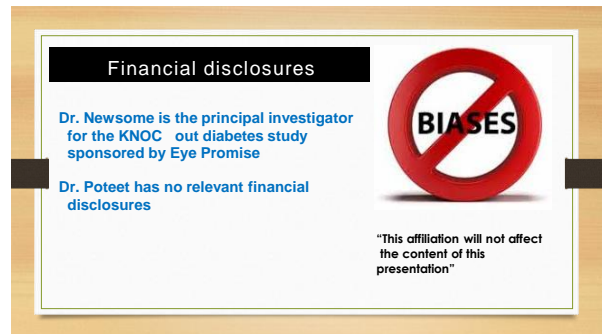
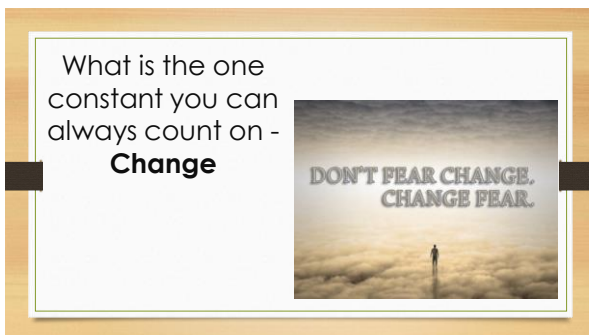


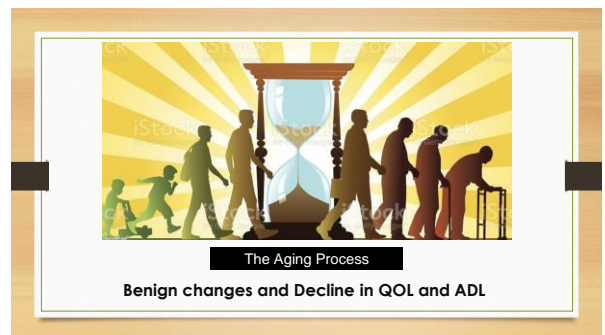
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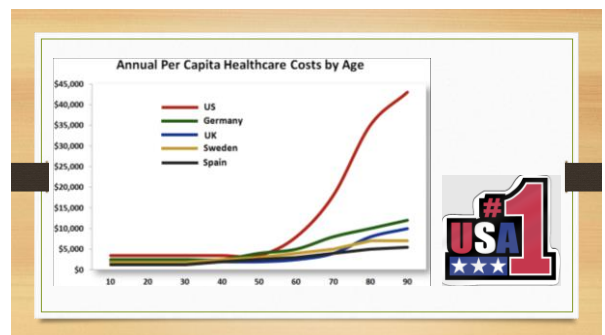
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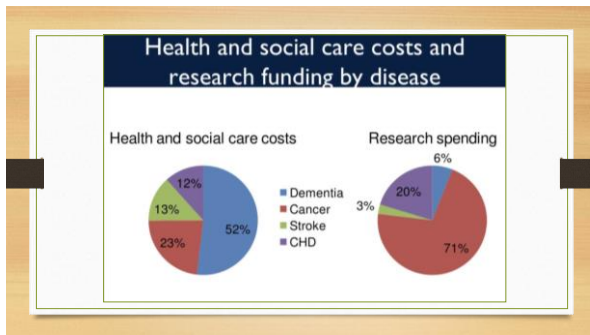
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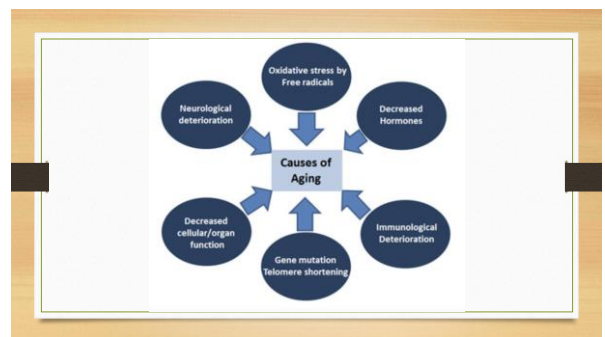
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11



12



13

The rate of aging can be slowed  
Targeting aging can reduce disease burden  
Increases the healthspan of life spent in good health

**NIH-NO ONE THEORY ON AGING**

14

Depression  
Lack of energy  
Decreased sense of smell  
Decreased sense of taste  
Teeth issues  
Vision issues

**All are factors that can influence nutrition**

15

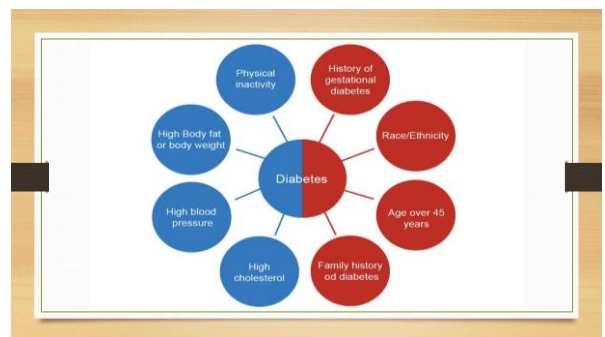
So why should be you be concerned with this not only for you but for also for your patients

