Food as Medicine

John Sacco, MD
Food is Medicine
The History of Medicine

2000 B.C.—Here, eat this root.
1000 A.D.—That root is heathen. Here, say this prayer.
1850 A.D.—That prayer is superstition. Here, drink this potion.
1920 A.D.—That potion is snake oil. Here, swallow this pill.
1945 A.D.—That pill is ineffective. Here, take this penicillin.
1955 A.D.—Oops...bugs mutated. Here, take this tetracycline.
1960–1999—39 more “oops.” Here, take this more powerful antibiotic.
2000 A.D.—The bugs have won! Here, eat this root.

—Anonymous (WHO, 2000)
Medicines are classified based on how they work in your body.

- People use medicine to restore their body to optimal health.
- Medicines are drugs that are used to treat or prevent disease or other conditions.
- Drugs are substances other than food that change the structure or function of the body or mind.
- All medicines are drugs, but not all drugs are medicines.
- Drugs are effective in treating illness when taken as directed by a physician or according to the label.
- Medicines can be classified into four broad categories: 1. prevent disease, 2. fight pathogens, 3. relieve pain and other symptoms, and 4. manage chronic conditions, help maintain or restore health, and regulate body systems.
Prevalence of Chronic Disease in the U.S.

Millions of Americans

...And could cost the U.S. almost $6 trillion in lost economic output by 2050

Projected lost economic output associated with seven of the most common chronic diseases*

*This study evaluated the burden of seven of the most common chronic diseases/conditions (cancer, diabetes, heart disease, hypertension, mental disorders, pulmonary conditions, and stroke.

THE GLOBAL OBESITY PROBLEM

An obese adult is classified as having a Body Mass Index equal to or greater than 30

SOURCE: World Health Organization, 2005
Obesity Trends* Among U.S. Adults
(*BMI ≥ 30, or about 30 lbs. overweight for 5’4” person)

Source: CDC Behavioral Risk Factor Surveillance System.
ADR - Adverse Drug Reactions

2.2 MILLION
severe adverse drug reactions per year

FOURTH leading cause of death in the U.S.

100,000 deaths per year by properly prescribed drugs

80,000 deaths per year by improperly prescribed drugs

COST LEADER for malpractice payouts

Sources: U.S. Center for Disease Control and Prevention and Journal of the American Medical Association (JAMA)
The World Cancer Research Fund has estimated that up to one-third of cancer cases that occur in economically developed countries like the US are related to being overweight, obese, inactive (sedentary) or having poor nutrition. These are all potentially preventable.
Phytonutrients

• Beyond vitamins, minerals and fiber, natural compounds found in plants may exert profound disease preventive effects.

• The “immune system” of a plant – many also represent the pigment that gives the plant it’s color.
Health Benefits of Phytonutrients

- Phytonutrients exert a wide range of beneficial effects. When consumed, these health benefits are conferred to us:
  - Serve as antioxidants
  - Enhance immune response
  - Enhance cell-to-cell communication
  - Alter estrogen metabolism
  - Convert to vitamin A (e.g., beta-carotene)
  - Cause cancer cells to die (apoptosis)
  - Repair DNA damage caused by smoking and other toxic exposures
  - Detoxify carcinogens through activation of the cytochrome P450 and Phase II enzyme systems

- Phytonutrients are most known for their antioxidant and anti-inflammatory benefits
WHAT’S IN YOUR GENES?

the GENOME is the hardware, that makes up the human body as the biologists like to say,

the EPIGENOME is the software, and to a large extent, you are the “Epigenome Software Programmer” in charge.
Epigenetic modifications

- Drugs
- Eating habits
- Stress
- Exercise
- Aging
- Microbiome

Gene Function

Details: 7447 individuals at a high cardiovascular risk were randomized to a Mediterranean diet with added olive oil, a Mediterranean diet with added nuts, or a low-fat control group. The study went on for 4.8 years.

In this paper, researchers primarily looked at the pooled risk of heart attack, stroke and death from cardiovascular causes.

Results: The risk of combined heart attack, stroke and death from cardiovascular disease was reduced by 30% in the Med + Olive Oil group, and 28% in the Med + Nuts group.

**Details:** 7216 participants in the PREDIMED study were evaluated after 5 years.

**Results:** After 5 years, a total of 323 people had died, with 81 cardiovascular deaths and 130 cancer deaths. Consuming nuts was linked to a 16-63% lower risk of death during the study period.

Details: This study enrolled 605 middle-aged men and women who had suffered a heart attack.

They were split into two groups, a Mediterranean-type diet (supplemented with an Omega-3 rich margarine) and a “prudent” Western-type diet, and followed for 4 years.

Results: After 4 years, the group eating the Mediterranean diet was 72% less likely to have had a second MI, or died from heart disease.
Intensive Lifestyle Changes for Reversal of Coronary Heart Disease

Dean Ornish, MD; Larry W. Scherwitz, PhD; James H. Billings, PhD, MPH; K. Lance Gould, MD; Terri A. Merritt, MS; Stephen Sparler, MA; William T. Armstrong, MD; Thomas A. Ports, MD; Richard L. Kirkeeide, PhD; Charissa Hogeboom, PhD; Richard J. Brand, PhD

Conclusions.—More regression of coronary atherosclerosis occurred after 5 years than after 1 year in the experimental group. In contrast, in the control group, coronary atherosclerosis continued to progress and more than twice as many cardiac events occurred.
Reversal of Coronary Disease Achieved with Plant-Based Diet

Coronary angiograms of the distal left anterior descending artery before (left bracket) and after (right bracket) 32 months of a plant-based diet without cholesterol-lowering medication, showing profound improvement. Used with permission from Dr. Caldwell B. Esselstyn, Jr. (Source: Prevent and Reverse Heart Disease by Dr. Esselstyn.)
**Intensive lifestyle changes may affect the progression of prostate cancer.**

RESULTS:
None of the experimental group patients but 6 control patients underwent conventional treatment due to an increase in PSA and/or progression of disease on magnetic resonance imaging. PSA decreased 4% in the experimental group but increased 6% in the control group (p = 0.016). The growth of LNCaP prostate cancer cells (American Type Culture Collection, Manassas, Virginia) was inhibited almost 8 times more by serum from the experimental than from the control group (70% vs 9%, p <0.001). Changes in serum PSA and also in LNCaP cell growth were significantly associated with the degree of change in diet and lifestyle.

CONCLUSIONS:
Intensive lifestyle changes may affect the progression of early, low grade prostate cancer in men. Further studies and longer term follow-up are warranted.
Phytonutrients are natural compounds found in plant-based foods that give plants their rich pigment, as well as their distinctive taste and smell. They are essentially the plant’s immune system and offer protection to humans as well. There are thousands of phytonutrients that may help prevent cancer as well as provide other health benefits.

Dana Farber Cancer Institute
The best way to increase your intake of phytonutrients is to eat a variety of plant-based foods, including fruits, vegetables, whole grains, spices, and tea. Phytonutrients work together as a team to provide a more potent protective punch when eaten as whole foods.

Dana Farber Cancer Institute
Plant-based diets are the nutritional equivalent of quitting smoking.
<table>
<thead>
<tr>
<th>Fruit</th>
<th>Benefit</th>
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<tbody>
<tr>
<td>apples</td>
<td>Protects heart</td>
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<td></td>
<td>prevents constipation</td>
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<td>Blocks diarrhea</td>
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<td>Improves lung capacity</td>
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<td>Cushions joints</td>
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<td>apricots</td>
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<td>Saves your eyesight</td>
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<td>Shields against Alzheimer's</td>
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<td></td>
<td>Combats cancer</td>
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<td>Supports immune system</td>
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### Phytonutrients:

<table>
<thead>
<tr>
<th>Colors</th>
<th>Foods</th>
<th>Colorful Protective Substances and Possible Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Tomatoes and tomato products, watermelon, guava</td>
<td>Lycopene: antioxidant; cuts prostate cancer risk</td>
</tr>
<tr>
<td>Orange</td>
<td>Carrots, yams, sweet potatoes, mangos, pumpkins</td>
<td>Beta-carotene: supports immune system; powerful antioxidant</td>
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<tr>
<td>Yellow-orange</td>
<td>Oranges, lemons, grapefruits, papayas, peaches</td>
<td>Vitamin C, flavonoids: inhibit tumor cell growth, detoxify harmful substances</td>
</tr>
<tr>
<td>Green</td>
<td>Spinach, kale, collards, and other greens</td>
<td>Folate: builds healthy cells and genetic material</td>
</tr>
<tr>
<td>Green-white</td>
<td>Broccoli, Brussels sprouts, cabbage, cauliflower</td>
<td>Indoles, lutein: eliminate excess estrogen and carcinogens</td>
</tr>
<tr>
<td>White-green</td>
<td>Garlic, onions, chives, asparagus</td>
<td>Allyl sulfides: destroy cancer cells, reduce cell division, support immune systems</td>
</tr>
<tr>
<td>Blue</td>
<td>Blueberries, purple grapes, plums</td>
<td>Anthocyanins: destroy free radicals</td>
</tr>
<tr>
<td>Red-purple</td>
<td>Grapes, berries, plums</td>
<td>Resveratrol: may decrease estrogen production</td>
</tr>
<tr>
<td>Brown</td>
<td>Whole grains, legumes</td>
<td>Fiber: carcinogen removal</td>
</tr>
</tbody>
</table>
Where do we get our food information?
Food fights

The Paleo Diet
- Vegetables
- Fruits
- Eggs
- Wild Meats

Not in the Paleo Diet
- Refined, Processed Foods
- Sugars
- Nuts
- Beans
- Dairy

Vegan Food Pyramid
- Omega-3 Fatty Acids
- Vitamin D
- Protein-Rich Foods
- Calcium-Rich Foods
- Whole Grains, Cereals, Pastas

GRAB BRAIN
David Perlmutter, MD

SUGAR BUSTERS!

