - 60
Saturated				
20	Capric (10:0)	4.3		<= 10.0
21	Lauric (12:0)	11.1		<= 15.0
22	Myristic (14:0)	68		<= 100
23	Palmitic (16:0)	2,269		1,000 - 2,750
24	Stearic (18:0)	549		300 - 900
25	Arachidic (20:0)	16.4		7.0 - 17.0
26	Behenic (22:0)	26		10 - 35
27	Lignoceric (24:0)	23		<= 30
28	Hexacosanoic (26:0)	0.8		<= 6.0
Odd Chain				
29	Pentadecanoic (15:0)	12.1		<= 15.0
30	Heptadecanoic (17:0)	11.5		<= 20.0
31	Nonadecanoic (19:0)	3.5		<= 7.0
32	Heneicosanoic (21:0)	3.2		<= 7.0
33	Tricosanoic (23:0)	12.7		<= 17.0
Trans				
34	Palmitelaidic (16:1n7t)	3.3		<= 5.0
35	Total C:18 Trans	48		<= 70
Ratios				
36	LA/DGLA	33		12 - 35
37	EPA/DGLA	1.06	H	0.20 - 1.00
38	AA/EPA	22		5 - 35
39	Triene/Tetraene	0.006		<= 0.012

Omega 3 & 6 Fatty Acids

B Vitamins

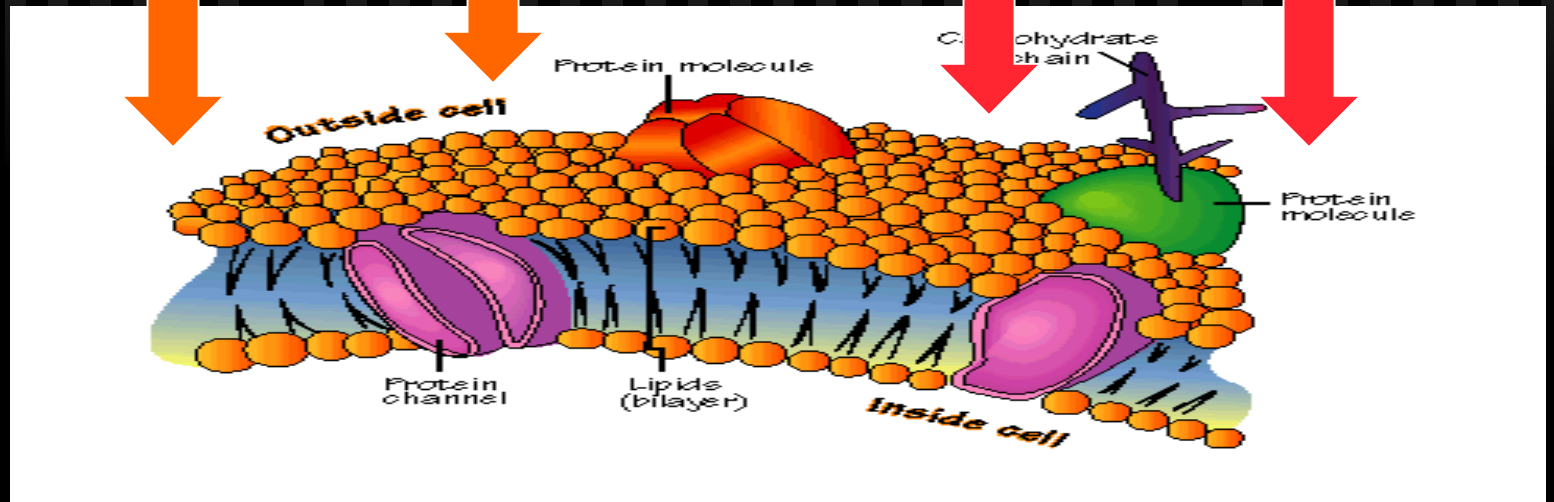
EICOSANOIDS

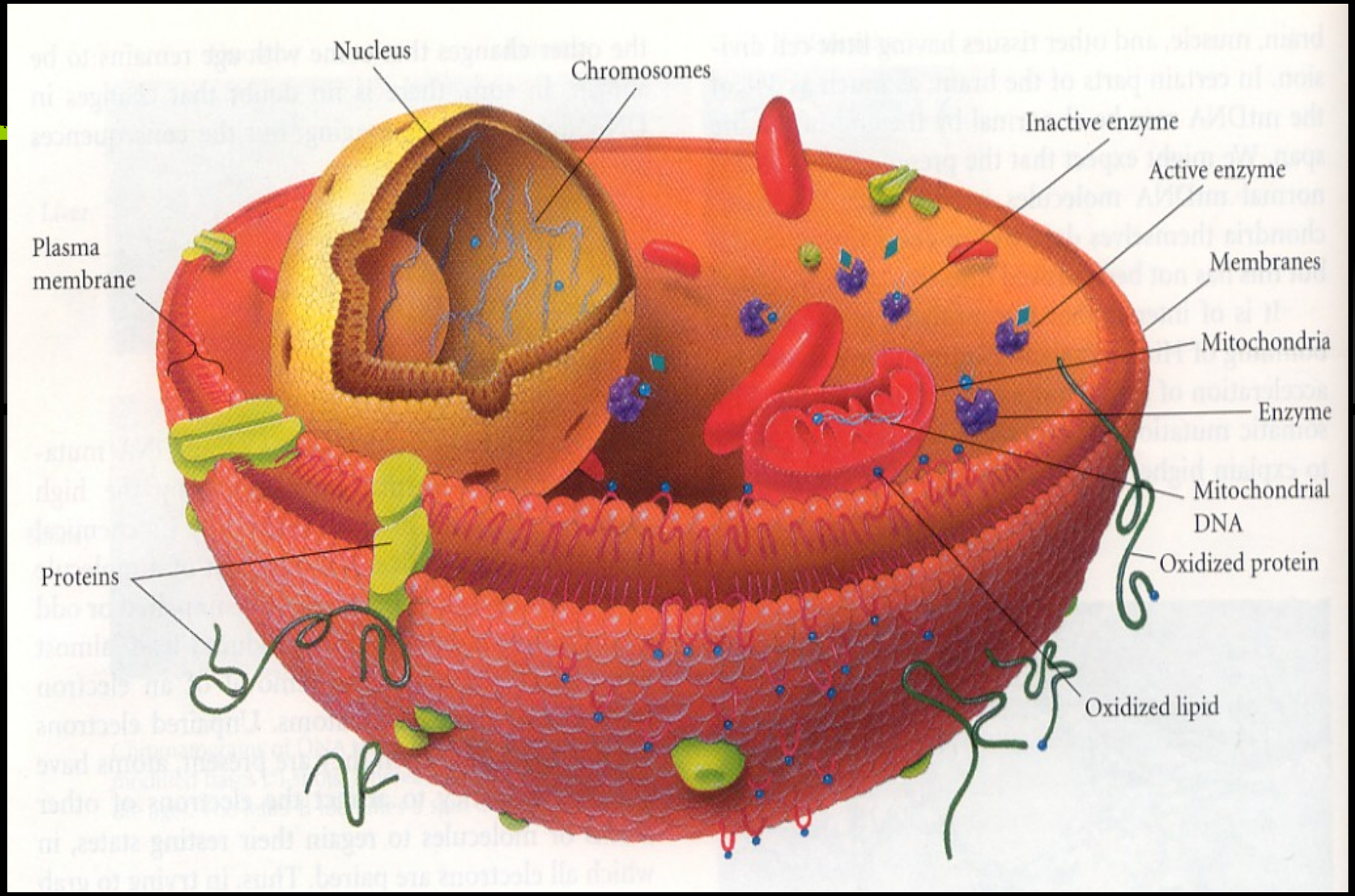
GOOD

ANTI-INFLAMMATORY

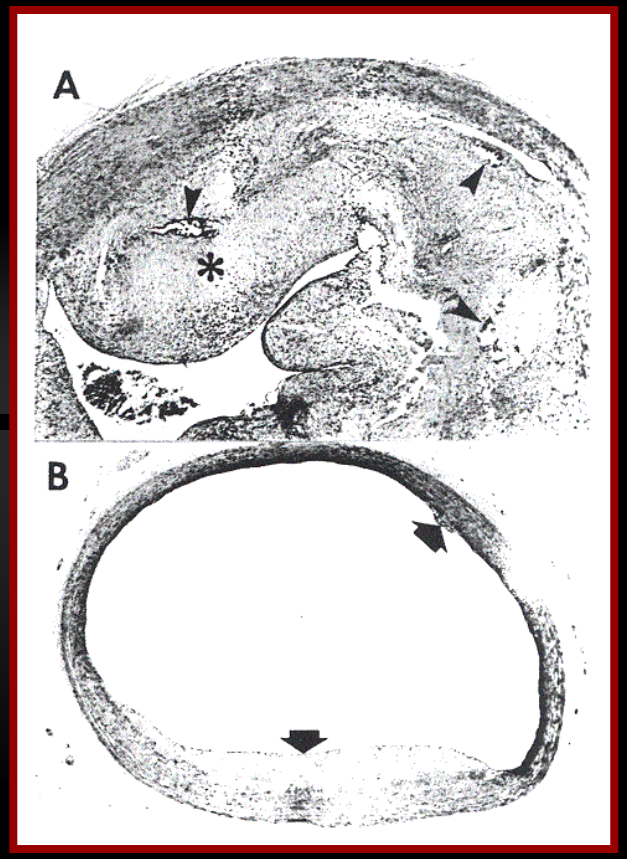
BAD

INFLAMMATION




Nucleus
Chromosomes
Inactive enzyme
Active enzyme
Plasma membrane
Membranes
Mitochondria
Enzyme
Mitochondrial DNA
Proteins
Oxidized protein
Oxidized lipid

