



Longevity & Aging Well



Jill Edwards

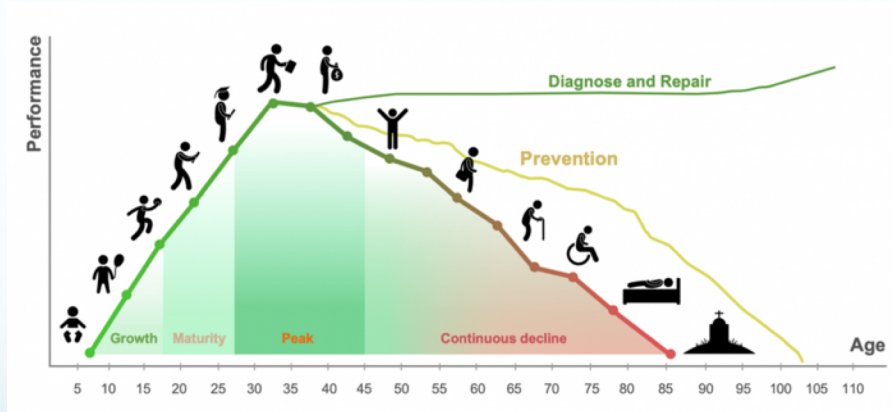
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Life Expectancy

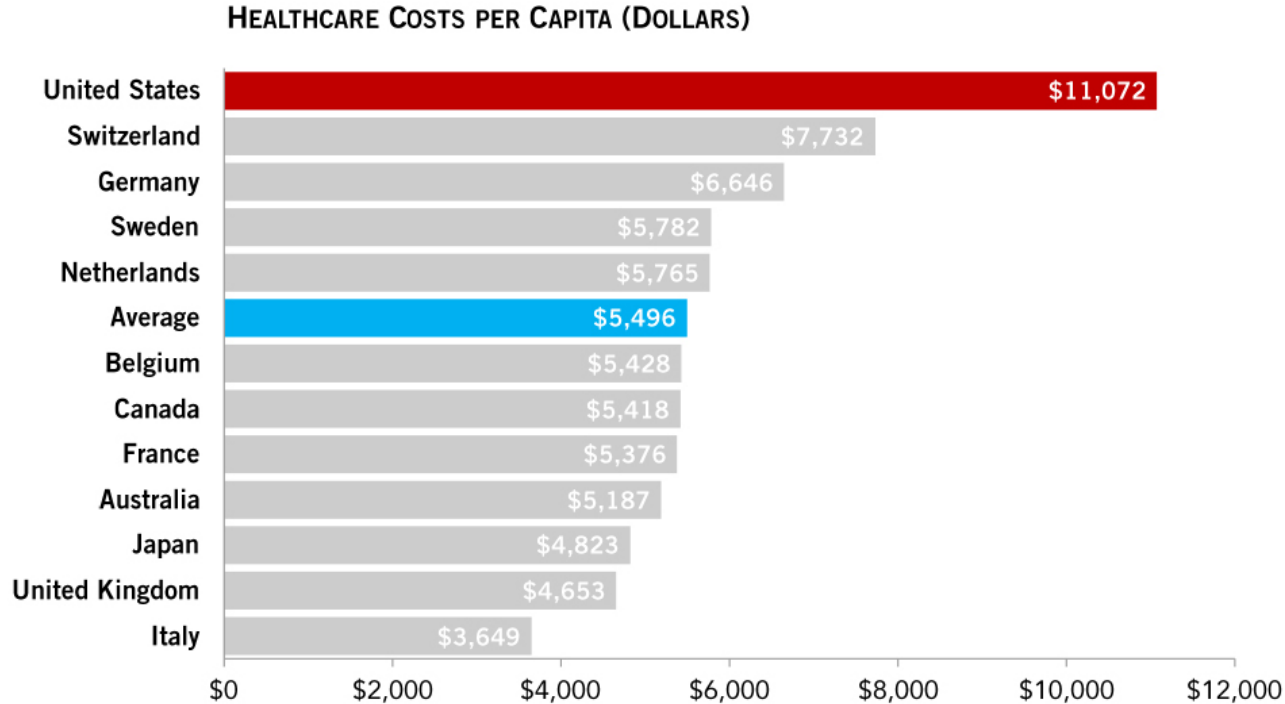


US life expectancy has doubled in the past century:

43 to 78

We are living longer but are we aging well??