Raw? or Cooked?
KISS!

EAT 
FOOD 
NOT TOO MUCH 
MOSTLY 
Plants

— MICHAEL POLLAN

The Omnivore’s Dilemma
A Natural History of Four Meals
MICHAEL POLLAN
THE EXPERT OF FALINE

Food Rules
THE NEW EDITION
"When diet is wrong, medicine is of no use. When diet is correct, medicine is of no need."

~ Ancient Ayurvedic Proverb
Let Your Food
Be Your Medicine

The doctor of the future will give no medicine, but will interest her or his patients in the care of the human frame, in a proper diet, and in the cause and prevention of disease.
-Thomas A. Edison, US inventor (1847 - 1931)

“Let your food be your medicine and your medicine be your food.... Leave your drugs in the chemist's pot if you can cure the patient with food.”
-Hippocrates, the "Father of Medicine, -420 BC

"While you can't shut out illness entirely, you CAN make your body a place where health thrives." - Whole Living

"The fork is your most powerful tool to change your health and the planet; food is the most powerful medicine to heal chronic illness." - Dr. Mark Hyman MD
“People are fed by the Food Industry, which pays no attention to health, and are treated by the Health Industry, which pays no attention to food.”

Wendell Berry
The person who takes medicine must recover twice, once from the disease, and once from the medicine.

William Osler
I'M SENDING CHESTERFIELDs to all my friends. That's the merriest Christmas any smoker can have—Chesterfield mildness plus no unpleasant after-taste. 

Ronald Reagan

According to a recent Nationwide survey:

MORE DOCTORS SMOKE CAMELS THAN ANY OTHER CIGARETTE

Doctors in every branch of medicine—113,597 in all—were queried in this nationwide study of cigarette preference. Three leading research organizations made the survey. The gist of the query was—What cigarette do you smoke, Doctor?

The brand named most was Camel!

The rich, full flavor and cool mildness of Camel’s superb blend of costlier tobaccos seem to have the same appeal to the smoking tastes of doctors as to millions of other smokers. If you are a Camel smoker, this preference among doctors will hardly surprise you. If you’re not—well, try Camels now.

CAMELS Costlier Tobaccos

Your “T-Zone” Will Tell You...

T for Taste...
T for Throat...
that’s your proving ground for any cigarette.
See if Camels don’t suit your “T-Zone” to a “T.”

© The Advertising Archives
FACE THE FACTS!
When tempted to over-indulge
"Reach for a Lucky instead"

LUCKY STRIKE
"It's toasted"
CIGARETTES

"It's toasted"
Your Throat Protection — against irritation — against cough.

Lucky Strike, the finest Cigarette you ever smoked, made of the finest tobacco — The Cream of the Crop — "IT'S TOASTED."
Lucky Strike has an extra, secret heating process. Everyone knows that heat purifies and so 20,679 physicians say that Luckies are less irritating to your throat.

*We do not say smoking Luckies reduces flesh. We do say when tempted to over-indulge, "Reach for a Lucky instead."
For a better start in life
start COLA earlier!

How soon is too soon?

Not soon enough. Laboratory tests over the last few years have proven that babies who start drinking soda during that early formative period have a much higher chance of gaining acceptance and "fitting in" during those awkward pre-teen and teen years. So, do yourself a favor. Do your child a favor. Start them on a strict regimen of sodas and other sugary carbonated beverages right now, for a lifetime of guaranteed happiness.

The Soda Pop Board of America
1515 W. Harl Ave. - Chicago, ILL.
Why we have the youngest customers in the business

This young man is 11 months old—and he isn’t our youngest customer by any means.

For 7-Up is so pure, so wholesome, you can even give it to babies and feel good about it. Look at the back of a 7-Up bottle. Notice that all our ingredients are listed. (That isn’t required of soft drinks, you know—but we’re proud to do it and we think you’re pleased that we do.)

By the way, Mom, when it comes to toddlers—if they like to be coaxed to drink their milk, try this. Add 7-Up to the milk in equal parts, pouring the 7-Up gently into the milk. It’s a wholesome combination—and it works! Make 7-Up your family drink. You like it...it likes you!

Nothing does it like Seven-Up!
For PEP and VIGOR-

VITAMIN DONUTS

New Way to Get More Good from VITAMINS

Take them in fortified food—the delicious Ovaltine way!

Read what you get in 2 glasses of Ovaltine:

- more food-energy than 5 slices of enriched bread
- more niacin than 5 slices of toast bread
- more vitamin B than 10 ounces of butter
- more calcium and phosphorus than 3 servings of American cheese
- more vitamin D than 3 servings of fish
- more protein than 3 eggs
- more vitamin A than 3 servings of peas
- more vitamin E than 3 servings of oatmeal
- more vitamin C than 3 servings of spinach
"My boys are crazy about Swanson TV Dinners!"

--- SAYS MRS. T. M. CARROLL, JR., 5500 RIVER FOREST DRIVE, ARLINGTON, JACKSONVILLE

Mom, can I watch the news while I eat?

Wow! Now we can look forward to Thanksgiving leftovers all year long! Where's dad?

No, sweetie, tonight we're going to all enjoy a family meal at the table.

"I only have to call them to the table once when it's TV Turkey Dinner Day," adds Mrs. Carroll. "And there's no fighting with food. Both boys eat every scrap from their trays. Douglas, the older one, always insists on loading up on Swanson Dinners when we go shopping at the grocery store, just to be sure we have plenty on hand!"

Now families do the Swanson TV Turkey Dinner habit once they've tried these delicious meals. Every trayful is heaped with choice, tender cuts of Swanson turkey in real turkey gravy and cornbread dressing... with whipped sweet potatoes and tender garden peas... each topped by a pat of Swanson Butter. It's a feast indeed, served with that special Swanson brand of old-fashioned goodness.

No work, either. No dishes to do. Just pop it in the oven, serve 25 minutes later on the same individual serving tray. Try a quick frozen Swanson TV Turkey Dinner soon. You'll also enjoy Swanson TV Fried Chicken and Beef Pot Roast Dinners. All at your favorite food store freezer!
Mindfulness for a Less Stressed Life
Richard Sears, PsyD, PhD, MBA,
Mindfulness for a Less Stressed Life

Richard W. Sears, PsyD, PhD, MBA, ABPP
Clinical Psychologist, Private Practice
Research/Clinical Faculty, UC Center for Integrative Health & Wellness
Stress Response

- Adrenalin & cortisol
- Heart rate & blood pressure
- Digestion stops
- Muscles tighten
Stress Response

- **short-term** – helpful – then relax
- **long-term** – many problems
- **90% of physician’s visits have a stress component**
What is Mindfulness?

“the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment to moment”

(Kabat-Zinn, 2003, p. 145)
Being vs. Doing

Being: Present focused
Doing: Future focused
What is Mindfulness?

- Relating differently to stress
  - Worry
  - Getting stuck in vicious circles
  - Diving into the swimming pool
  - Stepping back from thoughts

- Exercising the brain
Neurological Findings

Brain Changes After 8 Weeks
(Sara Lazar, PhD)

“Participating in an 8-week mindfulness meditation program appears to make measurable changes in brain regions associated with memory, sense of self, empathy and stress”

www.sciencedaily.com
Neurological Findings

Children - MBCT-C (12 wks)

Increased activation of structures that subserve interoception and processing of internal stimuli

Increased mindfulness predicts decreased amygdala activity during fear processing

- Increases in bilateral insula, lentiform nucleus, thalamus, & left anterior cingulate while viewing emotional stimuli.
- Increased mindfulness associated with increased activation in bilateral anterior cingulate & insula during emotional stimuli.
- Post-tx decreases in right amygdala activation
  (Strawn, Cotton, Luberto, Patino, Stahl, Weber, Eliassen, Sears, & DelBello, 2014)
Children - MBCT-C  (Strawn et al, 2014)
3-Minute Breathing Space

- Minute 1 – Noticing this moment
  - Body, feelings, thoughts
- Minute 2 – Breathe
  - Mind wanders, just bring it back
- Minute 3 – Be in your body
  - If it’s already here, just feel it
Mindful Living

- Notice what you’re doing
- Remember to breathe
- Let go of struggle
- Be kind to yourself
Suggested Readings

*Full Catastrophe Living*
- Jon Kabat-Zinn

*Mindfulness: Living through Challenges and Enriching Your Life in this Moment*
- Richard W. Sears
Contact

Richard W. Sears
www.psych-insights.com
513-899-MIND (6463)

UC Integrative Medicine
med.uc.edu/integrative
513-558-7333
Yoga & Meditation for Cardiovascular Health

Mehran Attari, MD

A Community Day Focused on Integrative Health & Wellness  Saturday, January 23, 2016
WE DO NOT STOP EXERCISING BECAUSE WE GROW OLD,

WE GROW OLD BECAUSE WE STOP EXERCISING.

Dr. Kenneth Coope
Cardiovascular Risk Factors

High blood pressure
Diabetes
Obesity
High cholesterol and lipids
Lack of exercise
Tobacco use
Unhealthy diet
Yoga

In the practice of Yoga the ultimate aim is one of self-development and self-realization.
Many faces of yoga

Asanas

Postures

1

2

3

4

5 Yoga Poses For a Better Sleep
Many faces of yoga

Pranayama

Breathing exercises
Many faces of yoga

Meditation

Resting the mind and attaining a state of consciousness that is totally different from the normal waking state
Half an hour's meditation each day is essential, except when you are busy. Then a full hour is needed.

