

# HOW TO EAT A RAINBOW

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Color Your Way to Better  
Health

LILI LUSTIG D.O.

SEPTEMBER 12, 2020

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# OBJECTIVE:

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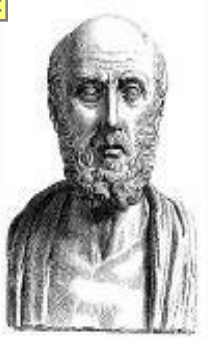


- Identify nutritional micro and phytonutrients in fruits and vegetables
- Supportive data on improved health with a plant based diet
- Research in the area of dietary changes and health improvement
- Suggestions on how to get started with teaching patients

# DISCLOSURE:

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- I have no relevant relationships/affiliation with any proprietary entity producing health care goods
- I am a member of a physician lead group, Physician's Committee for Responsible Medicine (PCRM). Which promotes Lifestyle medicine



# HIPPOCRATES

- Hippocrates, (born c. 460 bce, island of Cos, Greece—died c. 375 bce, Larissa, Thessaly), ancient Greek physician who lived during Greece's Classical period ...
- Hippocrates emphasized the importance of diet to health and to the body's ability to **restore itself**. He is famous for saying, "Let food be thy medicine and medicine be thy food,"
- A philosophy that is as pertinent and important today as it was thousands of years ago.

“Let food be thy medicine  
and medicine be thy food  
Hippocrates”



© iStockphoto.com





# A.T. STILLS:

## Andrew Taylor Still was a nonconformist

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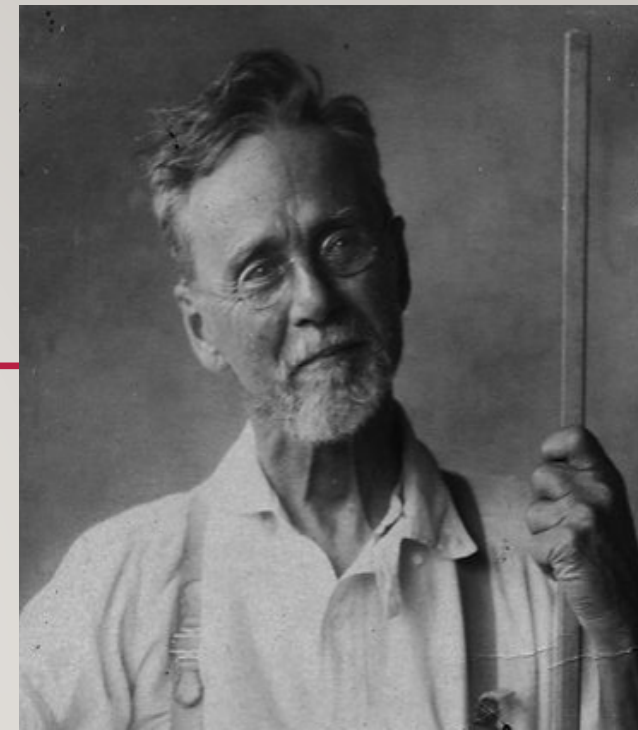
A scientist in the true sense of the word, and a deep thinker. A pioneer in thought and action, a philosopher and a philanthropist.

Born in 1828 in Jonesville, Virginia, he spent his formative years in northeast Missouri, where his preacher-physician father was sent as a missionary. Andrew learned medicine by apprenticeship and his

first patients were Shawnee Indians on a reservation in Kansas. He learned their language and lived his life by a similar nature-centered belief system.”

<https://www.atstill.com>

*"It is the object of a physician to find health, anyone can find disease"*  
Andrew Taylor Still M.D., D.O.





# WHAT IS OSTEOPATHIC PHILOSOPHY

- Osteopathic Philosophy:

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- The philosophy of osteopathy is expansive and holistic, focused on the patient, with specific attention to the cause of a disease and use of manipulative techniques as a possible treatment.
- A person is the product of dynamic interaction between body, mind, and spirit.
- Reference: [osteopathic-medicine.uiw.edu/academics](http://osteopathic-medicine.uiw.edu/academics)
- [/index.html](#)

# OSTEOPATHIC TENET:

Tenet <sup>6</sup>	Application to T2DM
The body is a unit; the person is a unit of body, mind, and spirit.	Addressing all 3 elements will allow for a truly holistic and patient-centered approach to T2DM.
The body is capable of self-regulation, self-healing, and health maintenance.	The osteopathic physician can assist and encourage patients to improve on self-care and to allow their bodies to maximize their own health.
Structure and function are reciprocally interrelated.	When healthy, the musculoskeletal system is central to glucose and insulin regulation; it can provide information about systemic disease. When it is not functioning optimally, it can contribute to worsening disease and complications.
Rational treatment is based upon an understanding of the basic principles of body unity, self-regulation, and the interrelationship of structure and function.	A rational treatment approach to T2DM is based upon the understanding of the previous 3 tenets. Thus, osteopathic physicians have the opportunity to educate and engage their patients in self-care and diabetes self-management. In addition, they may be able to use osteopathic manipulative treatment to help manage some complications when they arise.