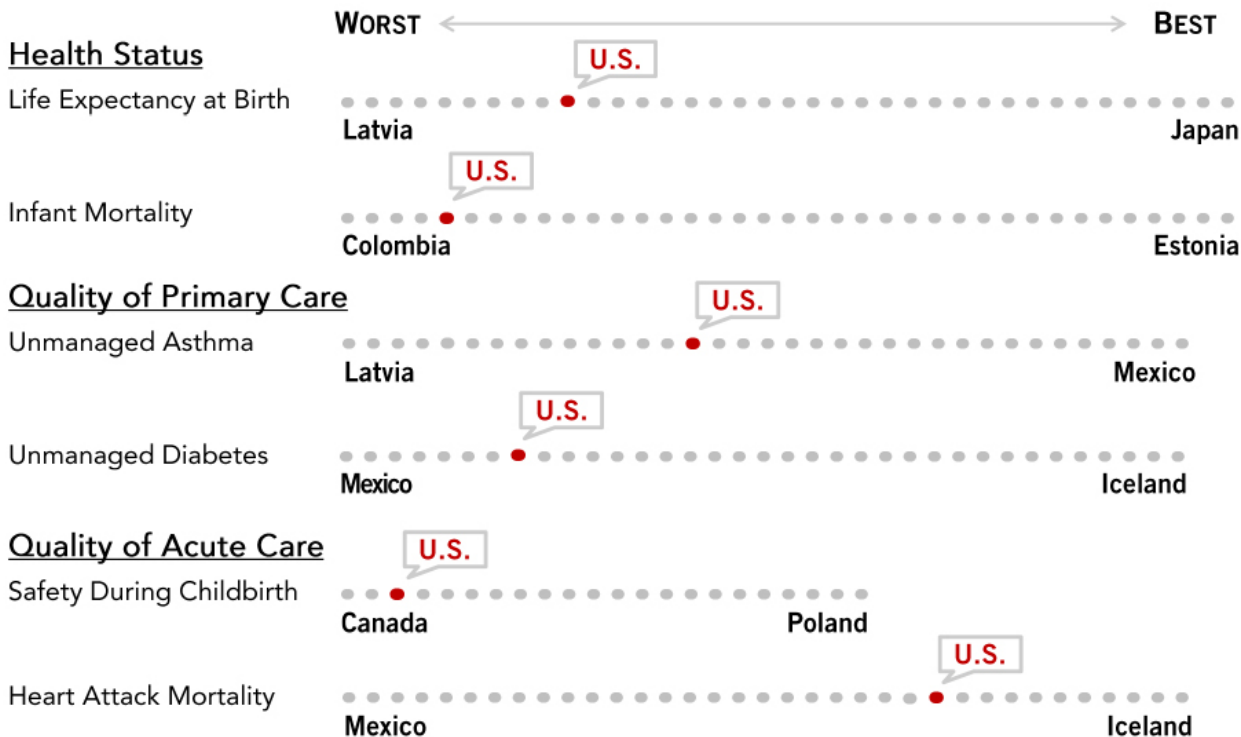
U.S. per capita healthcare spending is almost twice the average of other wealthy countries



SOURCE: Organisation for Economic Co-operation and Development, *OECD Health Statistics 2020*, July 2020.

NOTES: The five countries with the largest economies and those with both an above median GDP and GDP per capita, relative to all OECD countries, were included. Average does not include the U.S. Data are for 2019. Chart uses purchasing power parities to convert data into U.S. dollars.

Although the United States spends more on healthcare than other developed countries, its health outcomes are generally not any better



SOURCE: Organisation for Economic Co-operation and Development, *OECD Health Statistics 2020*, July 2020.

NOTES: Data are not available for all countries for all metrics. Data are for 2019 or latest available.



Centenarians

In 2020, it's estimated that only about 90,000 Americans reached their 100th birthday.

What are they doing that the average American isn't?





Longevity

- 70% determined by **lifestyle**
- 30% related to genetics



BLUE ZONES

LONGEVITY HOTSPOTS

A Blue Zone is a region of the world where people commonly live active lives past the age of 100 years. Scientists and demographers have classified these longevity hot-spots by their inhabitants' ability to live longer, on average, than anyone else in the world. For more information, visit www.bluezones.com.