Saint Francis de Sales
Origin of Yoga

Halasana

Plow Pose reduces backache and can help you get to sleep.
Setu Bandha Sarvangasana

The bride pose calms the brain and rejuvenates tired legs.
Ananda Balasana

This pose gently brings a greater awareness to the hip joints.
Stress

Heart disease
Asthma
Obesity
Diabetes
Headaches
Depression and anxiety
Gastrointestinal problems
Alzheimer's disease
Accelerated aging
Premature death
Heart Failure: The Mind-Body Connection

Proposed remodeling of mind-heart interactions leads to progressive increases in neuroimmune activation in response to stress.
How Stress Reduction can Improve CV Outcome

Treatment and Prevention of CVD Through Stress Reduction

Acute Stress Reduction through TM
↓ Cortisol, Respiratory Rate, Plasma Lactate, Skin Resistance, ↑ Vascular Dilation

Reduction of Chronic Stress
↓ Baseline Levels of Heart and Respiratory Rates, ↓ Plasma Lactate and Cortisol levels, and Spontaneous Skin Resistance Responses

Reduced Risk Factors
↓ Metabolic syndrome, ↓ Tobacco and Alcohol Use

Improved Stress Reactivity
↓ Cardiovascular Reactivity

Decreased Cardiovascular Disease
ADOLESCENTS: ↓ Resting and Ambulatory Blood Pressure
ADULTS: ↓ Blood Pressure, ↓ Use of Anti-Hypertensive Medication, ↓ Angina Pectoris, ↓ Carotid Atherosclerosis, ↓ Medical Care Utilization for CVD

Decreased Morbidity and Mortality
↓ All-Cause Mortality, Myocardial Infarction, Stroke
Number of publications for every 5-year increment (with the exception of 1967–1973) for all journals and for each study design.

CV Disease: Yoga and Meditation

A recent review of yoga and meditation in CV disease showed improvement in:

- Hypertension (4.7/3.2)
- Metabolic syndrome
- Hg A1c
- DM type 2
- Weight (1.5-13% reduction)
- Lipid profile (5.8-28% reduction)
- Rehabilitation
- Psychosocial stress
- Oxidative stress
- Reduction in fibrinogen
- Regression of atherosclerosis
- Secondary prevention
- Atrial fibrillation
- Reduction in smoking (60%)
Hypertension: Mind-Body Therapies

- **Relaxation, Yoga, Meditation, Qi Gong, Tai Chi, etc.**
  - Studies since 1995 show these modalities lead to average reductions of 7 and 10 mmHg for SBP and DBP, respectively.

- **Yoga**¹ *(Rating: B1)*
  - 33 previously unmedicated subjects, between 35 and 65 years of age, underwent either yoga intervention, medication, or neither (control)
  - 1 hour yoga session in morning and evening for 11 weeks.
  - Yoga group experienced SBP and DBP reductions of 33.3 and 26.3 mmHg compared to medication group reductions of 24.0 and 9.9 mmHg. Control group experienced reductions of 4.2 and 2.0 mmHg.

- **Tai Chi**² *(Rating: A1)*
  - 76 unmedicated individuals underwent a 12-week Tai Chi intervention with an hour-long session three times a week
  - Significant decrease in SBP and DBP of 15.6 and 8.8 mmHg. Cholesterol decreased 15.2 mg/dL, trait and state anxiety decreased

Beyond Medications and Diet: Alternative Approaches to Lowering Blood Pressure: A Scientific Statement From the American Heart Association

Table 2. Class of Recommendation and Level of Evidence for Blood Pressure Lowering

<table>
<thead>
<tr>
<th>Alternative Treatments</th>
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<tbody>
<tr>
<td>Behavioral therapies</td>
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<tr>
<td>Transcendental Meditation</td>
<td>B</td>
<td>IIB</td>
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<tr>
<td>Other meditation techniques</td>
<td>C</td>
<td>III (no benefit)</td>
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<tr>
<td>Biofeedback approaches</td>
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<td>Noninvasive procedures or devices</td>
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</tr>
<tr>
<td>Acupuncture</td>
<td>B</td>
<td>III (no benefit)</td>
</tr>
<tr>
<td>Device-guided breathing</td>
<td>B</td>
<td>IIA</td>
</tr>
<tr>
<td>Exercise-based regimens</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dynamic aerobic exercise</td>
<td>A</td>
<td>I</td>
</tr>
<tr>
<td>Dynamic resistance exercise</td>
<td>B</td>
<td>IIA</td>
</tr>
<tr>
<td>Isometric handgrip exercise</td>
<td>C</td>
<td>IIB</td>
</tr>
</tbody>
</table>

COR indicates class of recommendation; and LOE, level of evidence.
Atrial Fibrillation: Yoga

The YOGA My Heart Study:

Single-center pre-post study on yoga for patients with symptomatic paroxysmal AF

<table>
<thead>
<tr>
<th>Clinical characteristics</th>
<th>23 (46.9)/26 (53.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (M/F)</td>
<td></td>
</tr>
<tr>
<td>Age, yrs</td>
<td>60.6 ± 11.5</td>
</tr>
<tr>
<td>BMI, kg/m²</td>
<td>28.0 ± 5.9</td>
</tr>
<tr>
<td>Duration of AF, months</td>
<td>63.9 ± 7.19</td>
</tr>
<tr>
<td>Symptomatic AF</td>
<td>43 (87.7)</td>
</tr>
<tr>
<td>LV ejection fraction, %</td>
<td>58.5 ± 6.3</td>
</tr>
<tr>
<td>LA size, cm</td>
<td>4.01 ± 0.50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comorbid conditions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary artery disease</td>
<td>9 (18.4)</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>1 (2.0)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>19 (38.8)</td>
</tr>
<tr>
<td>Hyperlipidemia</td>
<td>20 (40.8)</td>
</tr>
<tr>
<td>Obstructive sleep apnea</td>
<td>11 (22.4)</td>
</tr>
<tr>
<td>Prior revascularization (PCI/CABG)</td>
<td>4 (8.2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medication use</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin</td>
<td>28 (57.1)</td>
</tr>
<tr>
<td>Beta-blockers</td>
<td>31 (63.3)</td>
</tr>
<tr>
<td>ACE-I/ARB</td>
<td>10 (20.4)</td>
</tr>
<tr>
<td>Statins</td>
<td>16 (32.7)</td>
</tr>
<tr>
<td>Antiarrhythmic medications</td>
<td>38 (77.6)</td>
</tr>
</tbody>
</table>
Atrial Fibrillation: Yoga

The YOGA My Heart Study

Differences in Primary Efficacy Outcomes Measures Between the Control and Intervention Phase
Atrial Fibrillation: Yoga

The YOGA My Heart Study

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Comparison of Baseline, and Pre- and Post-Yoga Intervention Secondary Efficacy Outcome Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Score (n = 49)</td>
<td>Baseline (Day 0)</td>
</tr>
<tr>
<td>SDS (Depression)</td>
<td>31.0 (27.0–37.0)</td>
</tr>
<tr>
<td>SAS (Anxiety)</td>
<td>34.0 (31.5–37.0)</td>
</tr>
<tr>
<td>SF-36 (domain-wise)</td>
<td></td>
</tr>
<tr>
<td>1. Physical functioning</td>
<td>85.0 (80.0–95.0)</td>
</tr>
<tr>
<td>2. Role physical</td>
<td>100.0 (75.0–100.0)</td>
</tr>
<tr>
<td>3. Bodily pain</td>
<td>100.0 (67.0–100.0)</td>
</tr>
<tr>
<td>4. General health</td>
<td>65.0 (50.0–77.5)</td>
</tr>
<tr>
<td>5. Vitality</td>
<td>84.0 (68.0–88.0)</td>
</tr>
<tr>
<td>6. Social functioning</td>
<td>100.0 (75.0–100.0)</td>
</tr>
<tr>
<td>7. Role emotional</td>
<td>68.0 (60.5–80.0)</td>
</tr>
<tr>
<td>8. Mental health</td>
<td>75.0 (65.0–85.0)</td>
</tr>
<tr>
<td>Hemodynamic parameters</td>
<td></td>
</tr>
<tr>
<td>Heart rate</td>
<td>66.9 ± 8.3</td>
</tr>
<tr>
<td>Systolic BP</td>
<td>135.0 ± 7.5</td>
</tr>
<tr>
<td>Diastolic BP</td>
<td>80.9 ± 7.7</td>
</tr>
</tbody>
</table>

**Conclusion:**
In patients with paroxysmal AF, yoga improves symptoms, arrhythmia burden, heart rate, blood pressure, anxiety and depression scores, and several domains of QoL.
Yoga decreases ICD shocks

![Graph showing the comparison between Control Group and Yoga Group in terms of expected number of DTV events at T2 and number of DTV events at T1.](image)
Heart Failure: Mind-Body Therapies

- Increased release of inflammatory cytokines can lead to worsening morbidity and mortality rates. Treating depression and reducing stress can lessen the risk.