# PHYTONUTRIENTS



Harvard Health Publishing  
**HARVARD MEDICAL SCHOOL**  
*Trusted advice for a healthier life*

- According to an article published out of Harvard in April 2019
  - Adding colorful food can help you live longer and have a healthier life
  - Epidemiological studies suggest that phytonutrients can help fight cancer
  - Reducing risk of cardiovascular disease and certain diseases



# RECOMMENDATIONS FROM LEADING ORGANIZATIONS

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DietaryGuidelines.gov

- US Nutrition Guideline recommends daily
  - **2 ½ cups** of vegetable
  - **2 cups** fruit

[https://health.gov/sites/default/files/2019-09/2015-2020\\_Dietary\\_Guidelines.pdf](https://health.gov/sites/default/files/2019-09/2015-2020_Dietary_Guidelines.pdf)

# AMERICAN CANCER SOCIETY



- American Cancer Society recommends
  - **2 ½ cups** of fruits and vegetables **combined** every day

<https://acsjournals.onlinelibrary.wiley.com/doi/full/10.3322/caac.21591>

# GUIDELINES RECOMMENDS SIMPLE CHANGES

- Body weight
- Foods that are high in nutrients in amounts that help achieve and maintain a healthy *body weight, is one of the biggest predictor of T2DM* and insulin resistance
- A variety of vegetables—dark green, red, and orange, fiber-rich legumes (beans and peas)
- Fruits, especially whole fruits with a variety of colors
- Whole grains





# AVOIDANCE PATTERNS

A healthy eating pattern limits or does not include:

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- Red and processed meats
- Sugar-sweetened beverages
- Highly processed foods and refined grain products

Alcohol:

- It is best not to drink alcohol



ACS JOURNALS

# ACOF/ OFP

Recently, OFP Magazine recognizes:

The need to increase fruits and vegetables  
in the management of obesity

Can get any more current

## PATIENT EDUCATION HANDOUT

### Risks of Obesity

Kimia Etemadi, OMS-IV

Ronald Januchowski, DO, FACP, Editor • Paula Gregory, DO, MBA, CHCQM, FAHQ, Health Literacy Editor

Obesity is a medical condition defined by a body mass index (BMI) over 30 kg/m. There are some risk factors out of your control, but you still have the power to stay healthy if you change certain aspects of your lifestyle.

#### WHAT IS BMI?

BMI is an index of weight-for-height used to classify overweight and obesity in adult individuals.

- Healthy weight: A BMI between 18.5 kg/m and 24.9 kg/m
- Overweight: A BMI between 25.0 kg/m and 29.9 kg/m
- Obese: A BMI equal to or more than 30.0 kg/m

#### BEHAVIORS PUTTING YOU AT RISK FOR OBESITY:

- Eating an unhealthy diet: An unhealthy diet may consist of fast foods, frozen meals and high-sugar content.
- Living a sedentary lifestyle: Most of our jobs require a desk and a chair. Your body needs to burn the foods that you feed it. The less you move, the more energy will be stored and eventually turned into fat.
- Stress: Stress is a risk factor because it can cause overeating in addition to an increase in the hormone called cortisol. This hormone has been linked to weight gain.
- Lack of sleep: A variable sleep cycle without a set schedule can cause weight gain because individuals may eat more than their required caloric needs.

#### WAYS TO PREVENT OBESITY:

- Participate in at least 30 minutes or more of physical activity every day, such as gardening, brisk walking, biking or swimming.
- Make a habit to comply with the recommended 2,000 calorie intake diet and make modifications depending on your current fitness goals.
- Pay attention to what you are eating. Incorporate fruits, vegetables and foods low in cholesterol and sodium.
- Develop and maintain a schedule to meditate, sleep and keep up with your mental health needs.

#### MEDICAL CARE & TREATMENT OPTIONS

If you have any questions about obesity, please contact your osteopathic family physician. With a thorough history and physical exam, your doctor will help you determine which treatment options will be best for you to achieve healthy body weight. For more information on how to prevent obesity, visit <https://www.cdc.gov/obesity/index.html>.

**acofp** | AMERICAN COLLEGE  
OF OSTEOPATHIC  
FAMILY PHYSICIANS

#### DOWNLOAD AND DISTRIBUTE

The PDF of this patient education handout is available for easy download and distribution to your patients at [www.acofp.org/PEH](http://www.acofp.org/PEH).

SOURCE(S): Centers for Disease Control and Prevention

The Osteopathic Family Physician Patient Handout is a public service of the ACOFP. The information and recommendations appearing on this page are appropriate in many instances; however, they are not a substitute for medical diagnosis by a physician. For specific information concerning your medical condition, ACOFP suggests that you consult your family physician. This page may be photocopied noncommercially by physicians and other healthcare professionals to share with their patients.

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# HOW CAN WE HELP OUR PATIENTS

## Recommendation for Community Action

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- Public, private, and community organizations should work collaboratively at national, state, and local levels to make nutritious foods available
- Medical school education on nutrition, advocate for health
- Environmental changes that increase access to affordable, nutritious foods; provide safe, enjoyable
- Accessible opportunities for physical activity

# IF THAT IS ALL YOU LEARN TO DAY, I WILL BE HAPPY

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- Today's presentation is about food and what health benefits are intrinsic to these nutritionally dense foods
- The rainbow of foods and what benefits you and your patients can derive from these powerful compounds
- We all remember **ROY - G - BIV**
- TODAY I WILL BE REVIEWING FOODS AS A RAINBOW and the **NUTRIENTS FOUND IN COLORFUL FOODS**

THIS IS WHERE THE FUN BEGINS





# RED

## An apple a day keeps the DR. away

- A 3-inch medium apple
  - 195 calories
  - 0 grams fat
  - 195 mg potassium 6%
  - 4 grams fiber
  - 25 grams carb
  - Vitamin C, 14% B-6, Vit K 5% Mag
- Healthline.com

- Tomatoes
  - Vitamins A – B6 - C - K
  - Lycopene linked to reduced heart disease
  - Potassium essential for blood pressure control
  - Beta carotene
  - B-6
  - Folate for normal tissue growth, and cellular function, important during pregnancy
  - Magnesium helps maintain nerve and muscle function, helps bone strength
  - Vitamin K





# RED PINEAPPLE

# PITAYA AKA DRAGON FRUIT

**There** are over a hundred varieties of pineapples grown throughout the world! Many of the varieties seen here in our Pineapple Variety Garden are used for plant-breeding, landscaping, and ornamental planting. The variety that is commercially grown in Hawai'i by Dole Food Company is called, Smooth Cayenne. You'll see Smooth Cayenne pineapples growing in the fields along the Pineapple Express train route, as well as here in our Pineapple Variety Garden. Just look for the plant marker that says "DOLE-30."



