Lifestyle Medicine: Longevity, Healthspan and Ikigai

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Fellow, American College of Neurosurgery

Diplomates, American Board of Lifestyle Medicine
“Your health isn’t everything, but without your health, everything is nothing.”

- a wise man
Healthspan vs Lifespan

- Increased 'Health-Span'
- Compressed Morbidity
- Average Population
- Master Athletes

Health vs Age graph
What We Will Discuss Today:

• Our Failing Current Medical System
• How Lifestyle Medicine Can Cure Us and the System
• Optimal Nutrition for Optimal Health
• Our Experience with Lifestyle Medicine in Asheville
• How can we live longer AND better?
Leading Causes of Death in the US 2017

- Heart disease: 633,842
- Cancer: 595,930
- Chronic lower respiratory diseases: 155,041
- Accidents (unintentional injuries): 146,571
- Stroke (cerebrovascular diseases): 140,323
- Alzheimer’s disease: 110,561
- Diabetes: 79,535
- Influenza and pneumonia: 57,062
- Nephritis, nephrotic syndrome, and nephrosis: 49,959
- Intentional self-harm (suicide): 44,193

*CDC Vital statistics 2016*
Actual Causes of Death

- Tobacco 435,000
- Poor diet and physical inactivity 400,000
- Alcohol consumption 85,000
- Microbial agents 75,000
- Toxic agents 55,000
- Motor vehicle accidents 43,000
- Firearms 29,000

*Mokdad, Actual causes of Death in the U.S. 2000 and 2004

NOTE: 80% of all deaths are caused by our lifestyles
Heart Disease ... Less Than 100 Years Ago

“You can expect one heart attack per year in an average hospital in an average sized town.”

Prevalence of Coronary Heart Disease in North America, 1928

Medical Textbook by Sir William Osler, MD

Today, the number of heart attacks in the US is 4,000 per day!!!

2018 Mission data:
*6251 TIMIs = 1.7/day (28% increase from 2013)
*1633 PCI cases = 4.5/day
Heart Disease Today … Pills and Procedures

Pill Nation: The Rise of Rx Drug Use

The total number of prescriptions filled by all Americans, including adults and children, has increased by 85 percent over two decades, while the total U.S. population has increased by only 21 percent.

180,000* serious or fatal adverse drug reactions reported to the FDA, making drugs a significant % of US deaths

*2011 improperly or properly prescribed

Source: Quintiles IMS. © 2017 Consumer Reports. All Rights Reserved.
Heart Disease Today …

- Bypass Surgery
  - 400,000/year
  - Subsets of patients for whom this operation is associated with improved mortality versus medical therapy or stenting
  - 37-46% of vein grafts failed (75% narrowing) within 12 to 18 months

  *NEJM 2009, 361 (3) 235*

- Angioplasties & Stents
  - 1,000,000/year
  - Most useful for symptom relief-not for mortality benefit
This simply does not make sense…
WHOLE HEALTH - TREATMENT

ACUTE - SEVERE
Foreign, Invasive
Costly

CHRONIC
Natural
Inexpensive

SURGERY

PRESCRIPTION
"Natural" therapies that restore healthy physiology.

PHYSIOLOGY

LIFESTYLE
The cause and cure of most disease - nutrition, exercise, sleep, stress, relationships, purpose, etc.

©Marc Braman MD, MPH
The doctor of the future will give no medicine, but will instruct his patient in the care of the human frame, in diet and in the cause and prevention of disease.

-Thomas Edison
Lifestyle: The Cause and the Cure for Today’s Medical Dilemma
Lifestyle Medicine Definition

Lifestyle medicine is the **evidence based** practice of helping individuals and families adopt and sustain **(natural) healthy behaviors** that affect health and quality of life…
Lifestyle Interventions

Lifestyle medicine focuses on 6 areas to improve health:

1. Healthful eating of whole, plant-based food
2. Increase physical activity
3. Develop strategies to manage stress
4. Cessation of tobacco
5. Form & maintain relationships
6. Improve your sleep
Data for Lifestyle Efficacy

*Circulation 4/30/2018 Li et al.*
- Data from NHS+ HPFS (>122,000 pts over 34 yrs)

- 5 lifestyle factors:
  - Never smoking
  - BMI 18.5-24.9
  - >30 min/D moderate-vigorous activity
  - <Moderate ETOH intake
  - High dietary quality (top 40%)
Data for Lifestyle Efficacy

*Circulation 4/30/2018 Li et al.*
- Hazard ratios for all 5 factors vs 0
- All cause mortality 0.26
- Cancer mortality 0.35
- CV mortality 0.18

- Additional life expectancy at age 50:
  - women 14 years
  - men 12.2 years
Fingers…Feet…Forks...