- **Meditation** *(Rating: B1)*
  - Transcendental meditation groups compared with control had improvements in 6-minute walk, depression, quality of life, and hospitalization scores\(^1\)
  - Listening to 30 minute meditation tapes 2x/day showed improvements in neurotransmitter levels and quality of life measures\(^2\)

- **Mindfulness and Coping** *(Rating: B1)*
  - Mindfulness and coping skills taught to more than 200 adults with reduced ejection fraction or congestive heart failure.\(^3\)
  - Measures of anxiety/depression found to be significantly lower in active group
  - Symptom improvement was still observed at 12 month follow-up

---

A 2010 Review of Mind-Body Therapy Studies for Patients with Congestive Heart Failure

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Author and Reference No.</th>
<th>Type</th>
<th>n (Treatment Arm)</th>
<th>Follow-Up</th>
<th>Outcomes With Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biofeedback</td>
<td>Moser et al[105]</td>
<td>Prospective</td>
<td>40 (20)</td>
<td>Immediate</td>
<td>Increased cardiac output and decreased systemic vascular resistance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Randomized</td>
<td></td>
<td></td>
<td>No changes in catecholamine levels or O2 consumption</td>
</tr>
<tr>
<td></td>
<td></td>
<td>controlled</td>
<td></td>
<td></td>
<td>Improved 6MWD for subgroup with ejection fraction &gt;30% (n=9 vs 8)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No significant change in HRV or QoL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Improved 6MWD for subgroup with ejection fraction &gt;30% (n=9 vs 8)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No significant difference between heart failure and control populations</td>
</tr>
<tr>
<td>Biofeedback</td>
<td>Swanson et al[100]</td>
<td>Prospective</td>
<td>29 (15)</td>
<td>6 weeks</td>
<td>Improved 6MWD for subgroup with ejection fraction &gt;30% (n=9 vs 8)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Randomized</td>
<td></td>
<td></td>
<td>Improved 6MWD for subgroup with ejection fraction &gt;30% (n=9 vs 8)</td>
</tr>
<tr>
<td>Slow breathing</td>
<td>Bernardi et al[106]</td>
<td>Prospective</td>
<td>102 (81)</td>
<td>Immediate</td>
<td>Increased baroreflex sensitivity and BP decrease in heart failure patients pre intervention vs postintervention (self-matched)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NR</td>
<td></td>
<td></td>
<td>No significant difference between heart failure and control populations</td>
</tr>
<tr>
<td>Transcendental Meditation</td>
<td>Jayadevappa et al[111]</td>
<td>Prospective</td>
<td>23 (13)</td>
<td>6 mo</td>
<td>Improved 6MWD, depression scores, and QoL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Randomized</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meditation</td>
<td>Curati et al[104]</td>
<td>Prospective</td>
<td>19 (10)</td>
<td>14 wk</td>
<td>Reduced NE levels and improved QoL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Randomized</td>
<td></td>
<td></td>
<td>Left ventricular ejection fraction not significantly changed</td>
</tr>
<tr>
<td>Tai Chi</td>
<td>Yeh et al[104, 120]</td>
<td>Prospective</td>
<td>30 (15)</td>
<td>12 wk</td>
<td>Improved QoL, 6MWD, decreased brain natriuretic peptide</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Randomized</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stress management</td>
<td>Kostis et al[127]</td>
<td>Prospective</td>
<td>19 (7)</td>
<td>12 wk</td>
<td>Improved exercise time, QoL, depression, and weight loss</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Randomized</td>
<td></td>
<td></td>
<td>6MWD not statistically improved</td>
</tr>
<tr>
<td>Stress management</td>
<td>Luskin et al[132]</td>
<td>Prospective</td>
<td>33 (14)</td>
<td>10 wk</td>
<td>Improved 6MWD, depression, perceived stress, and emotional distress</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Randomized</td>
<td></td>
<td></td>
<td>HRV not statistically improved</td>
</tr>
<tr>
<td>Mindfulness-based stress reduction</td>
<td>Sullivan et al(SEARCH Trial)[130]</td>
<td>Prospective</td>
<td>217 (117)</td>
<td>12 mo</td>
<td>Improved symptoms, anxiety, depression, and QoL</td>
</tr>
<tr>
<td>Guided imagery</td>
<td>Klaus et al[138]</td>
<td>Prospective</td>
<td>8</td>
<td>6 wk</td>
<td>No statistically significant improvements in exercise or dyspnea measures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NR</td>
<td></td>
<td></td>
<td>QoL measures trending towards but not significant for improvement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Progressive muscle relaxation training</td>
<td>Yu et al[129]</td>
<td>Prospective</td>
<td>121 (59)</td>
<td>14 wk</td>
<td>Trend toward symptom improvement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Randomized</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relaxation response</td>
<td>Chang et al[130]</td>
<td>Prospective</td>
<td>83 (33)</td>
<td>Approx 4 mo</td>
<td>Improved spiritual QoL, Trend toward improved emotional QoL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Randomized</td>
<td></td>
<td></td>
<td>Physical QoL and exercise capacity not improved by relaxation response</td>
</tr>
</tbody>
</table>

NR indicates nonrandomized; 6MWD, 6-minute walk distance; QoL, quality of life; HRV, heart rate variability; and NE, norepinephrine.
Heart Failure: Yoga

A Randomized-Clinical Trial on an 8 Week Yoga Program for African-American Heart Failure Patients

Yoga Group (n=21)
Control Group (n=19)
# Heart Failure: Yoga

A Randomized-Clinical Trial on an 8 Week Yoga Program for African-American Heart Failure Patients

**Table 3. Within-yoga group differences.**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Time 0 vs Time 2 Months</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexibility (cm)</td>
<td>-1.4 ± 5.6</td>
<td>0.002</td>
</tr>
<tr>
<td>GXT (s)</td>
<td>441 ± 208</td>
<td>0.001</td>
</tr>
<tr>
<td>VOpeak (mL·kg⁻¹·min⁻¹)</td>
<td>15.3 ± 5.1</td>
<td>0.02</td>
</tr>
<tr>
<td>MlwHFQ-T</td>
<td>41.55 ± 21.82</td>
<td>0.034</td>
</tr>
<tr>
<td>MlwHFQ-P</td>
<td>18.6 ± 10.8</td>
<td>0.001</td>
</tr>
<tr>
<td>MlwHFQ-F</td>
<td>7.8 ± 4.6</td>
<td>0.012</td>
</tr>
<tr>
<td>IL-6 (pg·mL⁻¹)</td>
<td>19.6 ± 2.5</td>
<td>0.001</td>
</tr>
<tr>
<td>CRP (mg·L⁻¹)</td>
<td>2.4 ± 0.58</td>
<td>0.001</td>
</tr>
<tr>
<td>EC-SOD (U·mL⁻¹)</td>
<td>509 ± 71.8</td>
<td>0.001</td>
</tr>
</tbody>
</table>

**Table 2. Between-group differences.**

<table>
<thead>
<tr>
<th>Test</th>
<th>Yoga</th>
<th>Control</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (kg)</td>
<td>0.63 ± 2.3</td>
<td>0.63 ± 3.3</td>
<td>0.983</td>
</tr>
<tr>
<td>Flexibility (cm)</td>
<td>5.0 ± 4.0</td>
<td>1.2 ± 4.1</td>
<td>0.012</td>
</tr>
<tr>
<td>GXT (s)</td>
<td>123 ± 108.95</td>
<td>-21.46 ± 137.77</td>
<td>0.002</td>
</tr>
<tr>
<td>VOpeak (mL·kg⁻¹·min⁻¹)</td>
<td>3.11 ± 3.04</td>
<td>0.65 ± 3.73</td>
<td>0.003</td>
</tr>
<tr>
<td>MlwHFQ-T</td>
<td>2.35 ± 7.12</td>
<td>0.13 ± 8.23</td>
<td>0.451</td>
</tr>
<tr>
<td>MlwHFQ-P</td>
<td>11.56 ± 19.18</td>
<td>1.93 ± 16.87</td>
<td>0.133</td>
</tr>
<tr>
<td>MlwHFQ-F</td>
<td>2.35 ± 7.12</td>
<td>0.13 ± 8.23</td>
<td>0.451</td>
</tr>
<tr>
<td>CRP (mg·L⁻¹)</td>
<td>0.5 ± 0.49</td>
<td>0.12 ± 0.17</td>
<td>0.001</td>
</tr>
<tr>
<td>EC-SOD (U·mL⁻¹)</td>
<td>1.01 ± 73.75</td>
<td>-12.82 ± 30.94</td>
<td>0.001</td>
</tr>
</tbody>
</table>

**A pilot trial on 8 weeks of yoga for heart failure patients (75% Caucasian)**

**Table 2. Functional and Psychological Measures (n=12)**

<table>
<thead>
<tr>
<th>Clinical Data</th>
<th>Before Yoga</th>
<th>After Yoga</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endurance (m)</td>
<td>43.67 ± 20.2</td>
<td>46.55 ± 22.2</td>
<td>&lt;.02*</td>
</tr>
<tr>
<td>Balance (sec)</td>
<td>26.9 ± 19.7</td>
<td>40.0 ± 18.5</td>
<td>.05*</td>
</tr>
<tr>
<td>Upper body strength (total no.)</td>
<td>16.5 ± 6.9</td>
<td>19.6 ± 8.6</td>
<td>.04*</td>
</tr>
<tr>
<td>Lower body strength (total no.)</td>
<td>11.6 ± 3.6</td>
<td>13.4 ± 4.8</td>
<td>.01*</td>
</tr>
<tr>
<td>Flexibility: right shoulder (°)</td>
<td>-18.5 ± 18.5</td>
<td>-16.3 ± 14.5</td>
<td>.20</td>
</tr>
<tr>
<td>Flexibility: left shoulder (°)</td>
<td>-19.7 ± 19.4</td>
<td>-17.5 ± 17.5</td>
<td>.07</td>
</tr>
<tr>
<td>Flexibility: right hip (°)</td>
<td>-14.0 ± 16.3</td>
<td>-9.0 ± 8.3</td>
<td>.27</td>
</tr>
<tr>
<td>Flexibility: left hip (°)</td>
<td>-11.3 ± 14.7</td>
<td>-7.6 ± 7.1</td>
<td>.32</td>
</tr>
<tr>
<td>Flexibility: thighs (cm)</td>
<td>12.3 ± 11.7</td>
<td>13.2 ± 11.4</td>
<td>.43</td>
</tr>
<tr>
<td>Quality of life score (1-100)</td>
<td>80.2 ± 11.6</td>
<td>78.0 ± 15.0</td>
<td>.60</td>
</tr>
<tr>
<td>Symptom variability (1-100)</td>
<td>47.7 ± 7.5</td>
<td>65.0 ± 30.2</td>
<td>.02</td>
</tr>
<tr>
<td>Beck Depression Inventory</td>
<td>7.4 ± 6.0</td>
<td>7.1 ± 5.7</td>
<td>.77</td>
</tr>
<tr>
<td>KIMS: Observing</td>
<td>40.7 ± 8.2</td>
<td>41.0 ± 9.0</td>
<td>.86</td>
</tr>
<tr>
<td>KIMS: Describing</td>
<td>29.4 ± 5.5</td>
<td>29.5 ± 4.7</td>
<td>.86</td>
</tr>
<tr>
<td>KIMS: Acting</td>
<td>34.4 ± 5.8</td>
<td>34.4 ± 4.1</td>
<td>1.0</td>
</tr>
<tr>
<td>KIMS: Non-judging</td>
<td>35.0 ± 6.4</td>
<td>34.8 ± 7.5</td>
<td>.85</td>
</tr>
</tbody>
</table>