**RICH IN  
MAGNESIUM**

- Helps increase your energy. Important for regulating Sodium, Potassium, and Calcium



**HIGH IN  
FIBER -**

Diets that are high in fiber can help reduce the risks of heart disease,



**WHAT ARE THE HEALTH BENEFITS?**



# ORANGE

## Citrus Fruit

- A medium orange
- Calories 47
- Fibers 2.4 grams
- Water 87% is fluid
- Carbs 11 grams
- Despite their sugar content, oranges have a low glycemic index 31-51/100
- polyphenols, which is responsible for the low glycemic index (GI)
- **Squash, carrot, pumpkin, sweet potato, orange bell pepper**
- Potassium
- Vitamin K
- Vitamin A maintains eye health
  - The amount varies by food source
    - Carrots 1- single cup of raw carrots has 408% DV

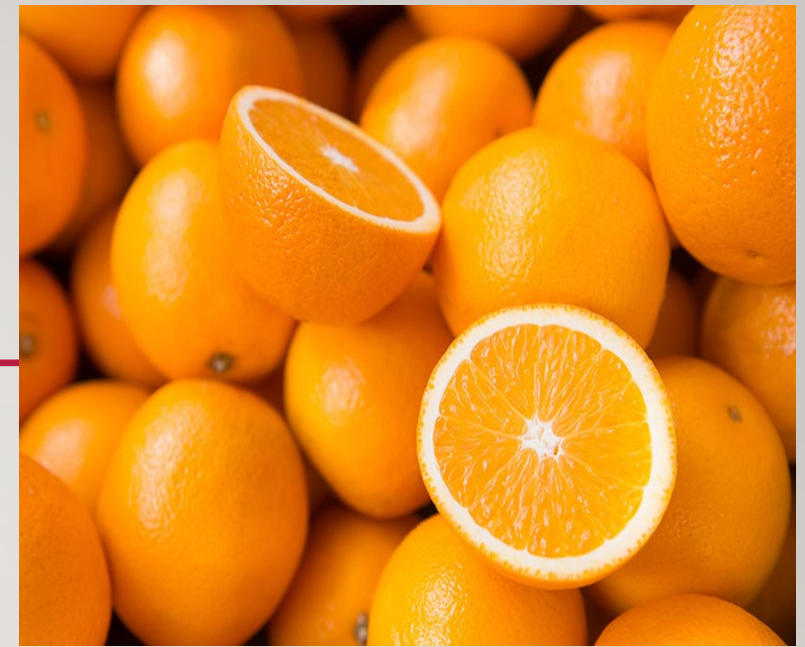
Foodandhealth.com. myplateexploration.





# ORANGE

- Thought to have been cultivated in Asia a good source of vitamins, fiber
- 
- Vitamin C
  - Thiamine
  - Folate
- Antioxidants
  - Flavonoids- anthocyanin's are associated with health benefits
  - Carotenoids- Beta-cryptoxanthin is converted to vitamin A
  - **Lycopene** is abundant in Cara Cara oranges
  - Citric acid is thought to prevent the formation of kidney stones
- [Healthline.com](https://www.healthline.com/nutrition/oranges)





# YELLOW

Bananas are touted as the most popular fruit in the US

- Known to reduce inflammation
- Fights diabetes
- **Excellent for heart health with its rich source of potassium**
- No sodium, makes it a great choice for sodium sensitive patients.
- One study found a link to decreased **arthrosclerosis and higher banana consumption**

- Healthline.com

- **Onions, corn, yellow peppers, yellow beans,**

- **Legumes**

- Thiamin B-1 helps generate energy for nutrients, growth, development, protects the brain cerebellar degeneration, and cardiovascular dysfunction
- Folic acid
- Iron
- Magnesium
- Phosphorus helps the body use carbohydrates and fats, needed for protein production
- Protein, starch and fiber



# GREEN

## Kiwi Fruit is packed with nutritious vitamins and phytochemicals

- Serotonin-naringin, rutin, catchin, quercetin, epiatchein **induce better sleep**
- Flavonoids
- Vitamin A along with the lutein is healthy for the eyes
- Improves iron absorption of iron
- Phytochemicals-zeaxanthin, lutein aid in the absorption
- **The fiber and its natural laxative property helps with the digestive tract**
- Increases lactic acid and blocks E. coli bacteria growth

## Watercress, the new Kale, spinach, lettuce, collards, Okra, zucchini

- Vitamin A - B6 - C - E - K
- Folate
- Carotenoids
- Iron
- Antioxidant
- Fiber
- Protect bones, helps with normal clotting, protects against cardiovascular disease
- Verywellfit.com







# BLUE

Blueberries is considered a  
"superfood" the darker the  
berry the more powerful

- Packed with antioxidants & phyto-flavonoid
  - Potassium
  - Vitamin C
  - Vitamin K
  - Manganese
  - They lower the risk of heart disease, cancer
  - Anti-inflammatory
  - Webmd.com, healthline.com
- Blue corn, blue potatoes, blue tomatoes
  - Sometimes these foods are called purple
  - They have high levels of anthocyanins
  - The pigments are excellent antioxidants
  - Blue tomatoes have an increased level o Vitamin C







# BLUEBERRIES

Blueberries, huckleberries

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- Blueberries reduce DNA Damage
- Helps against aging and cancer
- Known to neutralize free radicals
- A small case study using blueberries showed a reduction of oxidative free radicals



*Impact of multiple genetic polymorphisms on the effects of a 4-week blueberry juice intervention*

- PubMed.gov





# INDIGO

In foods, indigo appears blue with black overtones.