Health
Diet/Nutrition

Low-Carb Diet Beats Low-Fat for Weight Loss

• Mandy Oaklander

@mandyoaklander

Sept. 1, 2014
“Eat food, not too much, mostly plants.”

-Michael Pollan
Vegetarian diets and blood pressure among white subjects: results from the Adventist Health Study-2 (AHS-2)

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Abstract

Objective—Previous work studying vegetarians has often found that they have lower blood pressure (BP). Reasons may include their lower BMI and higher intake levels of fruit and vegetables. Here we seek to extend this evidence in a geographically diverse population containing vegans, lacto-ovo vegetarians and omnivores.
<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>BEEF</th>
<th>POULTRY/FISH</th>
<th>DAIRY/EGGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VEGAN</td>
<td>4.3</td>
<td>NONE</td>
<td>NONE</td>
<td>NONE</td>
</tr>
<tr>
<td>LACTO-OVO</td>
<td>34.0</td>
<td>NONE</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>PESCO-VEGE</td>
<td>9.7</td>
<td>NONE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEMI-VEGE</td>
<td>8.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NON-VEGE</td>
<td>43.7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 1
Mean BMI (in kg/m²) and the prevalence of diabetes and hypertension in different types of vegetarians compared with nonvegetarians in California Seventh-day Adventists: preliminary analyses adjusted for age, sex, and race.

<table>
<thead>
<tr>
<th>Diet group</th>
<th>BMI²</th>
<th>Diabetes³</th>
<th>Hypertension³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonvegetarian</td>
<td>28.26 (28.22, 28.30)</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Semivegetarian</td>
<td>27.00 (26.96, 27.04)</td>
<td>0.72 (0.65, 0.79)</td>
<td>0.77 (0.72, 0.82)</td>
</tr>
<tr>
<td>Pescevegetarian</td>
<td>25.73 (25.69, 25.77)</td>
<td>0.49 (0.44, 0.55)</td>
<td>0.62 (0.59, 0.66)</td>
</tr>
<tr>
<td>Lactoovo-vegetarian</td>
<td>25.48 (25.44, 25.52)</td>
<td>0.39 (0.36, 0.42)</td>
<td>0.45 (0.44, 0.47)</td>
</tr>
<tr>
<td>Vegan</td>
<td>23.13 (23.09, 23.16)</td>
<td>0.22 (0.18, 0.28)</td>
<td>0.25 (0.22, 0.28)</td>
</tr>
</tbody>
</table>

\[ P^4 \]

\[ P^4 = 0.0001 \quad 0.0001 \quad 0.0001 \]

\[ n = 89,224. \]
Table 1. Comparison of Vegetarian With Nonvegetarian Dietary Patterns With Respect to All-Cause and Cause-Specific Mortality From a Cox Proportional Hazards Regression Model Among Participants in the Adventist Health Study 2, 2002-2009

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>All-Cause</th>
<th>Ischemic Heart Disease</th>
<th>Cardiovascular Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>All (N = 73,308), No. of deaths&lt;sup&gt;a,b&lt;/sup&gt;</td>
<td>2560</td>
<td>372</td>
<td>987</td>
</tr>
<tr>
<td>Vegetarian</td>
<td>0.88 (0.80-0.97)</td>
<td>0.81 (0.64-1.02)</td>
<td>0.87 (0.75-1.01)</td>
</tr>
<tr>
<td>Nonvegetarian</td>
<td>1 [Reference]</td>
<td>1 [Reference]</td>
<td>1 [Reference]</td>
</tr>
<tr>
<td>Men (n = 25,105), No. of deaths&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1031</td>
<td>169</td>
<td>390</td>
</tr>
<tr>
<td>Vegetarian</td>
<td>0.82 (0.72-0.94)</td>
<td>0.71 (0.51-1.00)</td>
<td>0.71 (0.57-0.90)</td>
</tr>
<tr>
<td>Nonvegetarian</td>
<td>1 [Reference]</td>
<td>1 [Reference]</td>
<td>1 [Reference]</td>
</tr>
</tbody>
</table>

Figure Legend:
Proportional cardiometabolic mortality attributable to dietary habits in the United States in 2012

Suboptimal Intake

- High sodium: >2000 mg/d
- Low nuts/seeds: <20.2 g/d
- High processed meats: >0 g/d
- Low seafood omega-3 fats: <250 mg/d
- Low vegetables: <400 g/d
- Low fruits: <300 g/d
- High sugar-sweetened beverages: >0 g/d
- Low whole grains: <125 g/d
- Low PUFAs replacing carbohydrates or saturated fats: <11% energy/d
- High red meats, unprocessed: >14.3 g/d