LOMA LINDA
CALIFORNIA

NICOYA
COSTA RICA

SARDINIA
ITALY

ICARIA
GREECE

OKINAWA
JAPAN

BLUE ZONE LIFE LESSONS



MOVE NATURALLY

Longevity all-stars engage in low-intensity physical activity, often as part of a daily work routine.



RIGHT TRIBE

Blue zone inhabitants have strong social support networks and prioritize family and faith.



RIGHT OUTLOOK

People who live in blue zones have a sense of purpose and their daily lives are infused with a sense of calm.



EAT WISELY

A common thread among longevity cultures is a plant-based diet, which avoids meat and processed foods.



Move Naturally

The world's longest-lived people don't pump iron, run marathons or join gyms. Instead, they live in environments that constantly nudge them into moving without thinking about it.





Right Outlook

- Even people in the Blue Zones experience stress. Stress leads to chronic inflammation, associated with every major age-related disease.
- Blue Zones have routines to shed that stress. Okinawans take a few moments each day to remember their ancestors, Adventists pray, Ikarians take a nap and Sardinians do happy hour.
- Knowing your sense of purpose is worth up to 7 years of extra life expectancy.



Right Tribe

- The world's longest-lived people chose social circles that supported healthy behaviors.
 - Okinawans created "moais"—groups of 5 friends that committed to each other for life.
 - Research from the Framingham Studies shows that smoking, obesity, happiness, and even loneliness are contagious.





Eat Wisely

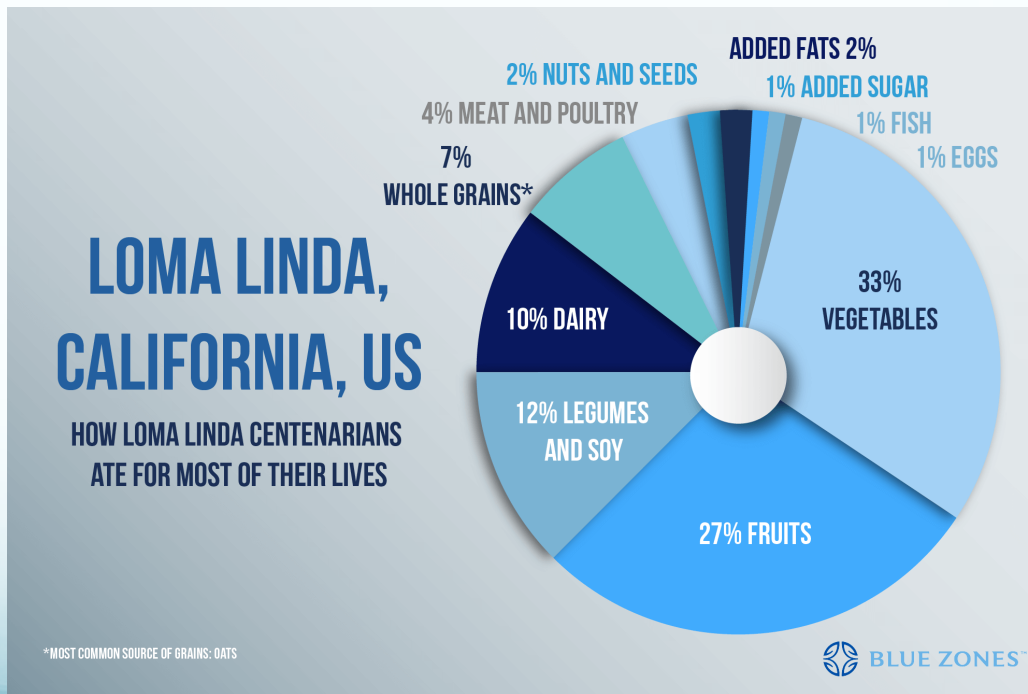
- The cornerstone of most centenarian diets are beans, vegetables and fruit.
- Eating a plant-based diet is the single most important thing each of us can do to prevent or delay (and sometimes, reverse) the onset of disease as we age.



America's **Blue Zone** region - Adventists in Loma Linda



They live as much as a decade longer than the rest of us, and much of their longevity can be attributed to vegetarianism.