## Anthocyanins

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- Black beans, blackberries, or plums, beets, Okinawa purple sweet potatoes
- Vitamin K
- Lycopene
- Betalains
- Iron
- Manganese
- **Okinawa has a healthy elderly population with rates of dementia reported up to 50% less.**
- **Some scientist believe purple sweet potato plays a role in healthy aging**
- Sparkpeople.com

## Eggplant, purple peppers, kohlrabi

- Kohlrabi is a cruciferous vegetable in the cabbage family
- Fiber
- Protein
- Vitamin C - B6 antioxidant and immune boosting
- Potassium
- Magnesium







# VIOLET

## Foods that are violet are considered healing foods

- Figs
- Eggplant
- Purple potatoes
- Purple sweet potatoes
- Purple non-sweet
- Purple peppers
- Purple carrots

### Purple potatoes *solanum tuberosum* from the Andes region of South America

- Brilliant purple remains vibrant after cooking, high in antioxidants, anthocyanin, helps with cholesterol levels.
- Manganese, Copper, Potassium, Selenium, Tyrosine
- Vitamin B6
- Vitamin C
- Fiber
- Lower glycemic index than white potatoes, likely due to higher levels of polyphenols
- Potassium along with the anti-oxidative response, likely the cause of the noted BP lowering







# PURPLE BREAD

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# BLACK, BROWN, WHITE

- **Black Rice, Brown Beans, Brown rice, Cauliflower**
- Black rice is one of the handful of superfoods.
- Antioxidants oxidative stress caused by molecules known as free radicals (9Trusted Source ☐ ).
- oxidative stress has been associated with an increased heart disease, Alzheimer's, and certain cancer
- Despite being less popular than other rice varieties, research shows that black rice has the highest overall health benefit
- Anthocyanin, black rice has been found to contain over 23 plant antioxidant
- Known as the **Emperor's Rice**, as it was only feed to him
- Good source of several nutrients
- Compared with other types of rice, black rice is one of the **highest in protein**
- Per 3.5 ounce - 9 grams of protein, & good source of **iron**





# BROWN RICE

## Good source of fiber and protein

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- 5 grams protein in brown rice
- One cup of **brown rice** contains:
- **Calories:** 216 **Carbs:** 44 grams
- **Fiber:** 3.5 grams
- **Fat:** 1.8 grams
- **Thiamin (B1):** 12% **Niacin (B3):** 15% **(B6):** 14% **Pantothenic acid (B5):**
- **6% Iron:** 5% **Magnesium:**
- **21% Phosphorus**





# BROWN

Cinnamon Improves glucose can Slow Progression of Type 2 DM



## CINNAMON OIL FACTS

Cinnamon oil is much more potent than the dried spice and contains special compounds not found in cinnamon spice

Two main types of cinnamon oil: cinnamon bark oil and cinnamon leaf oil

Cinnamon bark oil is extracted from the outer bark of the cinnamon tree, is very potent and has a strong, "perfume-like" smell



Cinnamon leaf oil has a "musky and spicy" smell and is lighter in color

Considered one of the oldest spices

Believed to be used by grave-robbing bandits to protect against the plague in the 15th century

Traditionally associated with the ability to attract wealth

## CINNAMON OIL BENEFITS

Dilates blood vessels

Enhances nitric oxide function

Decreases inflammation

Increases circulation

Fights viruses

Fights free radicals

Relieves depression

Stimulates the immune system

Stimulates libido

Fights parasites

**Dr. Axe**  
FOOD IS MEDICINE

# The Nutrition Rainbow

Let's Bring it together!



*Tips: The more naturally colorful your meal is, the more likely it is to have an abundance of cancer-fighting nutrients. Pigments that give fruits and vegetables their bright colors represent a variety of protective compounds. The chart below shows the cancer-fighting and immune-boosting power of different-hued foods.*

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

PhysiciansCommittee

for Responsible Medicine • [www.PhysiciansCommittee.org](http://www.PhysiciansCommittee.org) • 202-686-2210

<https://www.pcrm.org/news/blog/eat-rainbow>



# TURTLE BEACH NORTH SHORE





**DID SOMEONE SAY RESEARCH?**

A meme featuring a young man with a wide-eyed, slightly awkward expression, looking out of a car window. The text "DID SOMEONE SAY RESEARCH?" is overlaid at the top in large, bold, white letters with a black outline.



# RESEARCH EVIDENCE

“Researchers has shared new findings related to adopting a plant-based diet.” July 14, 2020  
| Lipids & Metabolic

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A study in JAMA Internal Medicine, one that tracked more than 237,000 men and 179,000 women, eating more plant-based protein is “significantly associated” with improved overall mortality and cardiovascular disease (CVD) mortality.”