16

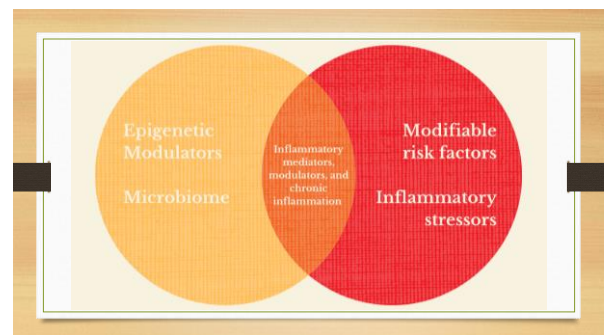
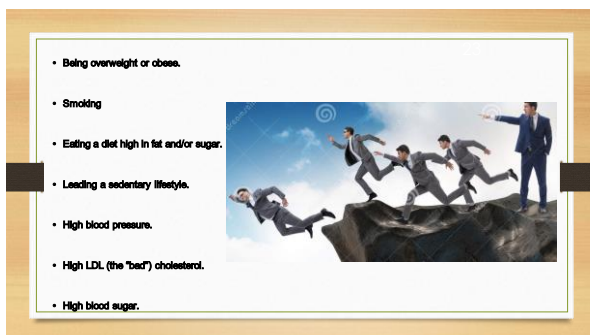
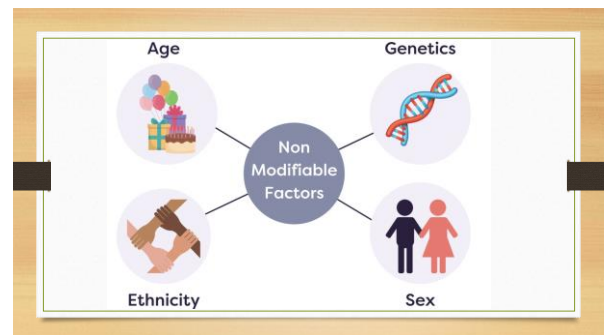
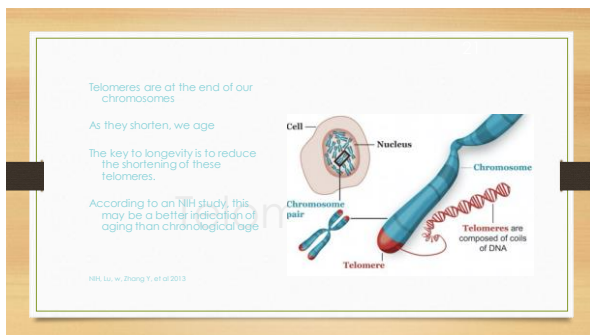
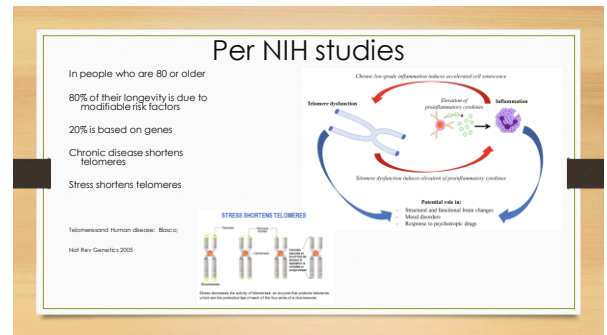
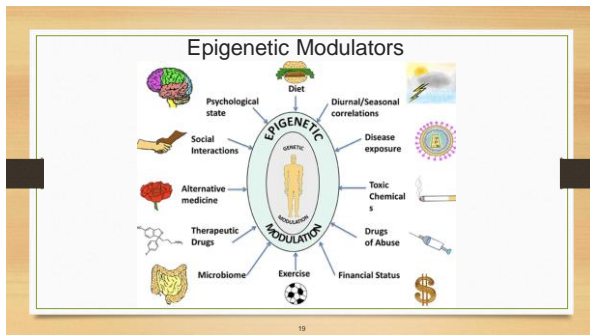
**{ 40% }**  
of dementia cases could be prevented by addressing these lifestyle factors


Per NIH

17



18





•PUBLIC HEALTH DEFINED BY WINSLOW IN 1920 AT YALE WAS DEFINED AS THE ART OF **PREVENTING** DISEASES (NOT JUST CURING THEM) THROUGH LIFESTYLE, FOOD, HYGIENE, AND ENVIRONMENTAL HEALTH...

25

The New York Times

Opinion

## Our Food Is Killing Too Many of Us

Improving American nutrition would make the biggest impact on our health care.

By **Dariussh Mozaffarian and Dan Glickman**  
Mr. Mozaffarian is dean of the Tufts Friedman School of Nutrition Science and Policy. Mr. Glickman was the secretary of agriculture from 1995 to 2001.

Aug. 26, 2019

1491

“Poor diet is the *leading cause* of mortality in the United States, causing more than half a million deaths per year.”

26

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Original Investigation  
March 7, 2017

### Association Between Dietary Factors and Mortality From Heart Disease, Stroke, and Type 2 Diabetes in the United States

Beneta Michal, MD, PhD<sup>1</sup>, Jose L. Peñalva, PhD<sup>2</sup>, Frederick Guthrie, PhD<sup>3</sup>, et al<sup>4</sup>

Author Affiliations | Article Information




Figure 1. Absolute and Proportional Cardiovascular Disease Mortality Associated With Suboptimal Dietary Habits Among US Men and Women in 2012

Absolute cardiovascular mortality attributable to dietary habits in the United States in 2012

Dietary Factor	Men (per 100,000)	Women (per 100,000)
High sodium	~1000	~800
Low potassium	~120	~100
High trans fats	~10	~10
Low whole grains	~100	~80
Low fiber	~100	~80
High added sugars	~10	~10
Low physical activity	~100	~80
High red meat, processed meat	~10	~10

Relative cardiovascular mortality attributable to dietary habits in the United States in 2012

Dietary Factor	Men (%)	Women (%)
High sodium	~10	~8
Low potassium	~1	~1
High trans fats	~1	~1
Low whole grains	~1	~1
Low fiber	~1	~1
High added sugars	~1	~1
Low physical activity	~1	~1
High red meat, processed meat	~1	~1

PDF

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FOR HEALTH, IT'S NOT JUST ABOUT FOOD, IT'S ABOUT HOW OUR BODY **RESPONDS** TO WHAT WE FEED IT

Systems of defense against disease:

**Angiogenesis, regeneration, microbiome, DNA protection, Immunity**


28



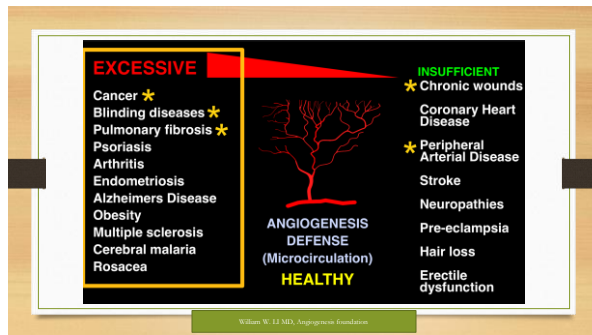
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### Angiogenesis

- the growth of blood vessels from the existing vasculature. It occurs throughout life in both health and disease, beginning in utero and continuing on through old age.