SD, standard deviation; KIMS, Kentucky Inventory of Mindfulness.
CV Disease: Meditation

Stress reduction in the secondary prevention of CV disease in African-American patients, RCT of:

- Transcendental Meditation (TM)
- Health Education (HE)
**CV Disease: Meditation**

Kaplan-Meier survival curves of primary end point (all-cause mortality, nonfatal MI, or nonfatal stroke).

**Transcendental Meditation**

Resulted in significantly reduced:
- Mortality
- Risk of myocardial infarction, and
- Stroke in coronary heart disease patients

- Changes associated with lower blood pressure and psychosocial stress factors
- Adherence was associated with survival

Telomeres and Telomerase
Meditation reduces Heart Muscle Thickness

Changes in left ventricular mass index.

## Anti-inflammatory effect of Yoga

<table>
<thead>
<tr>
<th>Variable</th>
<th>HIY group (n=21)</th>
<th>Control group (n=23)</th>
<th>p-Value: HIY vs. control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline 6 wk p-Value Baseline 6 wk p-Value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooper test (maximal oxygen consumption) (mL/kg per min)</td>
<td>37.3 ± 7.9 37.5 ± 7.9 0.78</td>
<td>38.5 ± 7.7 38.3 ± 6.6 0.79</td>
<td>0.87</td>
</tr>
<tr>
<td>Central RPE</td>
<td>17 (15–20) 17 (14–19) 0.20</td>
<td>17 (12–19) 17 (7–19) 0.83</td>
<td>0.37</td>
</tr>
<tr>
<td>Peripheral RPE</td>
<td>15 (8–18) 15 (11–17) 0.45</td>
<td>14 (9–16) 14 (8–18) 0.15</td>
<td>0.14</td>
</tr>
<tr>
<td>HRR</td>
<td>39.9 ± 13.1 36.8 ± 15.5 0.39</td>
<td>40.8 ± 11.8 39.2 ± 12.7 0.56</td>
<td>0.82</td>
</tr>
<tr>
<td>Rest HR (beats/min)</td>
<td>81.6 ± 18.9 79.6 ± 8.2 0.47</td>
<td>81.3 ± 13.7 78.5 ± 14.5 0.32</td>
<td>0.97</td>
</tr>
<tr>
<td>Systolic BP (mmHg)</td>
<td>118.7 ± 5.8 118.3 ± 5.2 0.80</td>
<td>118.9 ± 8.9 117.3 ± 6.3 0.25</td>
<td>0.54</td>
</tr>
<tr>
<td>Diastolic BP (mmHg)</td>
<td>76.8 ± 5.9 77.2 ± 7.4 0.73</td>
<td>74.8 ± 5.8 77.8 ± 6.8 0.01</td>
<td>0.15</td>
</tr>
<tr>
<td>MID BP (mmHg)</td>
<td>97.7 ± 4.7 97.8 ± 5.8 0.66</td>
<td>96.8 ± 6.5 97.5 ± 5.9 0.45</td>
<td>0.45</td>
</tr>
<tr>
<td>Plasma ApoA1 (g/L)</td>
<td>1.47 ± 0.17 1.55 ± 0.16 0.03</td>
<td>1.59 ± 0.22 1.62 ± 0.22 0.37</td>
<td>0.28</td>
</tr>
<tr>
<td>Plasma ApoB (g/L)</td>
<td>0.80 ± 0.14 0.81 ± 0.15 0.65</td>
<td>0.78 ± 0.16 0.81 ± 0.18 0.12</td>
<td>0.46</td>
</tr>
<tr>
<td>ApoB/ApoA1</td>
<td>0.55 ± 0.12 0.53 ± 0.13 0.28</td>
<td>0.50 ± 0.12 0.51 ± 0.14 0.48</td>
<td>0.20</td>
</tr>
<tr>
<td>Blood glycosylated hemoglobin HbA1C (mmol/mol)</td>
<td>32.2 ± 2.9 31.3 ± 3.8 0.07</td>
<td>31.8 ± 2.7 31.8 ± 4.2 1.0</td>
<td>0.22</td>
</tr>
<tr>
<td>Serum adiponectin (mg/L)</td>
<td>8.32 ± 3.32 9.68 ± 3.83 0.003</td>
<td>9.07 ± 3.29 9.53 ± 3.78 0.18</td>
<td>0.37</td>
</tr>
<tr>
<td>Serum leptin (μg/L)</td>
<td>14.33 ± 11.04 14.63 ± 10.97 0.73</td>
<td>10.19 ± 7.07 9.43 ± 5.48 0.59</td>
<td>0.48</td>
</tr>
<tr>
<td>Adiponectin/leptin</td>
<td>1.24 ± 1.46 1.33 ± 1.52 0.24</td>
<td>1.39 ± 0.95 1.51 ± 1.35 0.59</td>
<td>0.78</td>
</tr>
</tbody>
</table>

Cardiovascular Fitness (Maximal Oxygen Consumption, Cooper Test), Blood Pressure, Apolipoproteins, Glycosylated Hemoglobin, and Adipocytokines at Baseline and After 6 Weeks for the High-Intensity Yoga and Control Groups.
Yoga for Fainting

Impact of Yoga on Syncope and Pre-syncope scores

<table>
<thead>
<tr>
<th></th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syncope Score</td>
<td>4</td>
<td>1.3</td>
</tr>
<tr>
<td>Pre syncope score</td>
<td>4.7</td>
<td>1.5</td>
</tr>
</tbody>
</table>

J Interv Card Electrophysiol. 2015 Aug;43(2):105-10
There are two mistakes one can make along the road to truth:
not going all the way, and not starting.

Buddha
Importance of Sleep for Health and Longevity

Dan Asimus, MD

A Community Day Focused on Integrative Health & Wellness

Saturday, January 23, 2016
GOING TO SLEEP AND STAYING AWAKE

Daniel M. Asimus M.D., M.S.Ed., ABIHM
LIFE FITNESS CENTER
LOS ANGELES & MAUI
Goals of Integrative Holistic Medicine

1. Optimal Health
2. Happiness
3. Success
4. Homeostasis with nature and the universe
5. Prevention of illness
6. Love is the greatest healer of all
Our genetics and our inner and outer environment strongly influence the interactions and results.

Integrative Holistic Sleep Science
What is sleep?

Essential biological drive, need, and requirement for all living beings

The quality and quantity make a big difference in the quality and quantity of our lives
Healthy Sleep: Goals of this Presentation

1. Help to change your paradigm about sleep
2. Provide suggestions for you to get better sleep
3. Increase the importance of sleep for your health and wellness
Healthy Sleep: How much is enough?

- **Infants**: 16 hours
  - many only get 5-6 ½ hours

- **Teens**: 9 hours
  - current average is 6-7 ½ hours

- **Adults**: 7-9 hours
  - many can only get 5-6 hours

- **Seniors**: 7-9 hours
  - many can only get 5-6 hours
History of Sleep.....What Happened?

- Invention of the Light Bulb
- Urban-Industrial lifestyle
- Electronic world
- Cultural shift
Who said this?

“Sleep is a criminal waste of time...a useless heritage from our cave days.”

**Thomas Edison**

“Sleep is an enemy, a necessary burden, a waste of time.”

**Margaret Thatcher**
Integrative Sleep and Rhythms

- We suffer from a darkness deficiency
- Sleep and dream debt cause dangerous mental smog and daze
- LAN (light at night) undermines life’s fundamental rhythmicity
- Rush hour, prime time, happy hour, late night TV, drugs/alcohol, 2\textsuperscript{nd} wind all interfere with the Yin & Yang of natural sleep and wakefulness
Homeostasis requires rhythm, repetition, regularity and routine. Rhythms rule our world; are powerful and healing.

Rhythmic activities of our body and mind include our hormones, circulation, digestion, brain waves, and states of consciousness.
What Helps Regulate All This?