“Considerable evidence has accumulated supporting a beneficial role for **plant-based diets in the prevention of cardiovascular disease**,” wrote lead author Jiaqi Huang, PhD, of the *National Institutes of Health*, and colleagues. “Dietary plant protein has been associated with reduced CVD risk factors, including lower systolic and diastolic blood pressure, improved lipid and lipoprotein profiles, and decreased circulating concentrations of insulin-like growth factor-1.”



# EXAMPLES

**The authors noted, substituting egg protein with plant protein can**

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- 24% lower risk of overall mortality among men
- 21% lower risk among women

**When substituting red meat protein with plant protein, the decreases**

- 13 % among men
- 15% among women

<https://www.cardiovascularbusiness.com/topics/lipids-metabolic/plant-based-diets-cardiovascular-health-mortality-heart>

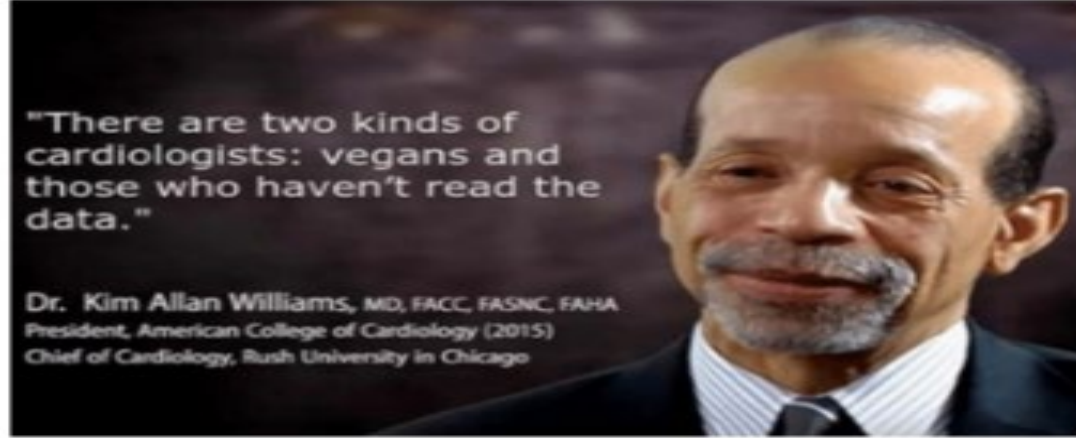




# AMERICAN COLLEGE OF CARDIOLOGY

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- 2014
- The first Vegan President
- Brings **validity** to the research



“There are two kinds of cardiologists: vegans and those who haven’t read the data.” Dr Kim Allan Williams is a remarkable man. As the first vegan president of the American College of Cardiology, what he says about the value of plant-based diets and the harms of meat-based diets is well-informed and evidence-based. Additionally, his well-earned high status within his field means that other medical professionals are more likely to sit up and listen when he speaks about plant-based nutrition.

A great fan of **Dr C B Esselstyn** and **Dr Dean Ornish**, Dr Williams regularly sends his cardiac patients to one or the other of these luminary plant-based clinicians so that they can take part in their disease reversal programmes.



????????????????????

- 
- Chocolate is the component of cacao beans (before)
  - It is suggested cocoa (after) helps with inflammation







# ATP III PUBLICATION FROM 2001, NOTHING NEW

Determine lipoprotein levels—obtain complete lipoprotein profile after 9- to 12-hour fast.

## ATP III Classification of LDL, Total, and HDL Cholesterol (mg/dL)

### LDL Cholesterol – Primary Target of Therapy

<100	Optimal
100-129	Near optimal/above optimal
130-159	Borderline high
160-189	High
≥190	Very high

### Total Cholesterol

<200	Desirable
200-239	Borderline high
≥240	High

### HDL Cholesterol

<40	Low
≥60	High





# RISK FACTORS

NATIONAL INSTITUTES OF HEALTH  
NATIONAL HEART, LUNG, AND BLOOD INSTITUTE



## Major Risk Factors (Exclusive of LDL Cholesterol) That Modify LDL Goals

- 
- ATP III, diabetes is regarded as a CHD risk equivalent
  - Cigarette smoking
  - Hypertension (BP >140/90 mmHg or on antihypertensive medication)
  - **Low HDL cholesterol (<40 mg/dL)\***
  - Family history of premature CHD (CHD in male first degree relative <55 years;
  - CHD in female first degree relative <65 years)
  - Age (men >45 years; women >55 years)

\* **HDL** cholesterol >60 mg/dL counts as a “negative” risk factor; its presence removes one risk factor from the total count

<https://www.nhlbi.nih.gov/files/docs/guidelines/atglance.pdf>





# DETERMINE NEED FOR THERAPEUTIC “LIFESTYLE” BEFORE DRUG THERAPY (TLC)

## Determine risk category:

- Establish LDL goal of therapy
- Determine need for therapeutic lifestyle changes (TLC)
- Determine level for drug consideration

## LDL Cholesterol Goals and Cutpoints for Therapeutic Lifestyle Changes (TLC) and Drug Therapy in Different Risk Categories.