30



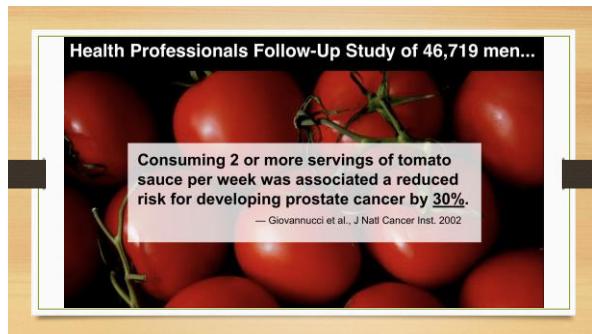
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### Foods with Antiangiogenic Activity

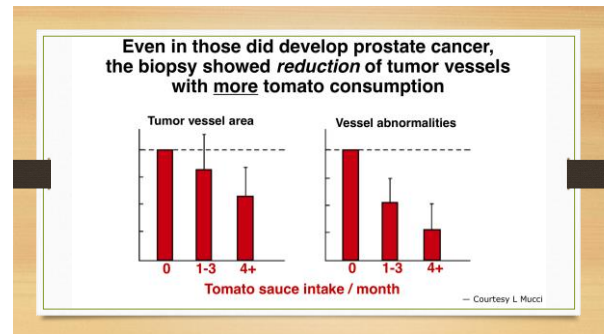
Tomato	Red grapes	Lavender
Strawberries	Red wine	Pumpkin
Blackberries	Bok choy	Lychee
Raspberries	Cavolo nero kale	Parsley
Blueberries	Soy beans	Garlic
Oranges	Ginseng	Green tea
Grapefruit	Maitake mushroom	Dark chocolate
Lemons	Licorice	Tree nuts
Apples	Turmeric	
Pomegranate	Nutmeg	
Cherries	Chestnut	

— LI W. EAT TO BEAT DISEASE (2019) — @williamli.com

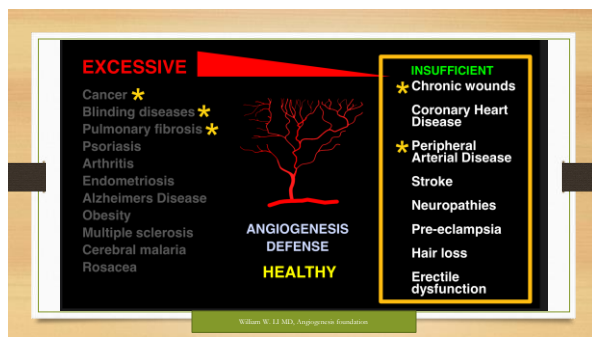
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### Foods with Angiogenesis-Stimulating Activity

Apple peel	Peppermint
Dried cranberry	Pumpkin seeds
Dried cherries	Red leaf lettuce
Dried blueberries	Rosemary
Barley	Sesame seeds
Chili peppers	Sultana raisins
Ginseng	Sunflower seeds
Onions	

— LI W. EAT TO BEAT DISEASE (2019) — @williamli.com

36

Remarkably, our health defense systems titrate the effect of beneficial dietary factors so that the system will only achieve homeostasis, but not overshoot to cause disease.

37

## Regeneration

- Humans do regenerate (stem cells)
- Small intestine regenerates every 2 to 4 days
- Lungs and stomach regenerate every 8 days
- Skin regenerates every 14 days
- Red blood cells every 4 months
- Fat cells every 8 years
- Skeleton every 10 years



38

## Cell Stem Cell

Volume 26, Issue 7, 1 July 2021, Pages 1248-1261.e8



Article  
Discrete limbal epithelial stem cell populations mediate corneal homeostasis and wound healing

Anna Althuler<sup>1,2</sup>, Agnès Amalal-Lange<sup>1,3</sup>, Noam Targui<sup>1</sup>, Susana Day<sup>1</sup>, Lior Shinkovskiy<sup>2</sup>, Shira Hadad-Porat<sup>1</sup>, Swarnali Bhattacharya<sup>1</sup>, Waseem Nasser<sup>1</sup>, Jussuf Imeni<sup>1</sup>, Gil Ben-David<sup>1</sup>, Ghada Abboud-Jamius<sup>1</sup>, Beatrice Tiscione<sup>1</sup>, Eran Berkowitz<sup>1</sup>, Nathan Karin<sup>1</sup>, Yonatan Saez<sup>1,2,4,5,6</sup>, Ruly Shalem-Fleinstein<sup>1,6,7,8</sup>, R. B.

Cells of the corneal epithelium are renewed approximately every 10 days

39

# 50%

of human adult stem cell activity is lost during aging



J Am Coll Cardiol 2005;45:1441.

40

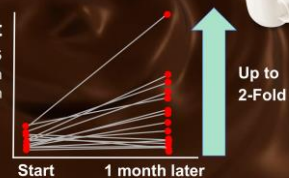
## Conditions Where Stem Cells Are Important

Alopecia	Ischemic stroke
Alzheimer's disease	Macular degeneration
Asthma	Neuropathy
Atherosclerosis	Osteoporosis
Autism	Parkinson's disease
Burn injury	Peripheral arterial disease
Chronic wounds	Skin aging
Diabetes	
Erectile dysfunction	
Infertility	
Ischemic heart disease	

41

## People Drinking Hot Cocoa (High flavanol) (2 cups/day)

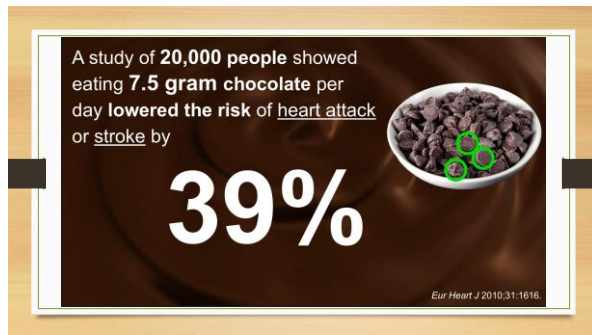
Adult Stem Cells circulating in bloodstream