Our Biological Clocks and our Genes

Clock Genes control the CRS and the HSD

Nuclear Receptors REV and ERB-Beta control the Period Genes which are our Core Genetic Clock Genes

We need adequate sleep for the CRS Clock to control the individual clocks within each of our major organs (i.e. liver, heart, pituitary, gut). Otherwise, chaos, disregulation, and illness.
<table>
<thead>
<tr>
<th></th>
<th>What are the Negative Consequences of Inadequate Sleep?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100,000 accidents, 1,500 auto deaths.</td>
</tr>
<tr>
<td>2</td>
<td>Deficient production of all neurotransmitters.</td>
</tr>
<tr>
<td>3</td>
<td>Decreased dreaming; emotional processing, and less Slow Wave Sleep-Delta Stage 3-4 Sleep.</td>
</tr>
<tr>
<td>4</td>
<td>Structural brain changes-apoptosis, dementias, other NDD.</td>
</tr>
<tr>
<td>5</td>
<td>Poor memory, concentration, problem solving, emotional control, creativity, learning, and executive functioning.</td>
</tr>
<tr>
<td>6</td>
<td>Alteration in at least 117 important genes.</td>
</tr>
</tbody>
</table>
Less AKT, an insulin signaling protein, adipose tissue leading to insulin resistance, poor glucose metabolism, and weight gain, obesity.

Increase Ghrelin—hunger.
Decreased Leptin—satiety.

Increases insulin resistance by 30%, equals 10-20 years of metabolic aging.

Increased Depression, Anxiety, Bipolar, Suicides, Substance Abuse.

Decreased immunity: increased interleukin L6 and CRP and increased autoimmune disorders.

Increased Inflammation: CVD, Hypertension, CVA, Diabetes, Cancer.
What Should our Patients Avoid in the Evenings?

- Cigarettes
- Noise
- Certain meds
- Eating late
- Stimulants
- Alcohol
- Electronics
- Light at Night (LAN)
- Exercise
- Worry
Common Drugs that Cause Insomnia

- Alcohol
- Caffeine
- Chocolate
- Nicotine
- Stimulants
- Beta Blockers
- Antidepressants
- Calcium Channel Blockers
- Bronchodilators
- Corticosteroids
- Decongestants
- Thyroid Hormones
- Anticonvulsants
Now, what’s the treatment for specific and general sleep problems?

The required foundational treatment for all patients is to teach

• Living within the Natural Harmonious Rhythms of Nature
• Calm down and slow down in the evenings
• Be thankful and grateful
• No worrying, anger, and chaos

Your day begins when going to sleep

• Stop and enjoy the “four seasons” of each 24-hour cycle: dusk, night, dawn, day
• Maintain a healthy BMI, good nutrition, daily exercise, and a spiritual practice
• Love yourself and others
• Do something good for someone else today
What are my choices of **Substances** (and priorities)?

<table>
<thead>
<tr>
<th>Substance</th>
<th>Priority</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>*</td>
<td>Interferes with Stage 3-4 and REM sleep.</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>*</td>
<td>Interfere with deep sleep, Stage 3-4, and REM.</td>
</tr>
<tr>
<td>Trazodone</td>
<td>*</td>
<td>Avoid long term.</td>
</tr>
<tr>
<td>Non-benzo GABA meds</td>
<td>**</td>
<td>Occasionally OK, not more than for 1-2 weeks.</td>
</tr>
<tr>
<td>Antipsychotics</td>
<td>**</td>
<td>OK as long as manic or psychotic.</td>
</tr>
<tr>
<td>OTC meds</td>
<td>**</td>
<td>Benadryl-OK, occasionally develops tolerance and has rebound.</td>
</tr>
<tr>
<td>HRT</td>
<td>****</td>
<td>When indicated.</td>
</tr>
<tr>
<td>Substance</td>
<td>Priority</td>
<td>Details</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Marijuana</td>
<td>**</td>
<td>Can help for pain, nausea, chronic insomnia.</td>
</tr>
<tr>
<td>Melatonin</td>
<td>****</td>
<td>Doses 0.3-8 mg for kids and adults an hour before sleep can help fall sleep. Also, antimitotic, antioxidant, and free radical scavenger.</td>
</tr>
<tr>
<td>Chinese Herbs</td>
<td>****</td>
<td>The heart holds the mind at night. Stagnated liver Chi can cause Insomnia. Use Schisandra, Scutellaria, Lavender, Verbena, and Mellisa.</td>
</tr>
<tr>
<td>Desmopressin and Imipramine</td>
<td>****</td>
<td>Helpful for child bed wetting. 15-20% of kids at age 5, and 2% of young adults, Cochrane Collaboration. Desmopressin: Dose 0.2 - 0.6 mg hs. Imipramine: dose 10 - 50 mg hs.</td>
</tr>
<tr>
<td>Herbs</td>
<td>*****</td>
<td>Natural and helpful. Usually no side effects. Marinate the brain 1-2 hours before sleep. Can use teas, pills, tinctures, aromatherapy. See List. Pycnogenol 30mg (French Maritime Pine Bark) can work quite well for night time “hot sweats.” 50% of women on Aromatase have insomnia complaints.</td>
</tr>
</tbody>
</table>
**Melatonin**

- Hormone produced by the Pineal gland from Epinephrine and Serotonin
- Released when dark and calms down the Circadian Rhythm Wakefulness Center
- Dose for Children and Adults: 0.3 - 8mg/night

**Herbs**

- **Valerian** – assists GABA calm down catecholamine, 400 – 800mg per night
- **Kava** – National Fiji drink, for anxiety and restlessness, 180 – 210mg of Extract
- **Chamomile** – good for sleep and to soothe the stomach, essential oil, teas, tincture
- **Passionflower** – good for worry, exhaustion & nightmares, tincture TID
- **Lavender** – for nervousness and insomnia, as essential oil, teas, baths
- **Lemon Balm** – for depression, tension, and anxiety, as oil, tea, and tincture

**Herbal Insomnia Formula**

- Make a Tea by steeping 1 teaspoon to 1 tablespoon of the combined herbs in a cup of boiled water for 20 minutes; strain and drink 1 cup. A little honey, licorice, or stevia for sweetening.

- **Valerian** 30%
- **Chamomile** 20%
- **Linden** 20%
- **Catnip** 10%
- **Kava** 20%

**Herbs Helpful for the Adrenals: Exhaustion and Insomnia**

- Reishi
- Eleuthera
- Rehmannia
- Withania
- Rhodiola
What are my choices in the **Healing Arts** category?

<table>
<thead>
<tr>
<th>Healing Art</th>
<th>Priority</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acupuncture</td>
<td>**</td>
<td>Cochrane equivocal meta-analysis report. The facial Ghost Points: GV26, LU11, and SP1 can help insomnia with depression.</td>
</tr>
<tr>
<td>Biofeedback training</td>
<td>**</td>
<td>Can help if practice self learned biofeedback in the evening.</td>
</tr>
<tr>
<td>Healing Touch</td>
<td>**</td>
<td>Helpful. More evidence based studies needed.</td>
</tr>
<tr>
<td>Oral Appliances for OSA</td>
<td></td>
<td>Not as helpful as C-Pap, better results than surgery. Use for mild OSA. Ref: Shneerson.</td>
</tr>
<tr>
<td>Circadian Rhythm adjustment</td>
<td>***</td>
<td>Using melatonin and/or required daily awakening time are helpful.</td>
</tr>
</tbody>
</table>

*Continued…*
<table>
<thead>
<tr>
<th>Healing Art</th>
<th>Priority</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHUTi</td>
<td>***</td>
<td>Sleep Healthy internet CBT pre-sleep training and practice can be helpful.</td>
</tr>
<tr>
<td>Massage</td>
<td>****</td>
<td>Very helpful before sleep if you are lucky to get one.</td>
</tr>
<tr>
<td>C-Pap Machine</td>
<td>*****</td>
<td>OSA can significantly reduce hypertension, insulin resistance, O2 saturation, and next day fatigue and tiredness within 2 weeks. Ref: Parnedi et al.</td>
</tr>
</tbody>
</table>
What can you suggest for **Mindfulness** therapies?

<table>
<thead>
<tr>
<th>Mindfulness</th>
<th>Priority</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Problem Solving and Worry Sessions</td>
<td>***</td>
<td>About 30 minutes in day light and not at night.</td>
</tr>
<tr>
<td>Relaxation Training</td>
<td>****</td>
<td>Trans Med (TM) etc training and practice has shown good results.</td>
</tr>
<tr>
<td>CBT and/or psychotherapy</td>
<td>****</td>
<td>CBT as effective as meds, lasting effects longer than meds. Psychotherapies eliminate fears and inner conflicts.</td>
</tr>
<tr>
<td>Self Hypnosis</td>
<td>****</td>
<td>Very helpful after learning the technology.</td>
</tr>
<tr>
<td>Mindfulness Meditation</td>
<td>*****</td>
<td>8 training sessions and self practice in evening have good results.</td>
</tr>
</tbody>
</table>
What **Behavioral** suggestions can you recommend?

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Priority</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sounds and music</td>
<td>***</td>
<td>Synchronized sounds and music before sleep can increase Stage 3-4 Deep Wave Sleep.</td>
</tr>
<tr>
<td>Consistent schedule</td>
<td>****</td>
<td>Habit of regular sleep and awaking times.</td>
</tr>
<tr>
<td>Lighting exposure</td>
<td>****</td>
<td>Exposure to morning sunlight or bright light.</td>
</tr>
<tr>
<td>Exercise</td>
<td>****</td>
<td>Exercise one hour during day or early evening.</td>
</tr>
<tr>
<td>Set habits</td>
<td>*****</td>
<td>New habits of working during day and relax at night.</td>
</tr>
<tr>
<td>Self-training</td>
<td>*****</td>
<td>Train yourself to just calm the mind, turn off your thoughts, close your eyes and drift off to natural sleep.</td>
</tr>
</tbody>
</table>

Continued…
<table>
<thead>
<tr>
<th>Behavior</th>
<th>Priority</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet</td>
<td>****</td>
<td>Eat early light evening meals; protein and complex carbs.</td>
</tr>
<tr>
<td>Enjoyable activities</td>
<td>****</td>
<td>Practice fun, relaxing, peaceful activities before sleep.</td>
</tr>
<tr>
<td>Peace and quiet state</td>
<td>****</td>
<td>Take a warm herbal bath with candles and soft music.</td>
</tr>
<tr>
<td>Sexual activity</td>
<td>****</td>
<td>Sex before sleep can be wonderful and hypnotic. Increases dopamine. Ref: Sleep Science, Aug. 2013.</td>
</tr>
</tbody>
</table>
What **Environmental** suggestions can you recommend?