Fish Oil and Heart Disease



A. Krispy Kreme Diet
TC=565, LDL=273

B. Krispy Kreme Diet
Plus Fish Oil
TC=546, LDL=298

- ***Weiner et al N Engl J Med 315: 841 (1986)***

Blood Tests Define Wellness

Test	Good	Ideal
AA/EPA	3	1.5
Insulin (uU/ml)	10	5
TG/HDL	2	1

Is There a Blood Test for Predicting Dementia?

Group	AA/EPA
Normal (n = 19)	6.1
Alzheimer's (n = 19)	11.7
Other dementias (n = 10)	11.0
Cognitively impaired (n = 36)	10.7

Conquer et al. Lipids 35: 1305 (2000)

AA/EPA Ratio Can Change Rapidly

Day	AA/EPA	TG/HDL
0	8.4	1.3
28	1.3	0.9

Stark et al Am J Clin Nutr72: 389 (2000)

Clinical Benefits of High-Dose Fish Oil

- ✓ Heart Disease
- ✓ Cancer
- ✓ Depression
- ✓ Attention Deficit Disorder
- ✓ Multiple Sclerosis
- ✓ Alzheimer’s
- ✓ Chronic Pain
- ✓ Osteoporosis
- ✓ Skin Disorders
- ✓ Fertility
- ✓ Fat Loss

Types of Fish Oil

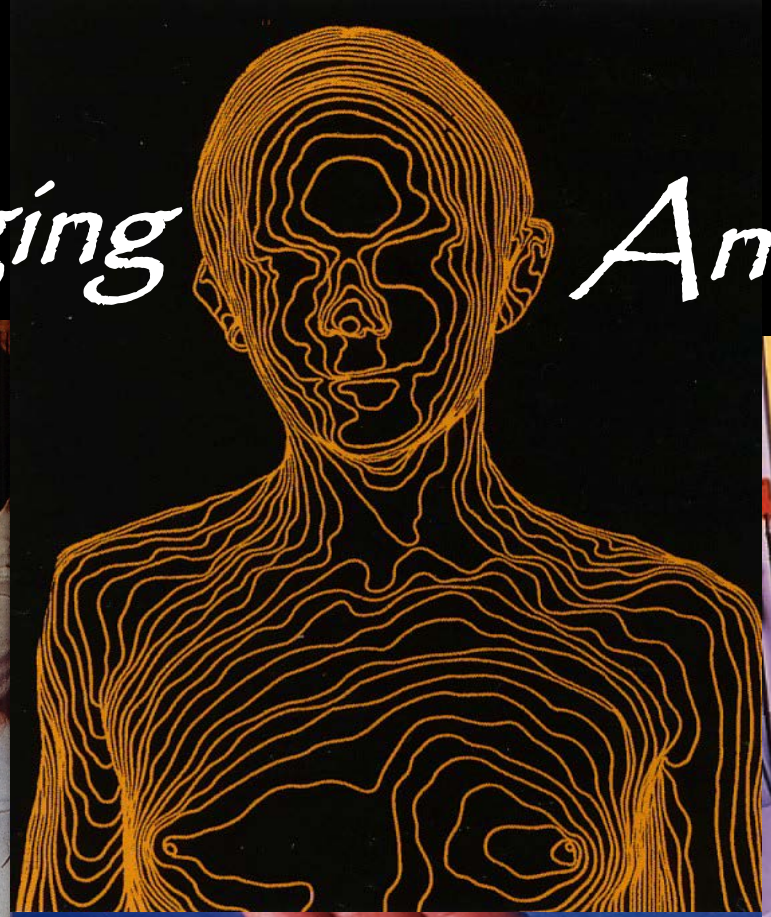
- Fish
  - Contamination with PCB, dioxins, and Hg
  - Higher in AA than fish oil
- Crude fish oil
  - High contamination
- Health food grade
  - Still contaminated with PCB's and dioxins
- Ultra-Refined EPA/DHA Concentrates
  - Removal of monoenes that cause gastric distress
  - Virtually complete removal of PCB's and other toxins
  - Can be used safely in high-dose applications
  - "Weapons-grade" fish oil