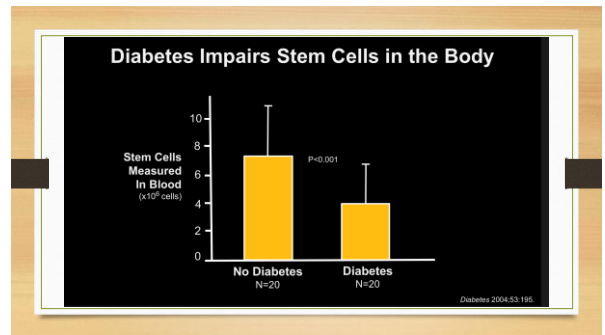
16 subjects

J Am Coll Cardiol 2010;56:218

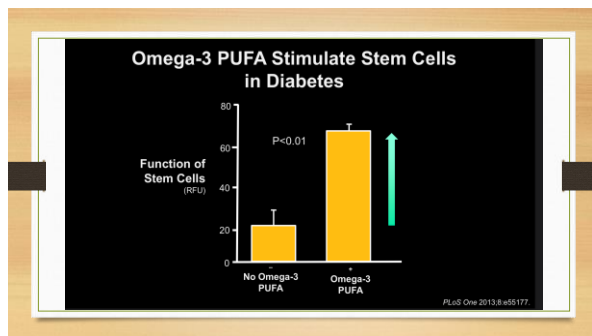
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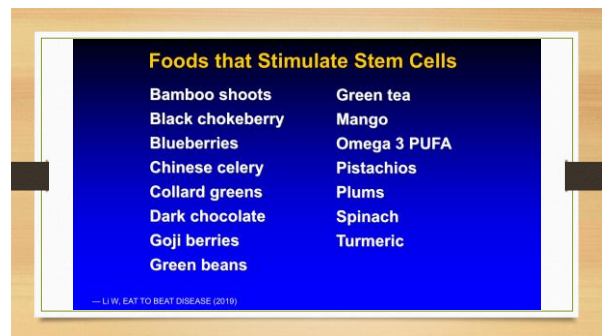
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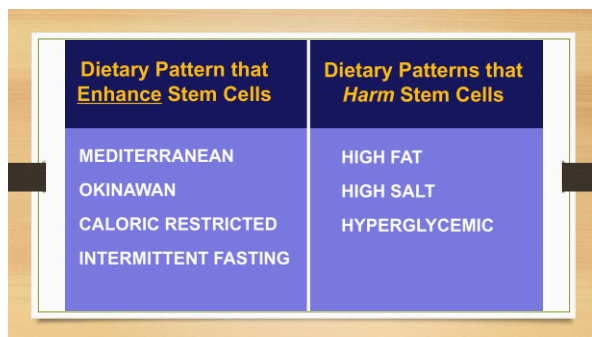
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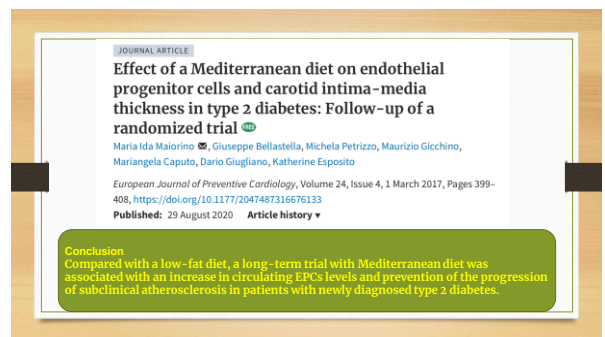
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**Science News** from research organizations

### Chance of colon cancer recurrence nearly cut in half in people who eat nuts

Date: May 18, 2017  
Source: American Society of Clinical Oncology (ASCO)

**Summary:** Something as simple as eating tree nuts may make a difference in the long-term survival of patients with colon cancer, a new study concludes.

**An observational study of 826 patients with stage III colon cancer showed that those who consumed two ounces or more of nuts per week had a 42% lower chance of cancer recurrence and 57% lower chance of death than those who did not eat nuts.**

50



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### Microbiome

- No longer are we considered simply human...Microbiome research has shown us that we are holobionts...organisms that function as an assemblage of multiple species that are mutually beneficial...
- There are roughly 39 trillion bacteria in our bodies, roughly matching the number of our own 37 trillion cells
- Microbiome diversity is a hallmark of health
- The diversity of the diet dictates the diversity of the microbiome

52

### The Human GIT Microflora

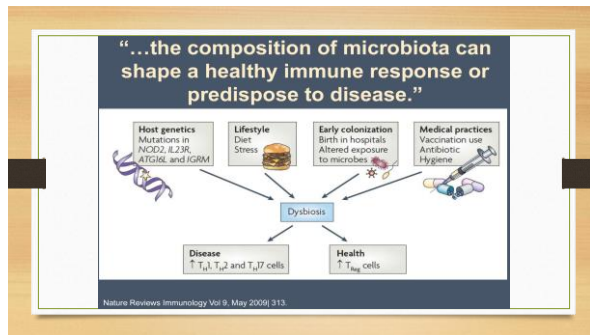
- Human GIT microflora contains  $10^{14}$  viable microorganisms
  - this is 10 times the number of cells in the human body!
  - from over 1000 different species
  - a mutually beneficial symbiotic relationship

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### The Human GIT Microbiota

- Can be considered an additional human organ
  - this "microbe" organ weighs 1-1.5 kg
  - rivals the liver in the number of biochemical reactions in which it participates

54



55

**The gut microbiome orchestrates human metabolism, immunity, gene expression**

\*The hundred trillion bacteria in the body of an adult human contain about 4 million distinct bacterial genes, with **more than 95% of them located in the large intestine**. Since most of these genes encode for enzymes and structural proteins that influence the functioning of mammalian cells, **the gut microbiome can be viewed as an anaerobic bioreactor programmed to synthesize molecules which direct the mammalian immune system, modify the mammalian epigenome, and regulate host metabolism**\*

Galland L. Gut microbiome and brain. *J Med Food* 2014

56

From the 2019 Congress of Clinical Rheumatology: keynote speaker James T. Rosenbaum, MD, Chief of Ophthalmology at the Legacy Devers Eye Institute in Portland and Chief of Arthritis and Rheumatic diseases at the Oregon Health and Science University spoke on the microbiome and rheumatic disease:

**"I submit to you that in any disease that has an immune component — whether it's Alzheimer's, Parkinson's, autism, atherosclerosis, obesity, diabetes and any disease that you are seeing in your clinics with an immune component — the microbiome is having some effect,"**

Rosenbaum told the attendees, "Whether it's a small effect or a large effect, it is hard to say, but in these experimental rodents, it's a huge effect. And one day, we will have therapy that is directed toward repairing or changing, or altering, that microbiome."