**What is it about
certain foods that
speed up or slow
down aging?**



Advanced Glycation End Products

- AGEs (glycotoxins), accelerate the aging process.
- Poultry, pork, seafood, and beef are the most concentrated dietary sources of AGEs





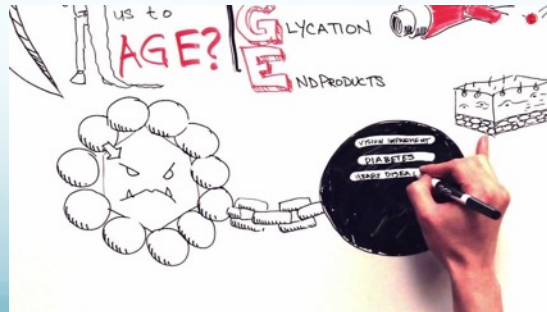
AGEs in Food

Food	AGE (kU/100 grams)	Serving size (g)	AGE/Serving
Chicken, skin, back or thigh, roasted then BBQb	18,520	90	16,668
Bacon, fried 5 min no added oil	91,577	13	11,905
Beef, frankfurter, broiled 450°F, 5 min	11,270	90	10,143
Chicken, skin, thigh, roastedb	11,149	90	10,034
Chicken, skin, leg, roastedb	10,997	90	9,897
Beef, steak, pan fried w/olive oil	10,058	90	9,052
Chicken, breast, breaded, oven fried, 25 min, with skinc	9,961	90	8,965
Chicken, breast, breaded, deep fried, 20 min	9,722	90	8,750
Beef, steak, strips, stir fried with 1 T canola oil, 15 min	9,522	90	8,570
Chicken, selects (McDonald's)	9,257	90	8,331
Turkey, burger, pan fried with cooking spray, 5 min, high heat, microwaved 13.5	8,938	90	8,044
Chicken, back or thigh, roasted then BBQb	8,802	90	7,922
Whiting, breaded, oven fried, 25 minc	8,774	90	7,897
Big Mac (McDonald'sd)	7,801	100	7,801
Chicken, nuggets, fast food (McDonald'sd)	8,627	90	7,764



AGEs Contributions

- AGEs cause tissue stiffness, oxidative stress and inflammation.
 - In the **brain**- contribute to dementia
 - In the **eye**- cataracts and macular degeneration
 - In the **arteries**- hypertension, atherosclerosis, heart failure and stroke
 - Also contribute to anemia, kidney disease, osteoporosis, T2 diabetes and muscle loss