The bars represent the estimated absolute number (top panel) and percentage (bottom panel) of cardiometabolic deaths related to 10 dietary factors compared with optimal intakes. The dietary factors are listed in rank order of total mortality in men and women combined. Error bars indicate 95% uncertainty intervals. CHD indicates coronary heart disease; CVD, cardiovascular disease; PUFA, polyunsaturated fat.
Association of Animal and Plant Protein Intake With All-Cause and Cause-Specific Mortality

Mingyang Song, MD, ScD; Teresa T. Fung, ScD; Frank B. Hu, MD, PhD; Walter C. Willett, MD, DrPH; Valter D. Longo, PhD; Andrew T. Chan, MD, MPH; Edward L. Giovannucci, MD, ScD

**IMPORTANCE** Defining what represents a macronutritionally balanced diet remains an open question and a high priority in nutrition research. Although the amount of protein may have specific effects, from a broader dietary perspective, the choice of protein sources will inevitably influence other components of diet and may be a critical determinant for the health outcome.

**OBJECTIVE** To examine the associations of animal and plant protein intake with the risk for mortality.
CONCLUSIONS AND RELEVANCE  High animal protein intake was positively associated with mortality and high plant protein intake was inversely associated with mortality, especially among individuals with at least 1 lifestyle risk factor. Substitution of plant protein for animal protein, especially that from processed red meat, was associated with lower mortality, suggesting the importance of protein source.
Healthful and Unhealthful Plant-Based Diets and the Risk of Coronary Heart Disease in U.S. Adults

Ambika Satija, ScD,a Shilpa N. Bhupathiraju, PhD,a,b Donna Spiegelman, ScD,a,b,c,d,e Stephanie E. Chiuve, ScD,a,f JoAnn E. Manson, MD, DrPH,a,b,c Walter Willett, MD, DrPH,a,b,c

Kathryn L. Glynn, ScD,a,b

CENTRAL ILLUSTRATION: Dose-Response Relationship of Plant-Based Diet Indices and Animal, Healthy, Plant, and Less Healthy Plant Foods With CHD Incidence

A

B

Dr. Ornish’s Program for Reversing Heart Disease™
Ornish Lifestyle Medicine™

Over the course of 18, four-hour sessions, we help participants optimize four areas of their lives:

**Nutrition:**  
*What they eat*

**Exercise:**  
*How active they are*

**Stress Management:**  
*How they respond to stress*

**Community:**  
*How much love & support they have*
Proven Regression

Experimental group (Ornish participants) had more regression after 5 years than after 1 year.

- 91% decrease in angina vs 165% increase in control group.
- 20% LDL reduction in both groups, 60% on statins vs 0%.
- 99% stopped or reversed their CHD with average 300% increase in myocardial perfusion by PET scan.
- 7.9% relative improvement in the Ornish group.

The more adherence the more change

The more closely patients adhered to the lifestyle program, the more improvement was measured in coronary heart stenosis at any age.

# Ornish Lifestyle Medicine

## National Outcomes Q1 2019

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>9 weeks</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight Loss</td>
<td>199.7</td>
<td>189.2</td>
<td>-5.2%</td>
</tr>
<tr>
<td>BMI</td>
<td>31.5</td>
<td>29.9</td>
<td>5.2%</td>
</tr>
<tr>
<td>Total Cholesterol</td>
<td>167.3</td>
<td>141.7</td>
<td>-15.3%</td>
</tr>
<tr>
<td>LDL Cholesterol</td>
<td>91.0</td>
<td>72.1</td>
<td>-20.7%</td>
</tr>
<tr>
<td>HDL Cholesterol</td>
<td>48.0</td>
<td>43.9</td>
<td>-8.5%</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>149.0</td>
<td>132.5</td>
<td>-11.0%</td>
</tr>
<tr>
<td>Systolic Blood Pressure</td>
<td>129.2</td>
<td>121.9</td>
<td>-5.7%</td>
</tr>
<tr>
<td>Diastolic Blood Pressure</td>
<td>75.4</td>
<td>70.7</td>
<td>-6.3%</td>
</tr>
<tr>
<td>HbA1c</td>
<td>6.6</td>
<td>6.2</td>
<td>-6.3%</td>
</tr>
<tr>
<td>Depression Score (CESD)</td>
<td>11.4</td>
<td>5.6</td>
<td>-49.4%</td>
</tr>
<tr>
<td>Exercise Capacity (Mets)</td>
<td>3.7</td>
<td>5.5</td>
<td>47.6%</td>
</tr>
</tbody>
</table>

In addition to these results, many participants reduced or discontinued medications to lower BP, lipids, and blood sugar with approval of their physicians. These improvements would have been even greater if medications were unchanged.