57

**3 Dietary Strategies to Support Microbiome Health Defense**

- Prebiotic
- Probiotic
- Avoid dysbiotic foods

58

**KIWIFRUIT - prebiotic**

National University of Singapore

- 6 female volunteers
- Fed 2 kiwifruits per day x 4 days
- Check changes in fecal biome

**Lactobacillus** increased 35% in 24 hrs

**Bifidobacteria** increased 17% in 4 days

**Beneficial SCFA**

Anti-inflammation  
Lipid metabolism  
Energy metabolism  
Gut mucous layer

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**PAO CAI KIMCHI SAURKRAUT**

The image shows three bowls of fermented foods. The top left bowl contains Paocai (labeled with Firmicutes and Lactobacillus). The top right bowl contains Kimchi (labeled with Bacteroidetes, Firmicutes, and Lactobacillus). The bottom bowl contains Sauerkraut (labeled with Lactobacillus).

60

## Eat For a Healthy Microbiome

- Increase consumption of plant foods
- Eat fermented foods such as kefir, yogurt, raw sauerkraut, kimchi, fermented vegetables, and kombucha
- Eat only unprocessed foods that are low in sugar
- Avoid unhealthy fats, sugars, artificial sweeteners, additives and preservatives as they feed an unhealthy microbiome
- **Microbiome superfoods** that contain exactly the kind of fiber that feed many beneficial species: Asparagus, carrots, garlic, Jerusalem artichokes, jicama, leeks, onions, radishes, and tomatoes

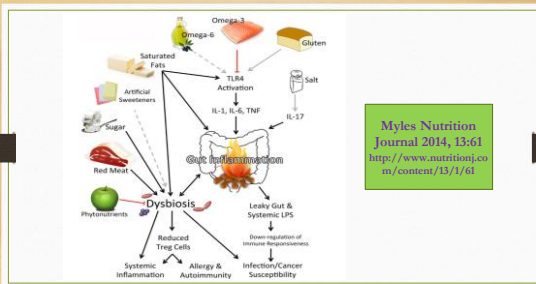
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"We don't simply change patients' diet to change their nutrient intake:

**We change the diet to change the microbes."**

Dr. Alex Vasquez, International College of Human Nutrition and Functional Medicine

62



63

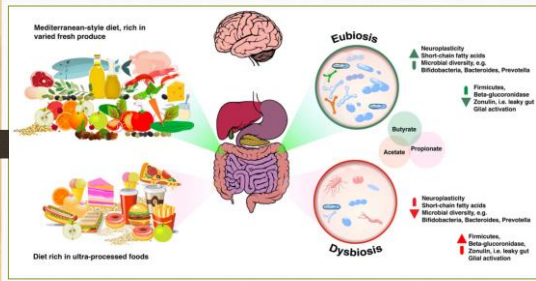
## The 3 Most Important Consequences of an Insufficiency of Beneficial Bacteria in the Gut

**The Very Well Established Synergistic Effects of Probiotic Insufficiency Dysbiosis:** (A. Vasquez 2014 ICHNFM)

1. Lack of immunotolerance and increased systemic inflammation
2. Additional inflammation induced by proinflammatory bacteria and increased absorption of antigens
3. Direct absorption of bacteria, microbial DNA, and pro-inflammatory structures such as LPS

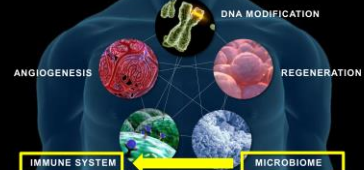
Vasquez A. *Human Microbiome and Dysbiosis in Clinical Disease*. 2014 ICHNFM.ORG

64




65

## Rethink Health as Defense



William W. Li MD, Angiogenesis Foundation

66



"When we try to pick out anything by itself,  
We find it hitched to everything else in the universe."  
John Muir

67



EVERY TIME YOU EAT OR DRINK, YOU ARE  
EITHER FEEDING DISEASE OR FIGHTING IT.

68

Gratitude

---

**Gratitude as Medicine:**  
A Survival Kit  
for Health Care Organizations

---

THE GREATER GOOD SCIENCE CENTER AT UC BERKELEY

69

**Why Gratitude Matters in Health Care**


THE GREATER GOOD SCIENCE CENTER AT UC BERKELEY

- UC Berkeley has published a resource for healthcare providers on what the research says about the practice of gratitude in health

70

**Why Gratitude in Health Care?**


"Gratitude is a vaccine, an antitoxin, and an antiseptic."  
~ John Henry Jowett, 1863-1923



71

**Gratitude and Health**

<p>Improves</p> <ul style="list-style-type: none"> <li>Sleep</li> <li>Tendency to exercise</li> <li>Cardiovascular health</li> <li>Adherence to medication</li> <li>Mood, optimism, hope</li> </ul>	<p>Reduces</p> <ul style="list-style-type: none"> <li>Substance abuse</li> <li>Fat intake</li> <li>Cortisol</li> <li>Blood pressure</li> <li>Suicidal thoughts</li> <li>Inflammation</li> <li>Perceived stress and depression in health care providers</li> </ul>
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Greater Good Science Center

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## Gratitude Helps Patients

*Study by Wong, Owen, Gabana & Gilman (2015):*

Adults & college students receiving mental health counseling (for depression/anxiety) were given these additional therapies:

- Group 1: Write 1 letter of gratitude to another person weekly for 3 weeks
- Group 2: Write about their deepest thoughts and feelings about stressful experiences
- Group 3: No writing activity

### RESULTS:

- Group 1 reported significantly better mental health than the other groups 1 month after the writing exercise ended, then again 3 months after



73

## Gratitude Helps Patients

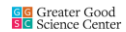
*Study by Redwine et. al. (2016):*

Patients with Stage B heart failure were studied:

- Took blood samples
- Measured heart rates
- 50% of study participants kept a daily gratitude journal

### RESULTS:

- Those who kept gratitude journals showed fewer biological signs that their heart disease was getting worse
- Showed healthier resting heart rate while journaling in the lab



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## Gratitude and Health Care Providers

43% of nurses and **more than half** of physicians say they have struggled with **BURNOUT**.