Risk Category	LDL Goal	LDL Level at Which to Initiate Therapeutic Lifestyle Changes (TLC)	LDL Level at Which to Consider Drug Therapy
CHD or CHD Risk Equivalents (10-year risk >20%)	<100 mg/dL	≥100 mg/dL	≥130 mg/dL (100-129 mg/dL: drug optional)*
2+ Risk Factors (10-year risk ≤20%)	<130 mg/dL	≥130 mg/dL	10-year risk 10-20%: ≥130 mg/dL
			10-year risk <10%: ≥160 mg/dL
0-1 Risk Factor†	<160 mg/dL	≥160 mg/dL	≥190 mg/dL (160-189 mg/dL: LDL-lowering drug optional)

\* Some authorities recommend use of LDL-lowering drugs in this category if an LDL cholesterol <100 mg/dL cannot be achieved by therapeutic lifestyle changes. Others prefer use of drugs that primarily modify triglycerides and HDL, e.g., nicotinic acid or fibrates. Clinical judgment also may call for deferring drug therapy in this subcategory.

† Almost all people with 0-1 risk factor have a 10-year risk <10%, thus 10-year risk assessment in people with 0-1 risk factor is not necessary.



# THERAPEUTIC LIFESTYLE CHANGES

**Initiate therapeutic lifestyle changes (TLC) if LDL is above goal.**

## **TLC Features**

- **TLC Diet:**
  - Saturated fat <7% of calories, cholesterol <200 mg/day
  - Consider increased viscous (soluble) fiber (10-25 g/day) and plant stanols/sterols (2g/day) as therapeutic options to enhance LDL lowering
- **Weight management**
- **Increased physical activity.**

## **Consider adding drug therapy if LDL exceeds levels**

- **Consider drug simultaneously with TLC for CHD and CHD equivalents**
- **Consider adding drug to TLC after 3 months for other risk categories.**






# MAKE HEALTHY CHOICES


Due to the frequent intake of fruits, vegetables, whole grains, and legumes, a **plant-based** diet is high in fiber and rich in vitamins and minerals

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Since animal products are reduced, the diet can be free of cholesterol, and plants are low in calories and saturated fat (Coulston 1999)

- It should be taken into account that the term plant-based is sometimes used interchangeably with vegan or vegetarian (Tuso et al. 2013)

Vegan  not equal to plant based **or** always healthy

Avoid  cakes, candies, crackers, cookies, convenient

# UNHEALTHY CHOICES





# TLC- FRUITS AND VEGETABLES:

Ask then the question does adding an array of colorful fruits and vegetables help meet the recommendations?

- Increase plant sterols
  - Increases soluble fibers
  - Decrease animal fat, cholesterol in the diet
  - Decrease triglycerides
- 
- \*Along with exercise 30/5





# WAIKIKI NORTH END

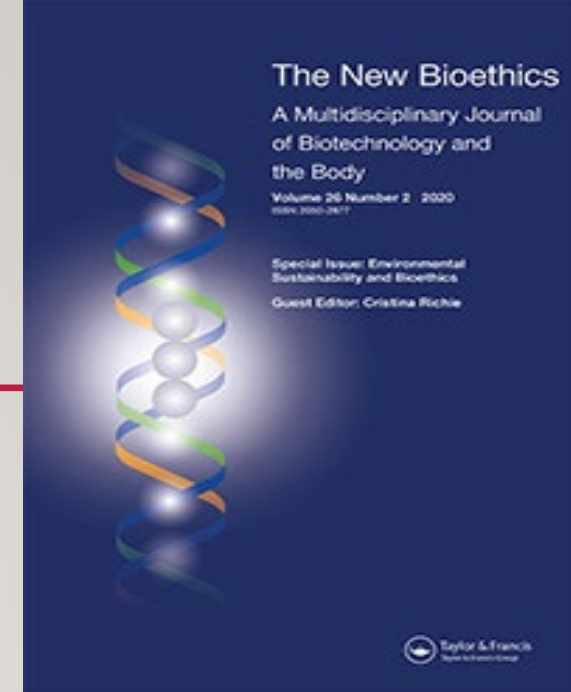


# IS OUR CURRENT SYSTEM SUSTAINABLE

## The New Bioethics. A Multidisciplinary Journal of Biotechnology & the Body

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- 2020- approx. 157 million Americans are expected to live with at least one chronic condition
- Future health care work-force is **not** projected to meet the health care need
- Appropriate mix of personnel capable to deal with this trend in a multidisciplinary manner (Bodenheimer et al. 2009)







# RAINBOW WALL AT HILTON HAWAIIAN VILLAGE







# BMI

- NIH Study relating obesity to BMI, contributing to infertility
- 
- problems with ovulation
  - irregular menstrual periods
  - Reduced response to fertility treatment to fertility treatment
  - Increased risk for miscarriages.
  - PCOS and an association with **higher rates of male infertility**
- 
- Research also showed that reduction in weight improved fertility
- 
- [https://www.nichd.nih.gov/health/topics/obesity/conditioninfo/FAQs\\_fertility#](https://www.nichd.nih.gov/health/topics/obesity/conditioninfo/FAQs_fertility#)



# BMI INCREASED INFERTILITY

- Body Mass index ( kg/m<sup>2</sup>
- It was found that as the BMI goes up, so does the rate in infertility
- Insulin resistance increase PCOS
- Increase in free androgens
- Closer to **ideal weight and normal BMI**, *higher rate of “fertility”*

US Department of Health and Human Services



Eunice Kennedy Shriver National Institute  
of Child Health and Human Development

Healthy pregnancies. Healthy children. Healthy and optimal lives.