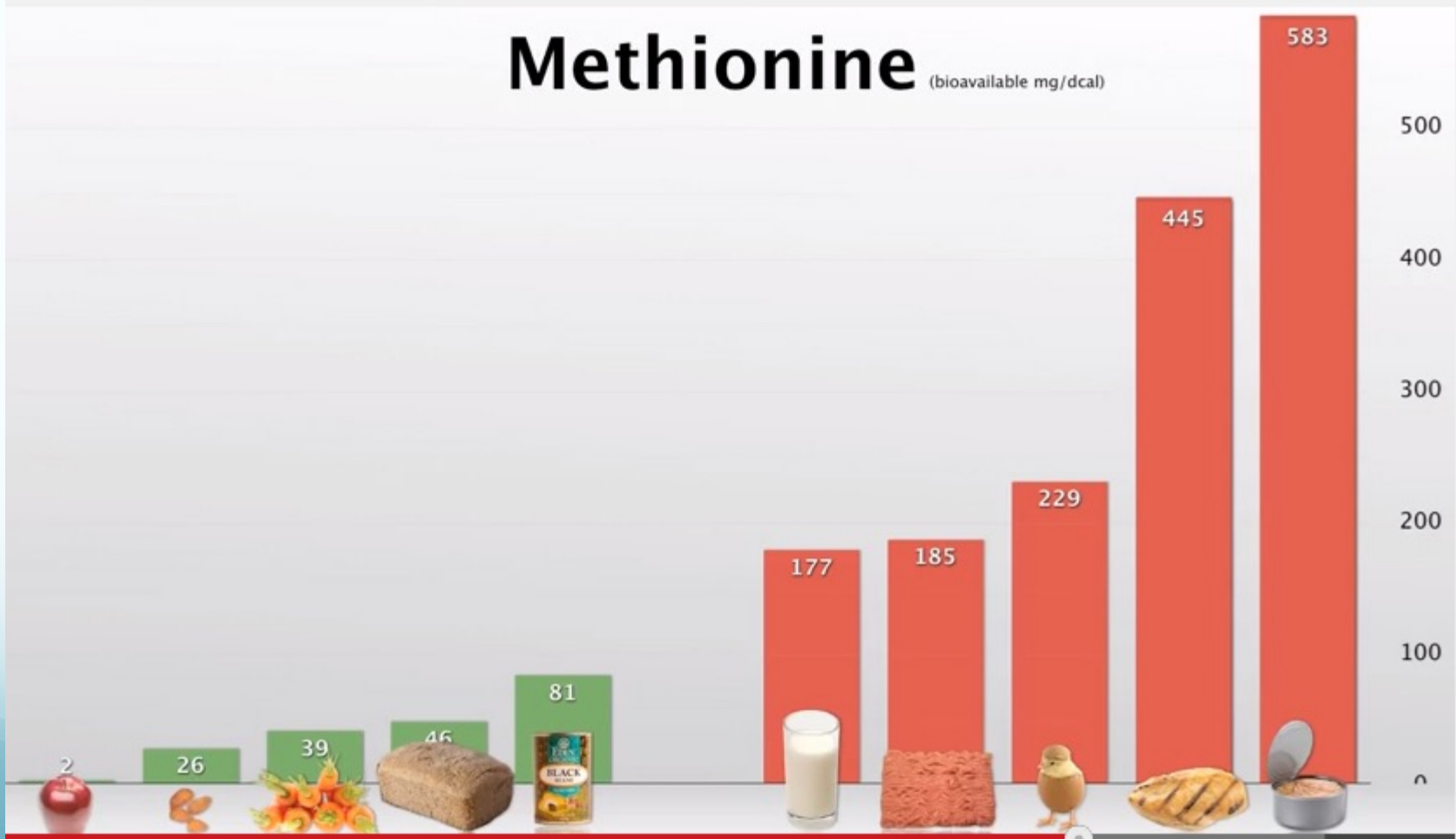


Methionine

- The data shows that consuming less **methionine** is linked to a slower rate of **aging**
- There are 3 ways to lower our methionine intake
 1. Calorie Restriction/Fasting
 2. Protein Restriction
 3. Eat mostly plants because they are low in methionine



Methionine (bioavailable mg/dcal)

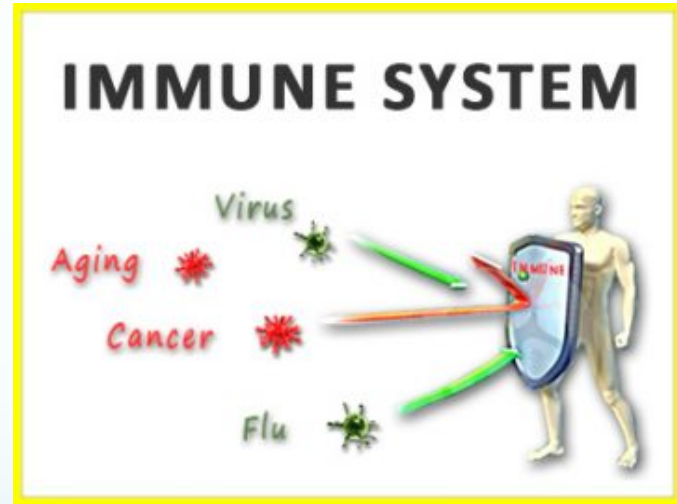


Aging and Immune Function



One of the most recognized consequences of aging is a decline in immune function

- Those most at risk of contracting respiratory illnesses, such as COVID-19, are those with compromised or weakened immune responses.
- Our immune system is best prepared to take action against viruses when we choose foods that provide a steady stream of key nutrients.





Diet and Immune Function

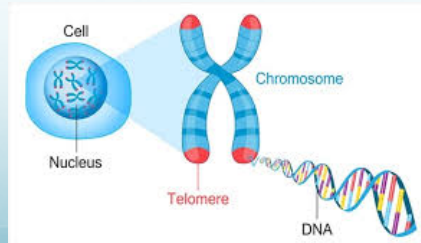
- Diets centered around whole plant foods appear to stimulate natural killer cell activity.
- Natural killer cells are part of the immune response that targets pathogens, including viruses responsible for common respiratory infections.

Kerley, Conor. "Can Nutrition Help Prevent Common Cold & Flu Viruses?" Center for Nutrition Studies. March 18, 2020. <https://nutritionstudies.org/can-nutrition-help-prevent-common-cold-flu-viruses>.