**Burnout** is a complex state of being, generally defined by:

- Emotional exhaustion
- cynicism and callous attitudes towards others
- a reduced ability to be effective in our jobs and relationships.



75

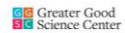
## Gratitude Helps Health Care Providers

*Study by Cheng, Tsui & Lam (2015):*

Health care providers twice weekly wrote down things for which they were grateful.

### RESULTS:

- Reductions in perceived stress (28%) and depression (16%) in health care practitioners
- "Such positive effects can also lead to an improvement in both productivity and quality of patient services."



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### HEALTH BENEFITS OF GRATITUDE

1. IMPROVES SLEEP QUALITY
2. DECREASES BLOOD PRESSURE IN THOSE WITH HYPERTENSION
3. INCREASES YOUR ENERGY LEVELS
4. REDUCES STRESS AND DEPRESSIVE SYMPTOMS
5. HELPS YOU LIVE LONGER

### HOW TO SHOW GRATITUDE

1. GIVE OUT COMPLIMENTS
2. MAKE A LIST OF THINGS YOU ARE GRATEFUL FOR
3. VOLUNTEER IN YOUR COMMUNITY
4. DO SMALL, RANDOM ACTS OF KINDNESS
5. SMILE!



TOPLINE.MD

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NIH National Library of Medicine  
National Center for Biotechnology Information

PMC PubMed Central® Search PMC Full-Text Archive Search

Journal List • Clin Orthop Relat Res • v.454(12): 2016 Dec • PMC3085955

Clin Orthop Relat Res 2016 Dec; 474(12): 2584-2587.  
Published online 2016 Sep 29. doi: 10.1007/s11999-016-5100-0

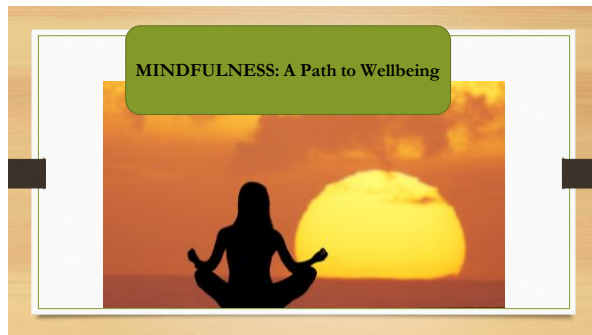
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PMID: 27581688

Your Best Life: Breaking the Cycle: The Power of Gratitude

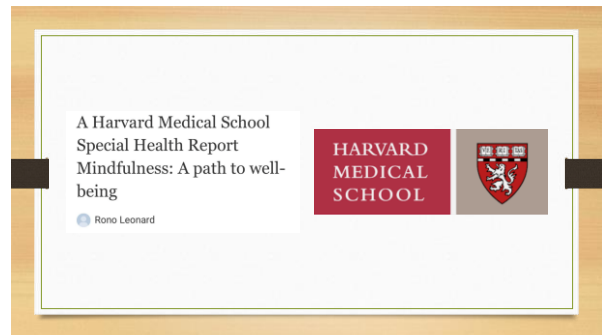
John D. Kelly, IV, MD<sup>1</sup>

Surgeon Dr. John D. Kelly, IV explains how he transformed his life with the practice of gratitude. "The brain is plastic and its inner circuitry can be changed. Past history, genetics, traumatic experiences, and years of learned behaviors can be neutralized with a decision to practice gratitude. The brain can literally be rewired to more easily transmit circuits associated with generation of good feelings."