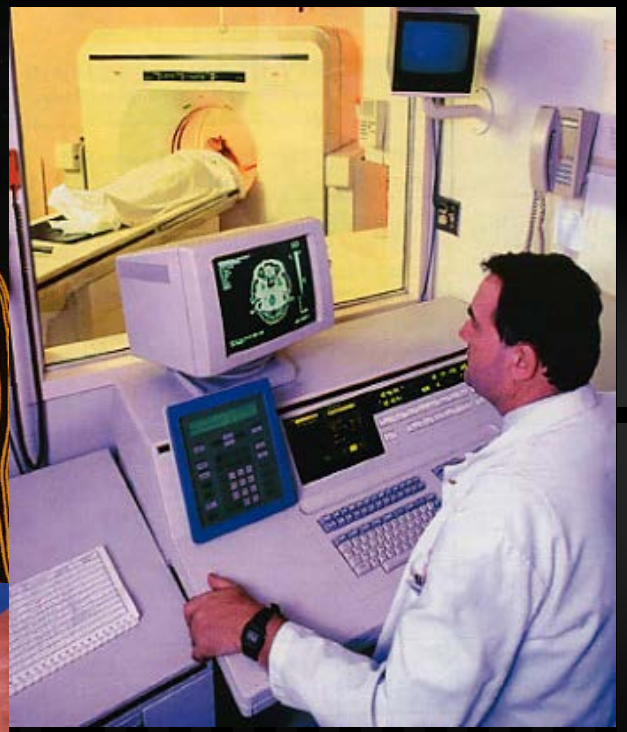
How Much Omega-3 Fats Do You Need?

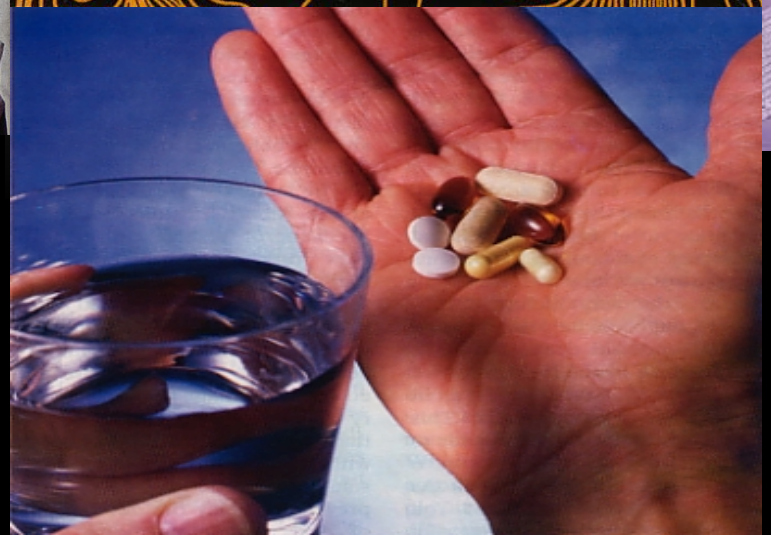
Maintenance	2.5 g/day
Improve Heart Function	5 g/day
Treat Chronic Pain	7.5 g/day
Treat Neurological Disease	>10 g/day

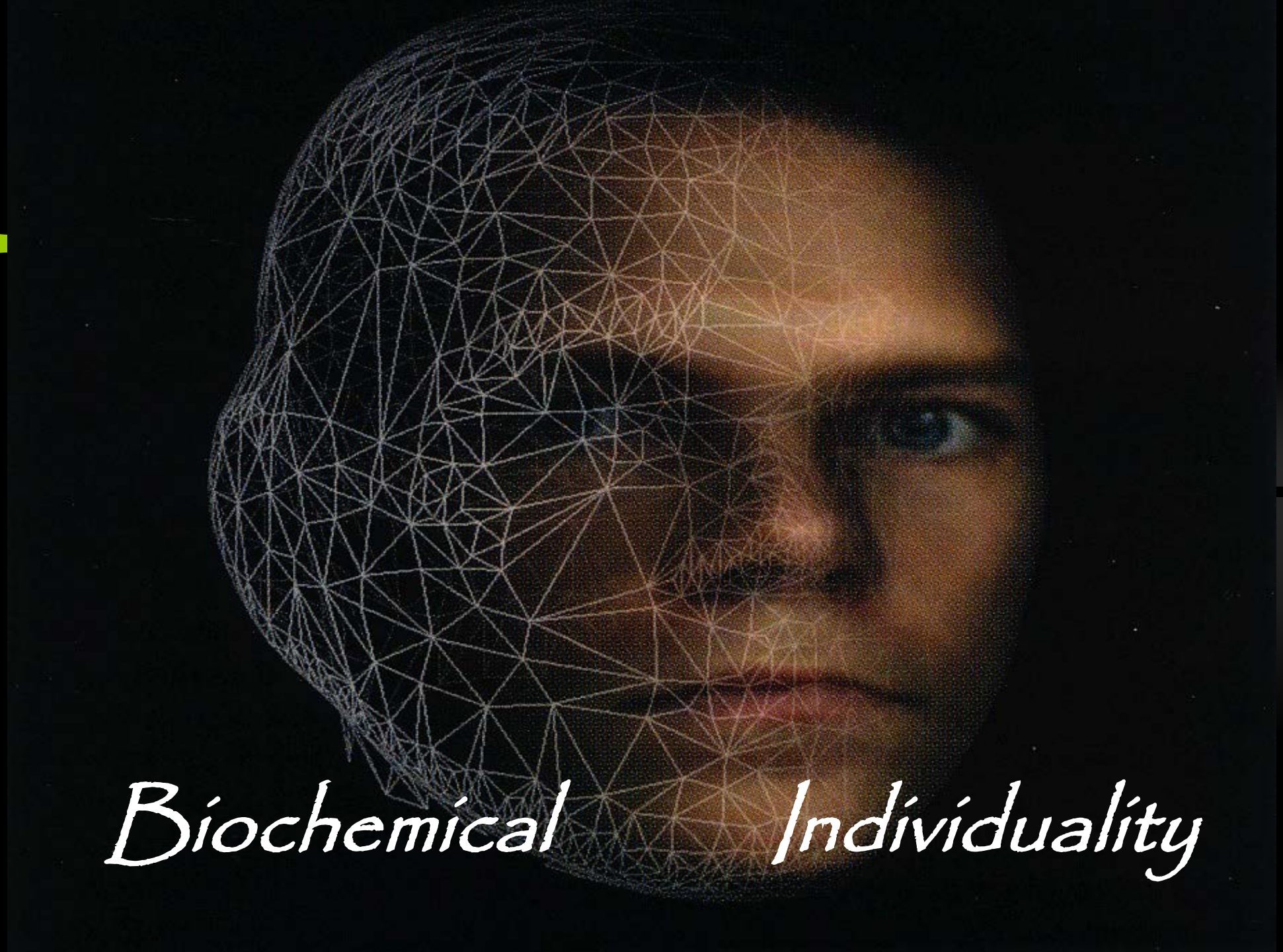
Chronic Disease – What's Below the Surface ?