<table>
<thead>
<tr>
<th>Environment</th>
<th>Priority</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimmed</td>
<td>*****</td>
<td>Dim the lights and noise for 2 hours before sleep.</td>
</tr>
<tr>
<td>Outside</td>
<td>*****</td>
<td>Go outside and sit quietly in the dark under the stars for 10 minutes one hour before sleep.</td>
</tr>
<tr>
<td>Lack of electronics</td>
<td>*****</td>
<td>Eliminate Blue Light and all electronics one hour before sleep.</td>
</tr>
<tr>
<td>Promote relaxation</td>
<td>*****</td>
<td>Read, write, draw, meditate before sleep.</td>
</tr>
<tr>
<td>State of the bedroom</td>
<td>*****</td>
<td>Keep the bed room cool, dark, quiet, and comfortable.</td>
</tr>
</tbody>
</table>
Suggest that your patients use these and other **Resources** ...

1. Read *Healing Night*, by Rubin Naimen, PhD. *****

2. National Sleep Foundation, website: sleepfoundation.org. *****

3. Medscape Resource Center: Insomnia and Sleep Healthy Patient Education Center. ****

4. *Health Sleep*, chapter within the ABIHIM Clinical Reference Book, Daniel Asimus, MD, ABIHIM. *****
Thank you for listening, for not falling sleep, and for helping yourselves and your patients align with the Natural Harmonious Cycles of Nature and getting a healthy good night’s sleep

...Pleasant Dreams!!
Good night!!

Oyasaminasai
Buenos Noches
Laila Tov
Bonne Nuit
Shab Bekheir

Dan Asimus MD, ABIHM
Integrative Approaches to Depression

Eleanor Glass, MD
Integrative Cancer Care: More than Traditional Medicine has to Offer

Rekha Chaudhary, MD
Preventing Cancer with Healthy Living: A Scientific Discussion

Rekha Chaudhary, MD
Associate Professor of Medicine
University of Cincinnati
Division of Hematology/Oncology
Fellowship Program Director
Faculty UC Brain Tumor Center
Faculty UC Integrative Health Center
KEEP CALM IT'S ONLY A TUMOR
<table>
<thead>
<tr>
<th>Curing</th>
<th>Healing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External treatment that removes all evidence of disease</strong></td>
<td><strong>Internal process that through which a person becomes whole</strong></td>
</tr>
<tr>
<td><strong>What physicians do</strong></td>
<td><strong>What patients do</strong></td>
</tr>
<tr>
<td>Usually on physical level alone</td>
<td>Physical, emotional, or spiritual level</td>
</tr>
</tbody>
</table>

*Choices in Healing* by Michael Lerner
“That one can participate in the fight for life with cancer – by working to enhance your own healing is a profoundly important discovery for many people”
INTEGRATIVE MEDICINE
- Prospective Randomized Double-Blind Placebo Controlled Trials
- Prospective Cohort Trials
- Retrospective Trials
Randomized Control Double-Blind Trial

- Patients
- Random assignment
- Treatment Group
- Follow-up
- Control Group
- Follow-up
- Compare results

Diagram: Flowchart showing the process of a randomized control double-blind trial with patients assigned randomly to treatment or control groups, followed by a comparison of results.
Prospective Cohort Trial

Healthy People with different experiences

Healthy People and Sick People

time passes

Study Question: Who gets sick and who stays healthy?
Oncology Randomized Clinical Trials

Figure 3: Kaplan-Meier curves of estimation of survival in patients diagnosed with lung cancer based on the treatment received.

\[ p < 0.05 \text{ statistically significant} \]
Exercise

Traditional Medical Therapy

Diet

Stress Reduction

CANCER
• Mice inoculated with melanoma in their paws
  • ½ mice were exposed to 14 days of stress regime including periods of
    • Food deprivation
    • 45 degree cage tilt
    • Soiled cage
    • Low-intensity strobe light
    • Overnight illumination
    • Removed bedding
    • Noise emitted from a radio

Stress and Cancer

Counseling and Cancer

- 227 patients treated for breast cancer
  - ½ patients randomized to psychological intervention arm
  - ½ randomized to regular assessment

- Intervention arm had strategies
  - To reduce stress
  - Improve mood
  - Alter health behaviors

Chemotherapy in Brain Tumors

- Probability of Overall Survival (%)
- Months
- No. at Risk
  - Radiotherapy: 286, 240, 144, 59, 23, 2, 0
  - Radiotherapy plus temozolomide: 287, 246, 174, 109, 57, 27, 4

(c) Overall survival

- Proportion Surviving
- Months
- Intervention
- Assessment only
Counseling and Cancer

- Women with metastatic Stage IV breast cancer randomized to therapy versus no therapy
- Group therapy was 90 minutes weekly led by a psychiatrist or social worker who themselves had breast cancer in remission
- Self-hypnosis was taught for pain control and managing side effects of chemotherapy

the infants were at high risk of the HBV carrier state but the effects of breastfeeding on mother-to-infant HBV transmission were not studied. In our study serum from all ten HBeAg-positive, HBeAg-carrier mothers contained HBV DNA, but the HBV DNA was not detected in the single HBeAg-negative, HBeAg-carrier mother. HBV DNA was found in only one cord blood sample. No HBV DNA was found in the infant's serum after the administration of HBIG, for as long as moderate levels of anti-HBs persisted. As anti-HBs disappeared, both HBV DNA and HBeAg were detected in the serum (9 months of age) despite four doses of hepatitis B vaccine. These findings suggested that vaccination failure. The first possibility is that HBV infection of the fetus in utero made the child immunologically tolerant to HBV antigens, so that HB vaccine was not effective. Secondly, early administration of HBIG could have protected the child from virusemia, but if HBV had already infected leukocytes, liver and deal records were obtained for the other 83. Survival from time of randomisation and onset of intervention was a mean 36.6 (SD 19.0) months in the intervention group compared with 8.9 (SD 10.8) months in the control group, a significant difference. Survival plots indicated that survival was supported by grants from Chiyoda Mutual Life Foundation and a local specialistised subsidy from Yokohama City. Correspondence should be addressed to S. Y.

REFERENCES

Double Survival!!
HI, MY NAME IS APPENDIX, AND SOMETIMES I GET SO ANGRY I COULD BURST!

YOU HAVE A PURPOSE! MAYBE.

 NON-ESSENTIAL ORGAN SUPPORT GROUP

AWKWARD YETI .com
Exercise and Survival in Recurrent Glioma Patients

- Prospective trial
  - $\geq 9$ MET versus $< 9$ MET
  - $9$ MET = Brisk walking for 30 minutes on 5 days/week

- Results independent of:
  - Performance status
  - Age
  - Number of prior progressions

Exercise Behavior, Functional Capacity, and Survival in Adults With Malignant Recurrent Glioma

Emily Raden, David A. Raardan, April D. Coan, James E. Harrisson II, Whitney E. Hornsby, Miranda West, Diane R. Fehl, Annick Dejardins, James J. Vredenburgh, Emily Winter, Allan H. Friedman, Henry S. Friedman, Katherine B. Peters, and Lee W. Jones

ABSTRACT

Purpose

Identifying strong markers of prognosis are critical to optimize treatment and survival outcomes in patients with malignant recurrent glioma. We investigated the prognostic significance of exercise behavior in a large, unselected sample. Exercise behavior was an independent predictor of survival (P = 0.008). Median survival was 13.03 months for patients reporting < 9 MET-h/wk relative to 21.84 months for those reporting ≥ 9 MET-h/wk. Exercise behavior added incremental prognostic value beyond that provided by traditional markers of prognosis.

Conclusion

Exercise behavior is a strong independent predictor of survival that provides incremental prognostic value to KPS as well as traditional markers of prognosis in malignant recurrent glioma.

INTRODUCTION

Malignant recurrent glioma is a major challenge in the oncology setting, with median survival of only 4 to 6 months. Several factors, including age, performance status (PS), tumor grade and histology, and number of prior progressions, are strong independent predictors of survival in this population. Of these factors, PS scoring, either assessed by Karnofsky performance scale (KPS) or Eastern Cooperative Oncology Group (ECOG) scoring systems, is consistently a robust independent prognostic factor. Thus, physical functioning plays an integral role in the assessment of treatment and disease pathophysiology in malignant glioma. Current subjective PS scoring systems, however, fail to fully characterize physical functioning and lack the sensitivity to accurately discriminate between individuals with good (ie, KPS > 70; ECOG0 to 1) PS. Alternative clinical tools that provide more sensitive and objective assessments of physical functioning may allow for more accurate prognostication and inform therapeutic intervention.