<https://Strongly highlight the “link between obesity and infertility American Journal of Obstetrics and>

Gynecology 1994;(1):171-177

# CONSIDER DIETARY CHANGES DYSMENORRHEA

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- Reduce fat
- Increase fiber
- Avoidance of dairy
- A study that looked at sex hormone binding globulin for that there was evidence of improvement of symptoms.
- The information was published in 2000 in Obstetric Gynecology Journal
- Obstet gynecol. 2000;95:245-50





# BREAST CANCER

A study from Loma Linda School of Public Health

- The study used food questionnaires to follow nearly 53,000 North American women (mean age of 57) for almost eight years.
- 
- Higher intakes of dairy milk were associated with a greater risk of breast cancer up to 70 to 80 percent higher for those who drank two to three cups a day, with observable increase in risk for those who drank just one-quarter to one-third a cup daily regardless of whole or skim
  - Soy consumption, the researchers found “**no convincing evidence**” that soy products were associated with a higher risk of breast cancer
  - Marked reduction in risk by substituting soy milk for an approximately equivalent quantity of dairy milk

International Journal of Epidemiology, 2020, 1-12





# CONSIDER DIETARY CHANGES

Ask yourself, Does Milk do the Body Good?

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After reviewing

- High fat diet increased BMI
- PCOS
- Breast cancer
- Dysmenorrhea
- Infertility both Male and Female

# WHAT ABOUT SOY

## Meta-analysis of 5 cohort studies

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- Looking at the Asian population is a great group, in comparison to American population as their diet is higher in soy:
- 11,206 participants
- Both **estrogen** receptor **negative** and **positive** showed a **decrease** mortality
- And an **increase** in (deaths) mortality with low soy consumption





# WHAT ABOUT HOT FLASHES AND SOY

**Small Study** in Australia showed improvement in symptoms in a 12 week study

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- But this is promising and more research is needed to look at a bigger population
- The only change was to substitute soy flour and remove wheat flour
- The study was not used to say wheat is bad, but rather to look at the effects of soy

Dietary flour supplementation decrease post-menopausal hot flashes: effect of soy,

Murkies AL. Maturitas. 2008; (61): 27-33



# WHAT ABOUT DECREASED RATE OF MORTALITY

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- A study reported in the Clinical Journal of Oncology
- Corresponding **mortality improvement** with
- increased number of daily fruits and vegetables

Pierce JP, Journal of Clinical Oncology 2007; (25): 2345-51



# VEGETABLES AND FRUITS AND REGULAR WALKING

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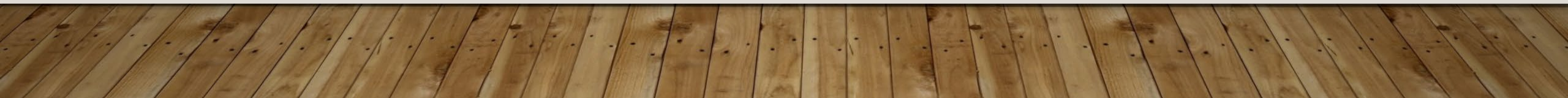
I now ask you to consider **Therapeutic Lifestyle Changes (TLC)** for your patients

- Diet and improved health
- Decrease in mortality and morbidity
- Improved fertility
- Decreased cancer risk





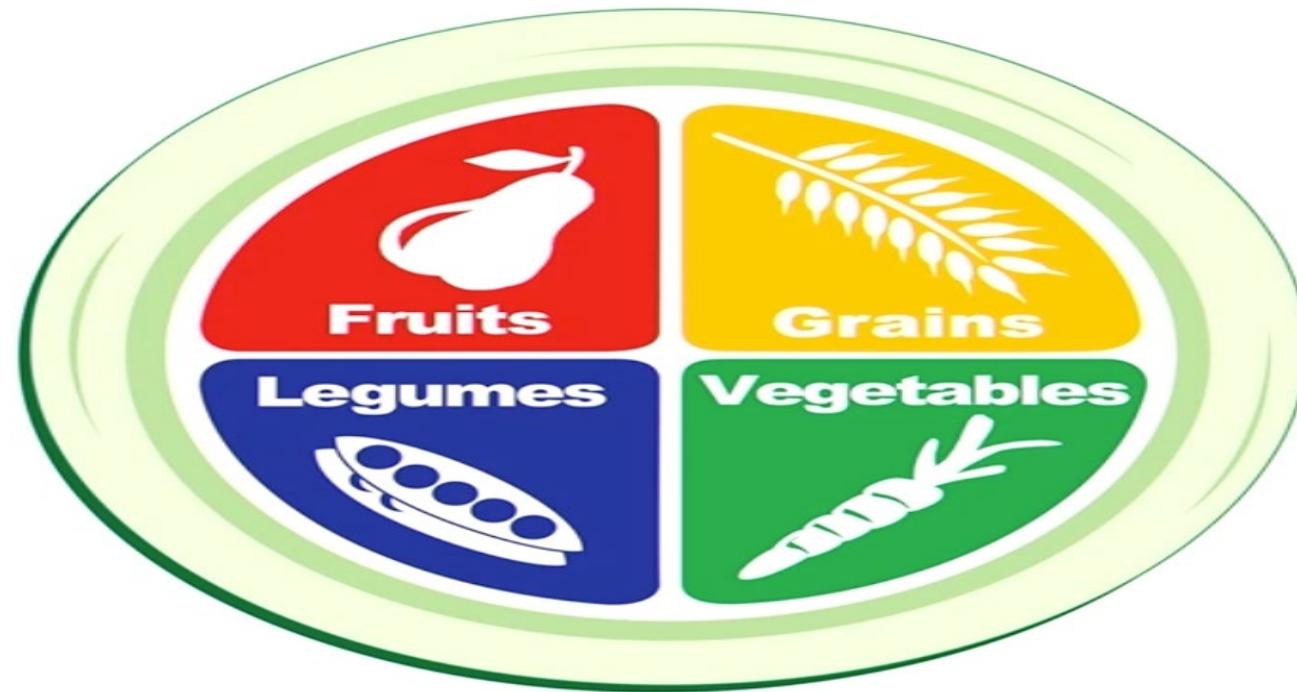
# RAINBOW FROM TOP OF DIAMOND HEAD



# HOW TO MAKE THESE CHANGES



















## MOST PATIENT DO NOT UNDERSTAND PORTIONS

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# TEACHING PATIENTS TO VISUALIZE WHAT THEY ARE EATING IS AN IMPORTANT STEP