Anti-aging Analysis








Biochemical Individuality

Ion Amino Acids

Amino Acid Analysis - 20 Plasma

Methodology: ION Exchange HPLC

		Results		Reference Limits umol/L (For adults 13 and over)
Essential Amino Acids				
1	Arginine	134		70 - 160
2	Histidine	52	L	65 - 150
3	Isoleucine	57		50 - 160
4	Leucine	97	L	105 - 250
5	Lysine	157		140 - 250
6	Methionine	33		20 - 60
7	Phenylalanine	79		45 - 140
8	Threonine	101		85 - 250
9	Tryptophan	27	L	45 - 120
10	Valine	184		180 - 480
Essential Amino Acid Derivatives				
Neuroendocrine Metabolism				
11	Glycine	209		200 - 450
12	Serine	124		80 - 200
13	Taurine	49	L	50 - 250
14	Tyrosine	90		50 - 120
Ammonia/Energy Metabolism				
15	Asparagine	47		35 - 100
16	Aspartic Acid	6		6 - 30
17	Citrulline	19		15 - 70
18	Glutamic Acid	57		45 - 200
19	Glutamine	588		500 - 1,050
20	Ornithine	33	L	35 - 100

Homocysteine - Plasma

Methodology: High Performance Liquid Chromatography

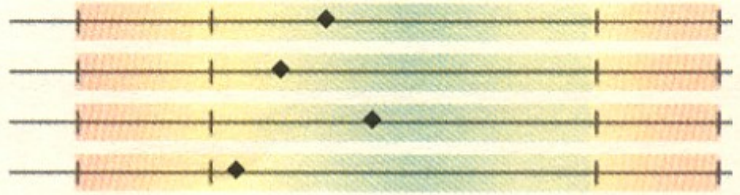
		Results		Reference Limits nmol/mL
1	Homocysteine	13	H	<= 8

Ion Vitamins

CoEnzyme Q10 Plus Vitamin Panel - Serum

Methodology: High Performance Liquid Chromatography

	Results	Reference Limits mg/L
1 Coenzyme Q10	1.1	0.8 - 1.5
2 Vitamin E	20.0	12.0 - 50.0
3 Vitamin A	0.8	0.5 - 1.2
4 ß-Carotene	0.5	0.4 - 3.5