Data is based off participants thru Q1 2019 quarterly report. N=6783 participants.

Note: In addition to these results, many participants reduced or discontinued their medications by their physician.
• 2018 Prevention Recommendations – an overall package

Our Cancer Prevention Recommendations

Not smoking and avoiding other exposure to tobacco and excess sun are also important in reducing cancer risk. Following these Recommendations is likely to reduce intakes of salt, saturated and trans fats, which together will help prevent other non-communicable diseases.

wcrf.org/cancer-prevention-recommendations
• Eat a diet rich in wholegrains, vegetables, fruit and beans

RECOMMENDATION

Eat a diet rich in wholegrains, vegetables, fruit and beans

**Make wholegrains, vegetables, fruit, and pulses (legumes) such as beans and lentils a major part of your usual daily diet**

- **Goal 1**: Consume a diet that provides at least 30 grams per day of fibre from food sources
- **Goal 2**: Include in most meals foods containing wholegrains, non-starchy vegetables, fruit and pulses (legumes) such as beans and lentils
- **Goal 3**: Eat a diet high in all types of plant foods including at least five portions or servings (at least 400 grams or 15 ounces in total) of a variety of non-starchy vegetables and fruit every day
- **Goal 4**: If you eat starchy roots and tubers as staple foods, eat non-starchy vegetables, fruit and pulses (legumes) regularly too if possible

1 Measured by the AOAC method.

wcrf.org/cancer-prevention-recommendations
WHERE DO YOU GET YOUR PROTEIN?
What We Lose With Age

As we grow older, telomeres at the end of our chromosomes shrink. New research suggests major depression also is linked to shorter telomeres, a sign of ‘accelerated aging.’

Cell

Chromosome

Telomere, a protective covering

As cells divide over time...

telomeres shorten, and eventually cell division stops.

Source: WSJ research

The Wall Street Journal
EPIGENETICS

These Two Mice are Genetically Identical and the Same Age

While pregnant, both of their mothers were fed Bisphenol A (BPA) but DIFFERENT DIETS:

- The mother of this mouse received a normal mouse diet
- The mother of this mouse received a diet supplemented with choline, folic acid, betaine and vitamin B12
POWER 9®

Nine healthy lifestyle habits shared by people who’ve lived the longest.

- Move Naturally
- Know Your Purpose
- Downshift
- Plant Slant
- Wine at 5
- Family First
- Belong
- Right Tribe
- 80/20 Rule

Blue Zones
How we can create our own “Blue Zones” The 9 keys to long life.

- Move naturally
- 80% rule
- Plant slant
- Wine at 5
- Know your purpose
Ikigai

A Japanese concept meaning "a reason for being"

What you LOVE
- Delight and fullness, but no wealth

What you GOOD AT
- Comfortable, but feeling of emptiness

What you are PAID FOR
- Excitement and complacency, but sense of uncertainty

What the world NEEDS
- Excitement and complacency, but sense of uncertainty

PASSION

MISSION

PROFESSION

VOCATION

SOURCE: dreamstime

TORONTO STAR GRAPHIC
“Don’t ask what the world needs. Ask what makes you come alive, and go do it. Because what the world needs is people who have come alive.”

- Howard Thurman
Ikigai

A JAPANESE CONCEPT MEANING “A REASON FOR BEING”

What you LOVE

What you are GOOD AT

Satisfaction, but feeling of uselessness

Delight and fullness, but no wealth

Comfortable, but feeling of emptiness

Excitement and complacency, but sense of uncertainty

Ikigai

PASSION

MISSION

PROFESSION

VOCATION

SOURCE: dreamstime

TORONTO STAR GRAPHIC
How we can create our own “Blue Zones” The 9 keys to long life.

- Down shift
- Belong
- Family first
- Right tribe
Summary

• Chronic diseases are not the cause of our healthcare crisis in our world. Our lifestyle choices are!

• We can in fact nurture nature. Our genes are not our destiny.

• This is a gradual process, any changes we make to be healthier will benefit us. Small incremental lifestyle changes will bring big results if given time (and significant changes can be seen in weeks to months).
“Lifestyle is the medicine.
Culture is the spoon.”
- David Katz
In sudden disgust, the three lionesses realized they had killed a tofudebeest—one of the Serengeti’s obnoxious health antelopes.