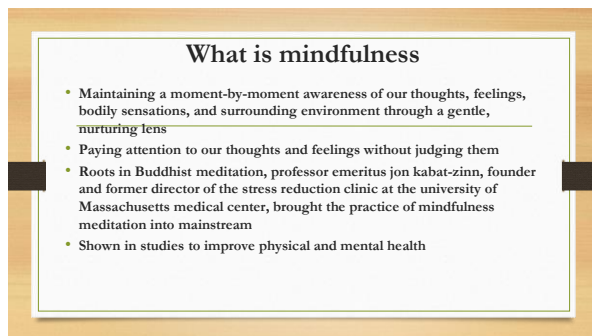
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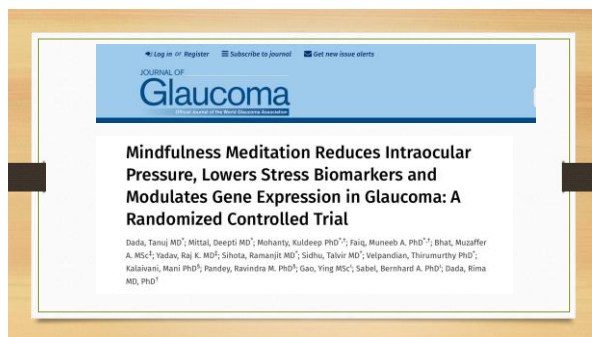
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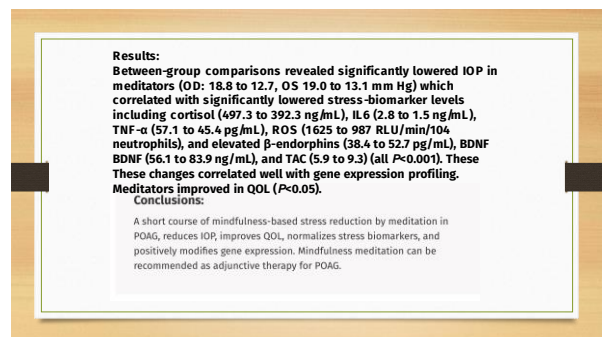
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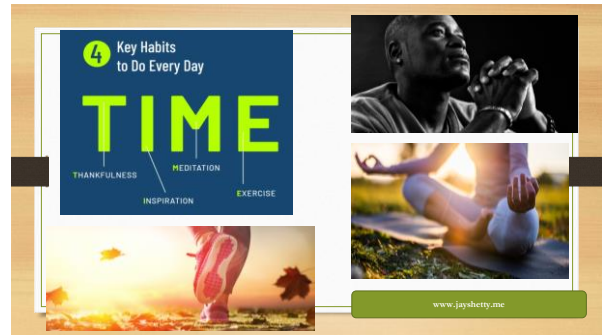
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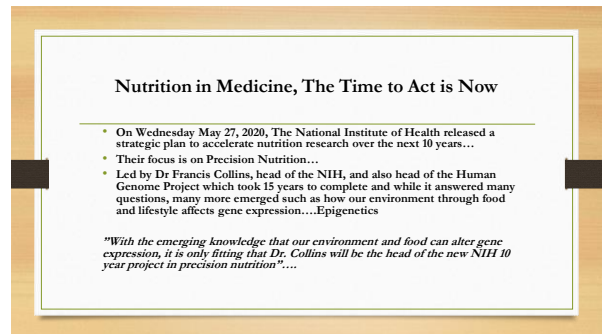
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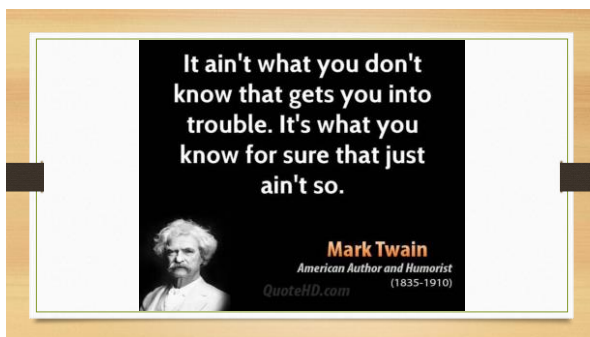
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## Harvard Longitudinal Study of Adult Development



Started in 1938  
724 young men

91

Here's what the researchers set out to do:

- For more than 75 years, the Grant and Glueck study tracked the physical and emotional health of 724 people in two very diverse groups.
- The Grant Study followed 456 people who grew up in Boston's poorest neighborhoods— many living in tenements— beginning in 1939.
- The Glueck Study followed 268 graduates from Harvard's classes of 1939-1944.
- The study began when the subjects were teenagers and followed them into their eighties.

Here's an amazing part of the study. It didn't just involve annual questionnaires. Researchers went to participants' homes and sat in their living rooms. They talked about work, home life and health. They talked with the spouses and children of the subjects, and they reviewed medical records.

The subjects also had blood draws and brain scans over several decades to compare physical factors.

92


*"The clearest message that we get from this 75-year study is this: Good relationships keep us happier and healthier. Period."*—Robert Waldinger, director of the Harvard Study of Adult Development

The health of relationships was a greater predictor of health and well-being than smoking or diet...period. Relationships matter.

93

### NEWPOT Rules

1. Happiness
2. Gratitude
3. Frame your world with your words
4. Consideration
5. Learn to say "No"



94

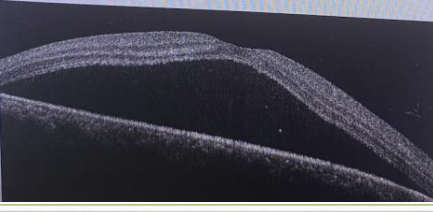
### NEWPOT Rules Continued

6. You are more than enough
7. Eat well
8. Make time for self care
9. Activity
10. Value of Community



95

Let's take a look at how to put this information into clinical practice



96

## Case History-MH

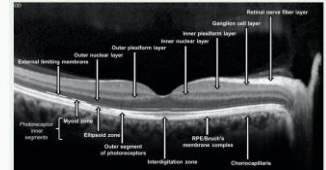
- 50 yo AA male presented
- Loss of vision in the OD
- Denies history of DM, etc
- Under a lot of stress
- Referred from a colleague
- Jax, Florida
- Reported that he had a white circle over his pupil



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## What is the diagnosis?

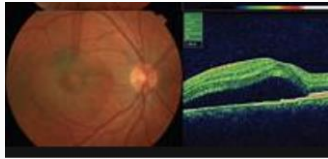
- DME
- Cystoid Edema post Cataract surgery
- IDK
- CSC



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## Central Serous Chorioretinopathy

- Typically in males
- Usually Type A personality
- High Cortisol levels
- Sleep disturbances



99

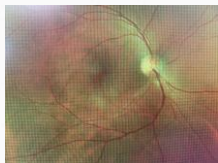
## Patient Management

- Discussed the disease state. Goal was to engage the patient in what was going on.
- Showed him his OCT so he could see. Goal was to educate the patient.
- Asked him if he were willing to make some changes in his lifestyle. Goal here was to empower the patient with his outcomes.



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## October visit



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## He decided he

- Wanted to take a more holistic approach first
- He agreed to make some lifestyle changes including exercise
- He also agreed to eat more at home as opposed to eating out



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## Patient Management

- Sleep
- Exercise
- Diet
- Managing Stress
- Breathing



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## Patient Management

- Nutritional Supplementation
- Restore
- Benfotiamine
- Green Tea
- Turmeric Tea
- DVS
- Diary to write in when he is stressed



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## Visit 2 one month later

- White circle over his pupil on his right eye was diminishing
- Reports that his vision is getting better but not quite back to normal
- He has asthma and hypertension
- Has allergies to shellfish



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## 1 month Follow Up

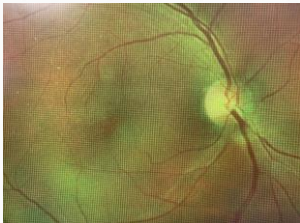
- Best VA with his old Rx is 20/50 in the right eye, 20/20 in the left eye
- IOP is 11/9 in right and left eyes respectively.
- BP at today's visit was 160/101 with a 67 pulse