Lipid Peroxide

Methodology: High Performance Liquid Chromatography

	Results	Reference Limits nmol/mL
5 Lipid Peroxides	1.0	<= 1.0

8-Hydroxy-2 deoxyguanosine

Methodology: High Performance Liquid Chromatography

	Results	Reference Limits mcg/mg crea
6 8-Hydroxy-2-deoxyguanosine	0.03	<= 0.11

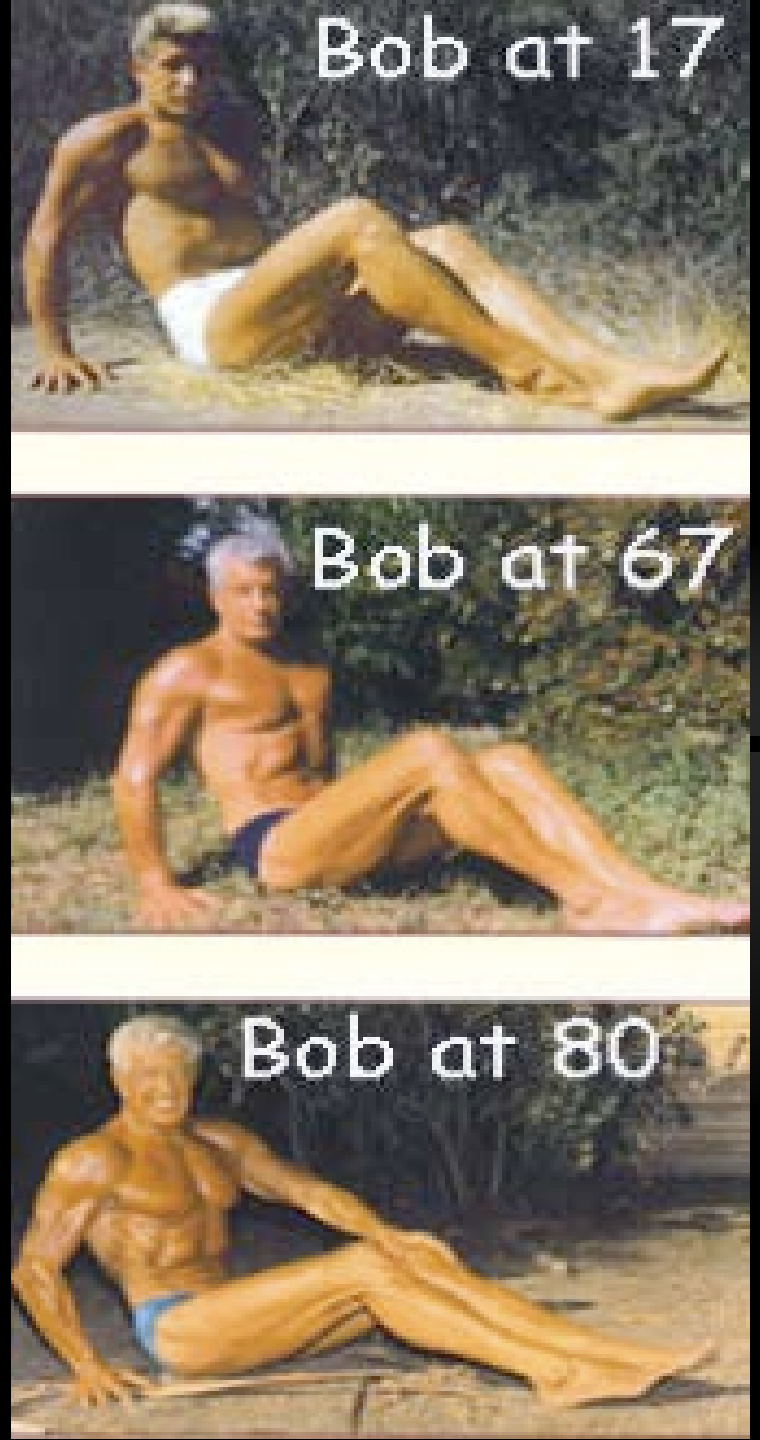
Ion Elements

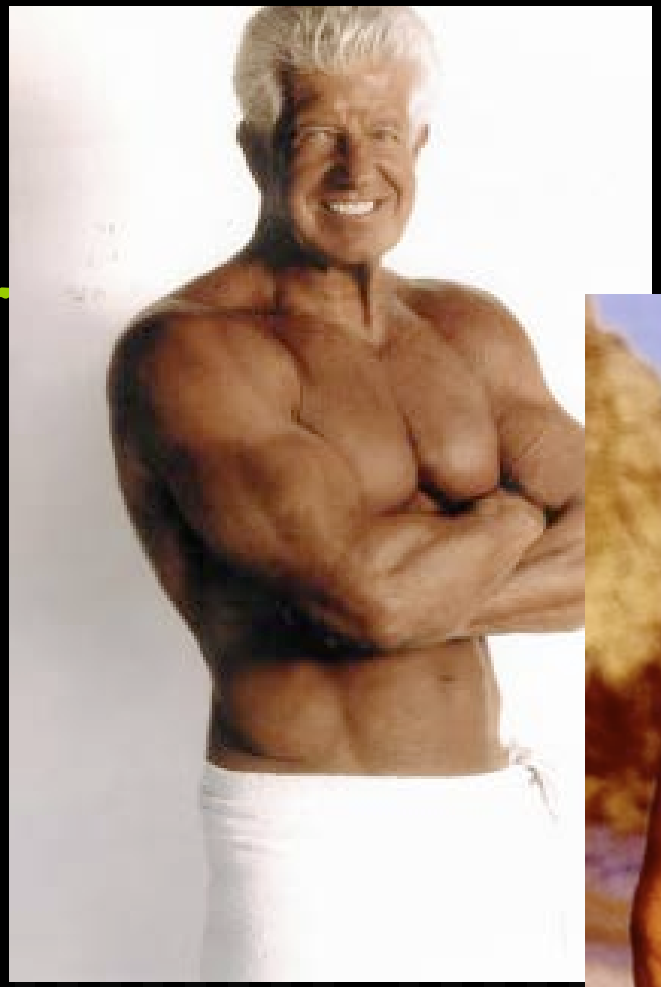
Element - Erythrocyte (RBC)