We Can Measure Aging

1. We have 46 strands of DNA in each of our cells, coiled into chromosomes.
2. At the tip of each chromosome, at the end of each DNA strand, there's a cap which keeps our DNA from unraveling = **Telomere**.
3. Every time our cells divide, a bit of that cap is lost. When it's completely gone, the cell stops dividing or dies.
4. Telomeres start shortening as soon as we're born and when they're gone, we're gone.





Telomeres

How do we slow down telomere shortening

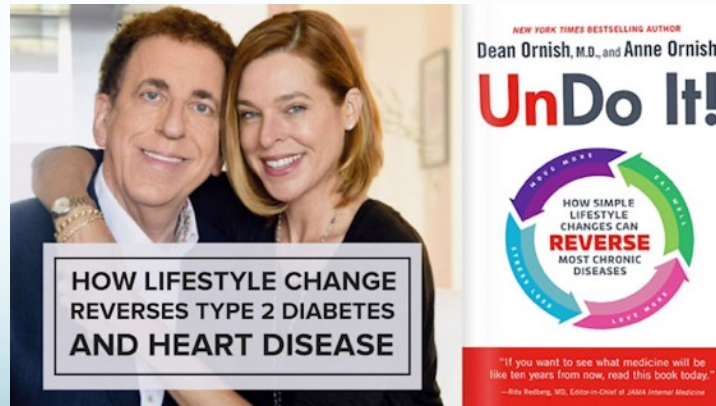
- **Don't smoke**
 - nicotine has been shown to significantly shorten our telomeres.
- Can **diet** speed up or slow down aging? YES!





Diet to slow aging & reverse heart disease!

- In 1990, Cardiologist Dr. Dean Ornish came to worldwide attention for demonstrating that a plant-based diet can halt and reverse heart blockages in cardiac patients.
- In 2013, he published a study on the results of his eating program on **telomere** length in humans.





Results on Telomeres

- Ornish Diet group:
 - Telomeres = 10% longer
- Control group:
 - Telomeres = 3% shorter
- The more adherent subjects were to the plant-based diet, the more the telomeres lengthened.

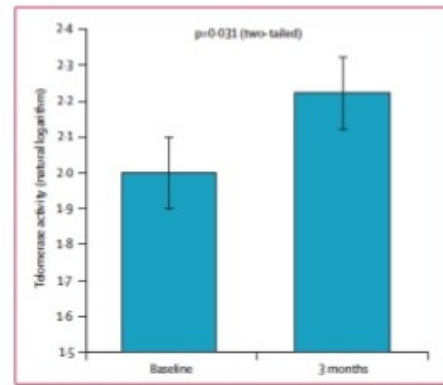


Figure 1: Mean telomerase activity in peripheral-blood mononuclear cells at baseline and at 3 months



- Telomerase was measured at baseline and after 3 months



What is the Ornish Diet?

- Maximizes the intake of whole plant foods
- Minimizes the intake of processed and animal-derived foods
- It's a Plant-Based Diet
 - Fruits
 - Vegetables
 - Unrefined grains (brown rice, quinoa, oats, amaranth, millet, whole wheat)
 - Legumes
 - Small amounts of nuts and seeds
 - Low in refined carbohydrates (flours)
 - Little to no animal protein







Our Genes are not our destiny



As the Adventists demonstrate, the average person's life expectancy could increase by 10-12 years by adopting a Blue Zones lifestyle.

Our lifestyle allows us to alter our genes and take control over our own health and longevity.



For more information:



WEBSITES

- Blue Zones <https://www.bluezones.com/>
- Center for Nutrition Studies www.nutritionstudies.org
- Nutrition Facts www.nutritionfacts.org

BOOKS

- How Not to Diet by Michael Greger, MD
- The Campbell Plan by Thomas Campbell, MD
- The Spectrum by Dean Ornish, MD
- The China Study Cookbook by LeAnne Campbell
- Forks over Knives Cookbook



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Next Steps...

- Watch: <https://www.codebluedoc.com/>
- Download: <http://share.kaiserpermanente.org/wp-content/uploads/2015/10/The-Plant-Based-Diet-booklet.pdf>
- Buy a plant-based cookbook
- Go Meatless Monday



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Thank you for
your time

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