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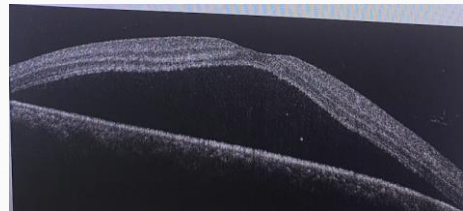
## Retinal appearance is much better



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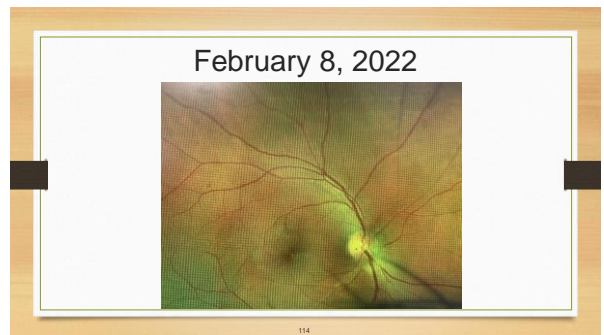
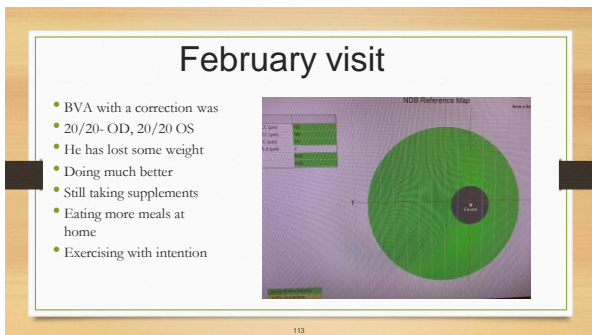
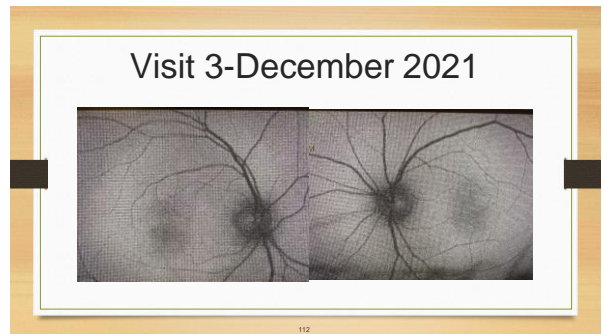
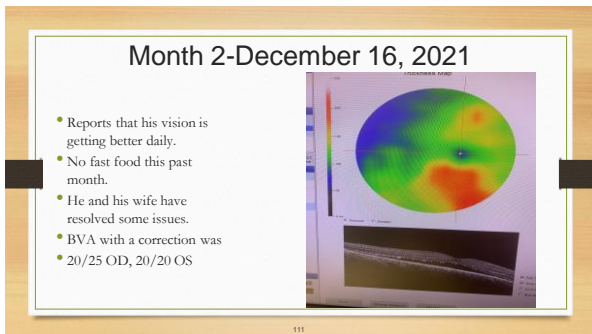
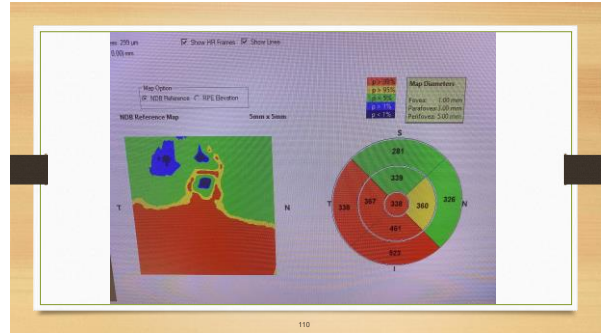
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## Case 1



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## February 2022



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## Patient-ES

- Came in for a refractive exam
- 72 yoCA male who appears to be fit
- Still works daily and works for the hospital in accounting
- His wife died a few years ago and he also has care of his mother in law and lives with an adult daughter who is clinically depressed



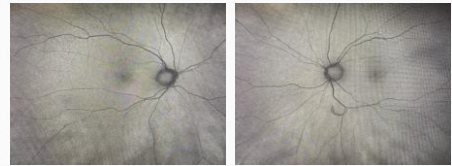
116

- We got suspicious of glaucoma in 2011 when his IOP's were 25 and 23 on the right and left eyes respectively
- We started testing him for glaucoma roughly every 6 months although he did not fit our typical glaucoma suspect model
- After OCT, we labeled him a suspect as there was no appreciable disc affection



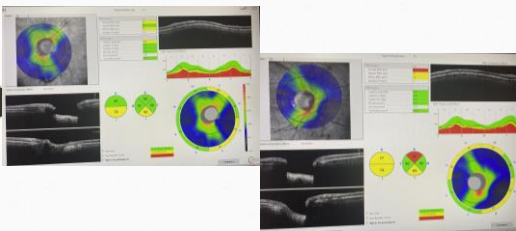
117

## Current Day-Fundus Photos



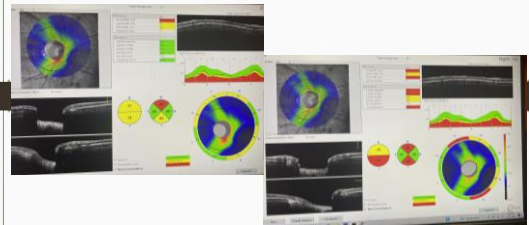
118

## Early in the Disease Process



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## Notice the Progression



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## ES-Patient

- We see this patient on a quarterly basis
- His IOPs were not under control so I asked about diet and activity
- He shared that his daughter was doing the cooking and that he was consuming a lot of carbohydrates and eating fast food or delivery



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## NEWPOT Rules

1. Happiness
2. Gratitude
3. Frame your world with your words
4. Consideration
5. Learn to say "No"



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## NEWPOT Rules Continued

6. You are more than enough
7. Eat well
8. Make time for self care
9. Activity
10. Value of Community



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## Questions?

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