Methodology: Inductively Coupled Plasma /Mass Spectroscopy

		Results	Reference Limits ppm packed cells
Essential Elements			
1	Calcium	10.9	<= 18.0
2	Chromium	0.29	0.25 - 0.80
3	Copper	0.52	0.52 - 2.00
4	Magnesium	42	40 - 80
5	Manganese	0.29	0.25 - 0.80
6	Molybdenum	0.008	0.008 - 0.030
7	Potassium	1,109	1,000 - 3,000
8	Selenium	0.15	0.12 - 0.40
9	Vanadium	0.12	0.10 - 0.28
10	Zinc	6.8	6.0 - 11.0
Toxic Elements			
11	Aluminum	1.7	<= 3.0
12	Cadmium	0.01	<= 0.04
13	Lead	0.12 H	<= 0.10
14	Mercury	0.006 H	<= 0.005

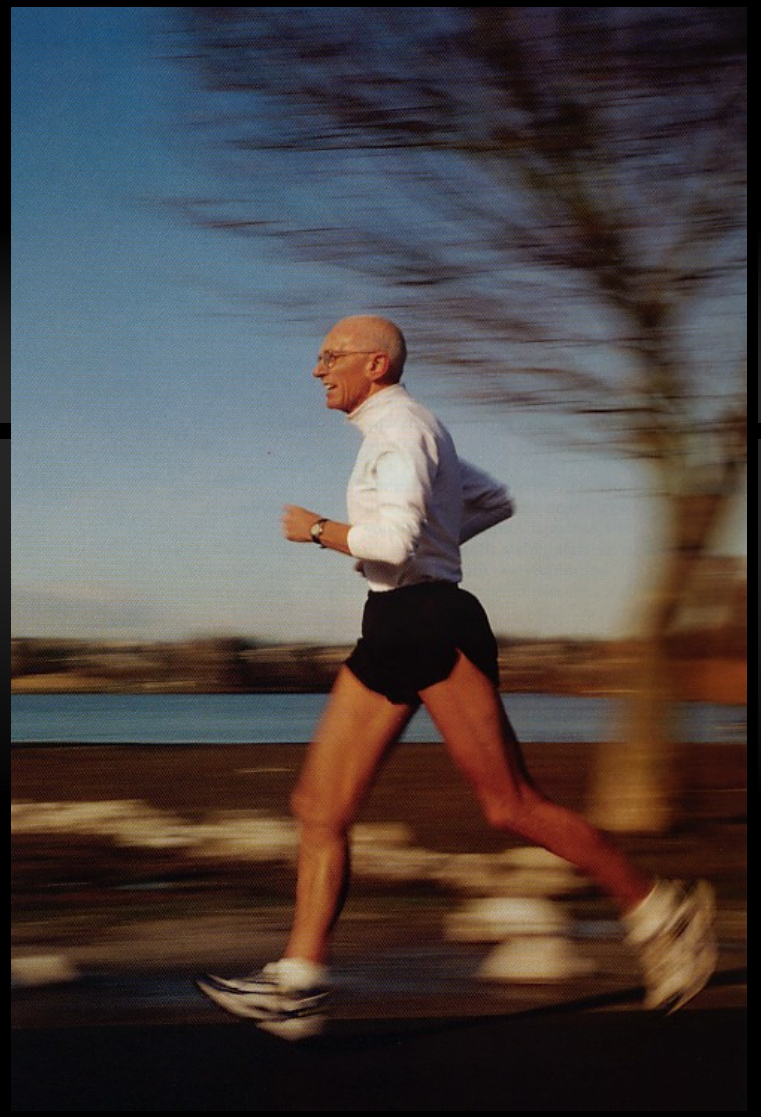
High erythrocyte total calcium has been associated with hypertension, but is not an indicator of your nutritional status of calcium.