## Portion Size Guide

 = 	 = 	 = 
 = 	 = 	 = 
 = 	 = 	 = 

### Visualization Key

*Each item below visually represents 1 serving size*





# TEACHING PORTIONS:

Where do you get your Protein?

There is protein in all vegetables, some more than others

legumes, Beans, legumes and broccoli

Broccoli, Broccoli is also a good source of protein

Daily Requirement:

1.2- 1.7 g/kg Wt. per day

= 80 -115 grams daily

Athletes

2.2 -3.2 g/Kg Wt. per day



<https://blog.nasm.org/fitness/protein-vegetarian-vegan-athletes>

# RAINBOW OF FRUITS AND VEGETABLES

- US Nutrition Guideline recommends daily

- 2 ½ cups of vegetable
- 2 cups fruit



DietaryGuidelines.gov

## Fruit and vegetable serving sizes

Fruit				Vegetables			
1 cup is...				1 cup is...			
 1 small apple <small>(about 1 1/2 inches in diameter, washed, sliced, or whole)</small>	 1 large banana <small>(medium size)</small>	 1/8 of a large melon <small>(about 1 1/2 cups)</small>	 Dried fruit 1 cup	 Asparagus 2 spears	 1 cup of beans, cooked <small>(about 1/2 cup dry)</small>	 1 large pepper <small>(about 1/2 cup)</small>	 6 small broccoli florets <small>(about 1/2 cup)</small>
 1 medium grapefruit <small>(about 1 1/2 inches in diameter)</small>	 1/2 grapes	 1 large orange <small>(about 1 1/2 inches in diameter)</small>	 1 large peach <small>(about 1 1/2 inches in diameter)</small>	 2 medium carrots <small>(about 1 1/2 inches long)</small>	 1/4 head of cauliflower <small>(about 1 1/2 cups)</small>	 1 cup diced or 2 celery stalks <small>(about 1 1/2 cups)</small>	 Corn: 1 cup of kernels or 1 large ear <small>(about 1 1/2 cups)</small>
 1 medium pear <small>(about 1 1/2 inches in diameter)</small>	 1 cup of chopped pineapple <small>(about 1 1/2 cups)</small>	 2 large plums <small>(about 1 1/2 inches in diameter)</small>	 1/2 large berries <small>(about 1 1/2 cups)</small>	 1/2 of a medium cucumber <small>(about 1 1/2 cups)</small>	 10 green beans <small>(about 1 1/2 cups)</small>	 1 cup greens, cooked <small>(about 1 1/2 cups)</small>	 Two large leaves of raw greens <small>(about 1 1/2 cups)</small>
 1 large tomato <small>(about 1 1/2 inches in diameter, sliced, or whole)</small>	 1 medium mango <small>(about 1 1/2 inches in diameter)</small>	 1/2 papaya <small>(about 1 1/2 cups)</small>	 6 lychees <small>(about 1 1/2 cups)</small>	 1 whole squash or zucchini <small>(about 1 1/2 cups)</small>	 1 large baked potato <small>(about 1 1/2 cups)</small>	 1 1/2 onions <small>(about 1 1/2 cups)</small>	 1 cup of mashed pumpkin <small>(2 1/2 cups)</small>





# WHAT TO EAT?

Education, Education, Education, and a little planning

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**VEGAN  
BREAKFAST  
IDEAS**

**THAT WILL  
BLOW YOUR  
MIND**



<https://www.deliciouseveryday.com/vegan-breakfast-ideas/>



# WHAT CAN BE EATEN FOR BREAKFAST?

Today many options makes meal planning much easier

- Oatmeal with berries
- Pancakes with blueberries
- Bran flakes with raisins and almond milk
- Whole grain bagels (\*3 grams of fiber) vegan cream cheese and sliced lettuce and tomatoes
- Smoothies with greens and fruit and non-dairy milk
- Beyond Burger Breakfast Sausages, vegan egg or tofu veggie scramble

<b>Total Fat</b>	0.5g	<b>1%</b>
Saturated Fat	0g	<b>0%</b>
Trans Fat	0g	
<b>Cholesterol</b>	0mg	<b>0%</b>
<b>Sodium</b>	135mg	<b>6%</b>
<b>Total Carbohydrate</b>	13g	<b>4%</b>
Dietary Fiber	5g	<b>20%</b>
Soluble Fiber	2g	
Insoluble Fiber	3g	
Sugars	Less than 1g	
<b>Protein</b>	3g	

# LUNCH AND DINNERS AND A HEATHIER TO MORROW

Anything you make for lunch could be a dinner

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- Whole wheat Veggie pizza with vegan cheese
- Vegetarian chili
- Veggie burgers, hot dogs, Beyond Burger, Beyond Sausages
- Portobello mushroom
- Cauliflower grilled
- Vegetable lo Mein
- Stuffed cabbage





MAY YOU ALL FIND HEALTH AND HAPPINESS





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- Editorial decision 13 December 2019; Accepted 21 January 2020