Several methods are available to clinicians that provide objective determinations of physical functioning in the oncology setting. Of these, a 6-minute walk test (6MWT) is a simple and clinically feasible method to evaluate functional capacity and is a robust predictor of mortality in numerous clinical settings. Our group previously demonstrated the clinical utility of the 6MWT in patients with recurrent glioma, although the prognostic importance of the 6MWT in the oncology setting outside of a small preliminary study in advanced lung cancer is not known.
Exercise and Survival in Lymphoma Patients

- Prospective trial looking at exercise 3x a week for 15-45 minutes in patients with lymphoma

- Exercise Group 5-year progression free survival: 69%

- Control Group 5-year progression free survival: 59%

Exercise and Survival in Lymphoma

Exercise and Survival in Lymphoma

Exercise

Traditional Medical Therapy

Stress Reduction

Diet
The doctor of the future will give no medication, but will interest his patients in the care of the human frame, diet and in the cause and prevention of disease.
- Prospective Randomized Double-Blind Placebo Controlled Trials
- Prospective Cohort Trials
- Retrospective Trials
China Study?
What is the China Study?

- Partnership between Cornell University, Oxford University, and the Chinese Academy of Preventative Medicine.
- Studied mortality rates from cancer and other chronic diseases from 1973–75 in 65 counties in China
- Correlated dietary surveys in 1983-1984 and blood work from 100 people in each county
- included 367 variables and 6,500 adults
- more than 8,000 statistically significant associations
6500 people
The China Study

“Grand prix of all epidemiologic studies” – New York Times

“Today AICR (American Institute for Cancer Research) advocates a predominantly plant-based diet for lower cancer risk because of the great work Dr. Campbell …began 25 years ago.” – Marilyn Gentry, president AICR

“The China Study is a well-documented analysis of the fallacies of the modern diet. The lessons from China provide compelling rationale for a plant-based diet to promote health and reduce the risk of diseases of affluence” – Sushma Palmer, PhD executive director, Food and Nutrition Board, US National Academy of Sciences

Former President Bill Clinton is plant-based and lost 24 pounds. He singles out the China Study and Dr. Campbell as leaders in the movement.
Conclusions of China Study

- Whole-food plant-based diet is the best diet for promoting an overall healthy lifestyle.
- Prevents cancer and turns off tumorigenesis
- Decreases cholesterol and heart disease
- Plants are anti-oxidants that aid in the fight against cancer
BLUE ZONES
LONGEVITY HOTSPOTS

BLUE ZONE LIFE LESSONS
- MOVE NATURALLY
- RIGHT TRIBE
- RIGHT OUTLOOK
- EAT WISELY
Adventist Health Study

<table>
<thead>
<tr>
<th>Sources</th>
<th>Location</th>
<th>Number of Subjects ($n$)</th>
<th>Age Range (years)</th>
<th>Years of Follow-Up (years)</th>
<th>Outcomes of Interest</th>
<th>Study Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adventist Mortality Study (AMS)</td>
<td>California</td>
<td>22,940</td>
<td>35–90</td>
<td>1960–1976</td>
<td>Disease Mortality</td>
<td>Prospective</td>
</tr>
<tr>
<td>Adventist Health Study-1 (AHS-1)</td>
<td>California</td>
<td>34,198</td>
<td>25–90</td>
<td>1976–1982</td>
<td>Disease incidence</td>
<td>Prospective</td>
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<td>Adventist Health Study-2 (AHS-2)</td>
<td>50 U.S. States &amp;</td>
<td>96,194</td>
<td>30–112</td>
<td>2002–(ongoing)</td>
<td>Disease Incidence &amp; Mortality</td>
<td>Prospective</td>
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<tr>
<td></td>
<td>Canada</td>
<td></td>
<td></td>
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</tbody>
</table>

Lap Tai Le et al. Beyond Meatless, the Health Effects of Vegan Diets: Findings from the Adventist Cohorts. Nutrients 2014, 6, 2131-2147.
100,000 people
Risk Reduction
Adventist Health Study-2

Lap Tai Le et al. Beyond Meatless, the Health Effects of Vegan Diets: Findings from the Adventist Cohorts. Nutrients 2014, 6, 2131-2147.
European Prospective Investigation of Cancer (EPIC)
23 Centers and 10 European Countries
- France, Italy, Spain, Netherlands, United Kingdom, Greece, Germany, Norway, Sweden and Denmark

Healthy subjects recruited between 1992-2000

448,568 study subjects
- Self-reported heart attacks, stroke or cancer were excluded

500,000 people

1991 Protest of Communist Government
6500 people
100,000 people
1991 Protest of Communist Government

500,000 people
FINDINGS

- Lung Cancer
  - 40% reduction with fruit intake

- Breast Cancer
  - 13% increase with saturated fat intake
  - Increased BMI significant predictor of breast cancer

- Prostate Cancer
  - High consumption of dairy and calcium leads to increased risk of prostate cancer

FINDINGS

- **Gastric Cancer:**
  - Increased with total meat, red meat and processed meat
  - Decreased with cereal fiber
  - 33% reduction in gastric cancer with Mediterranean diet (high intake of fruit and vegetables, cereals, fish, olive oil, legumes, moderate intake of alcohol and low intake of meat and dairy)

- **Colorectal Cancer**
  - 42% reduction in patients with high dietary fiber from cereal, fruits and vegetables
  - 35% increase with red meat and processed meat
  - 8% increase with more than 15g of alcohol daily (1.5 standard drinks)

Original Investigation

Mediterranean Diet and Invasive Breast Cancer Risk Among Women at High Cardiovascular Risk in the PREDIMED Trial
A Randomized Clinical Trial

Estefanía Toledo, MD, MPH, PhD; Jordi Salas-Salvadó, MD, PhD; Carolina Donat-Vargas, PharmD; Pilar Buil-Cosiales, MD, PhD; Ramón Estruch, MD, PhD; Emilio Ros, MD, PhD; Dolores Corella, DPharm, PhD; Montserrat Fitó, PhD; Frank B. Hu, MD, PhD; Fernando Arós, MD, PhD; Enrique Gómez-Gracia, MD, PhD; Dora Romaguera, MSc, PhD; Manuel Ortega-Calvo, MD; Lluís Serra-Majem, MD, PhD; Xavier Pintó, MD, PhD; Helmut Schröder, PhD; Josep Basora, MD, PhD; José Vicente Sorlí, MD, PhD; Mònica Bulló, BSc, PhD; Merce Serra-Mir, RD; Miguel A. Martínez-González, MD
October 2003 – June 2009

7447 participants

Randomized to

- Mediterranean diet plus olive oil
- Mediterranean diet plus nuts
- Control diet (low-fat)
62% decrease in Breast Cancer

What was a significant p-value?

p < 0.05 statistically significant
The Protein Myth

No meat at all? Are you sure you’re getting enough protein?
Gary E. Fraser
PhD, Professor, Department of Epidemiology, School of Public Health, Loma Linda University, Loma Linda, CA, USA, Tel: +1 909 558 4300, Fax: +1 909 558 4095, efraser@llu.edu
### 500 Calories - Plants vs. Animal-Based Foods

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Plant-Based Foods</th>
<th>Animal-Based Foods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholesterol (mg)</td>
<td>0</td>
<td>137</td>
</tr>
<tr>
<td>Fat (g)</td>
<td>4</td>
<td>36</td>
</tr>
<tr>
<td><strong>Protein (g)</strong></td>
<td><strong>33</strong></td>
<td><strong>34</strong></td>
</tr>
<tr>
<td>Beta-Carotene (mcg)</td>
<td><strong>29,919</strong></td>
<td><strong>17</strong></td>
</tr>
<tr>
<td>Dietary Fiber (g)</td>
<td>31</td>
<td>0</td>
</tr>
<tr>
<td>Vitamin C (mg)</td>
<td>293</td>
<td>4</td>
</tr>
<tr>
<td>Folate (mcg)</td>
<td>1168</td>
<td>19</td>
</tr>
<tr>
<td>Vitamin E (mg)</td>
<td>11</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Iron (mg)</strong></td>
<td><strong>20</strong></td>
<td><strong>2</strong></td>
</tr>
<tr>
<td>Magnesium (mg)</td>
<td>548</td>
<td>51</td>
</tr>
<tr>
<td><strong>Calcium (mg)</strong></td>
<td><strong>545</strong></td>
<td><strong>252</strong></td>
</tr>
</tbody>
</table>
Protein?

**Beef**
6.4 grams of protein per 100 calories

**Broccoli**
11.1 grams of protein per 100 calories
Exercise

Whole Food, Plant-based diet

Traditional Medical Therapy

Stress Reduction
Prostate Cancer and Wellness

- 93 patients with low-risk prostate cancer were on a wait-and-watch treatment
- Patients were randomized to a control arm and a lifestyle arm
- Experimental arm were asked to adopt a low-fat, plant-based diet, to exercise and to practice stress management, and to attend group support sessions.

At 2 years:
- 27% of the control arm required surgery
- 5% of the experimental arm required surgery

Telomere length

Telomere shortening associated with disease risk and premature death
Dean Ornish Study: 5-year Lifestyle Changes Correlate with Small Increases in Telomere Length

- **Intervention arm:** increase in telomere length/gene median of 0.06
- **Control arm:** decrease in telomere length/gene median of 0.03

At 5 years follow-up if patients adhered to lifestyle there telomere length/gene ratio continued to increase!

Source: Dean Ornish ....& Elizabeth Blackburn, Lancet Oncology 14:1112-1120, 2013
Average relative telomere length increase by 0.07 for every percentage point increase in healthy-living regimen adherence score. $P = .005$
Choose Love, Not Fear
Living Luxuriously: The Journey
Optimism?

- 10,000 take MMPI group into pessimists and optimists
- 18 years later, 534 developed lung cancer
- Patients divided into optimistic group and pessimistic group

Optimism improves cancer survival

What was a significant p-value?

Log-rank $p = 0.0105$

$p < 0.05$ statistically significant
Nothing can cure the soul but the senses, just as nothing can cure the senses but the soul.

-Oscar Wilde