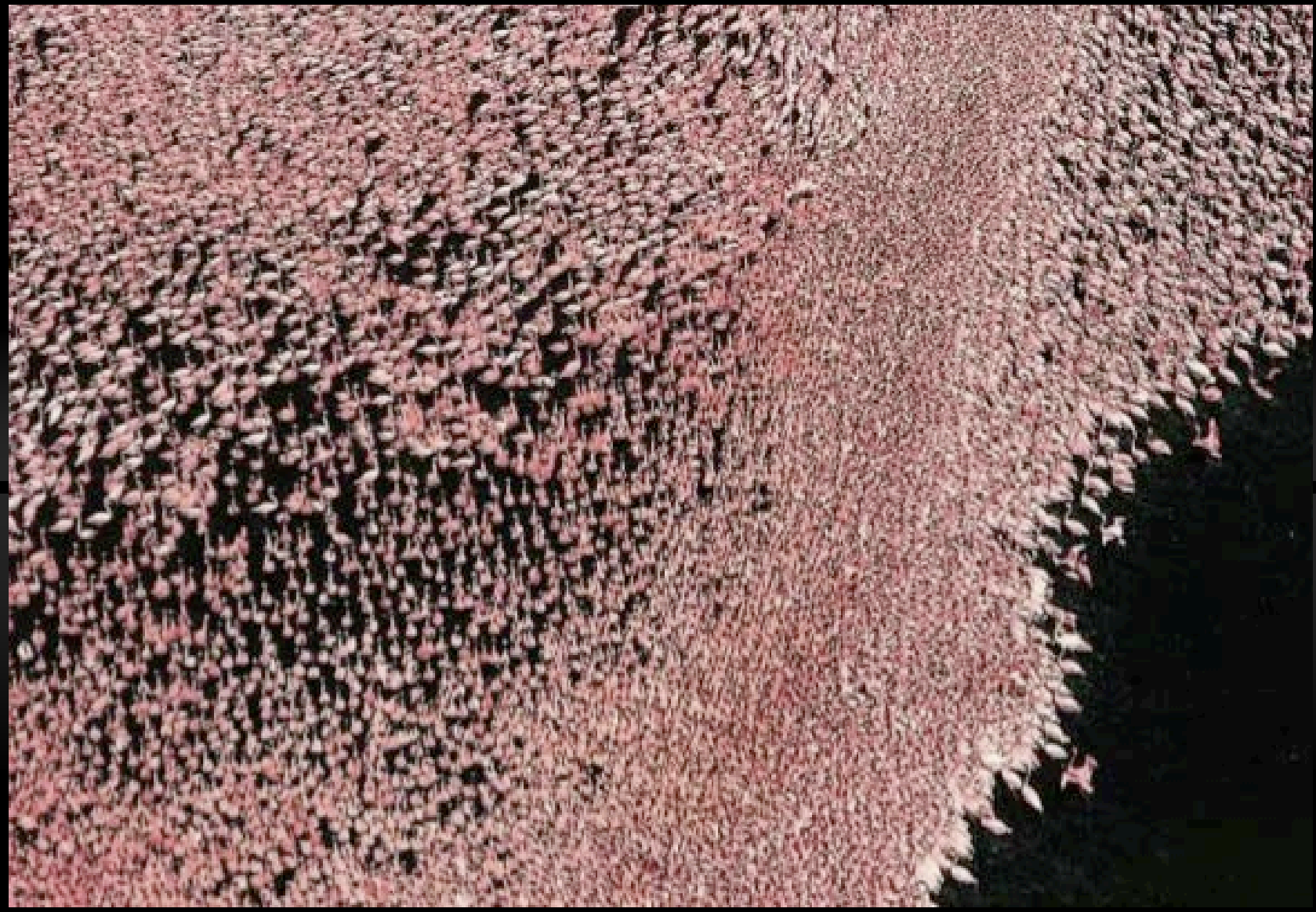

Bob at 17
Bob at 67
Bob at 80



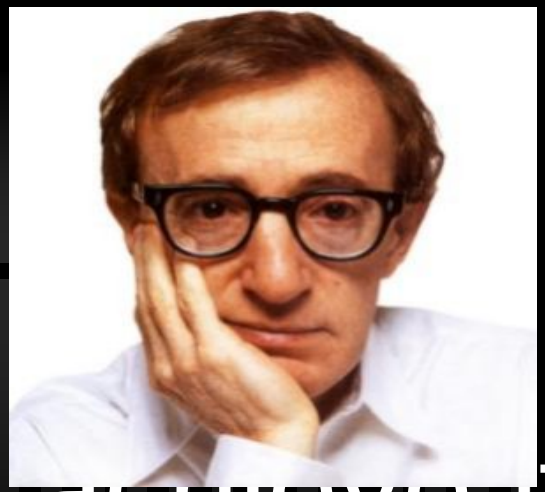
The Vision

vs





I don’t want to achieve immortality through my work;



I want to achieve it through not dying.

-Woody Allen

THE END !