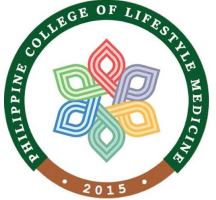


Unleashing the Power of Plant-Based Diets



PHILIPPINE COLLEGE OF
Lifestyle Medicine



Brenda Davis, RD



Disclosures

□ **Faculty:** Brenda Davis, RD

□ **Relationships with commercial interests:**

- Consulting Fees: Skyrunner Foods, Canvasback Missions, E4 Alive, Diabetes Undone.
- Book Royalties: Book Publishing Co., Harper Collins Canada, HCI Inc.

□ **Potential conflict(s) of interest: None.**



Outline

- The strength of the link between diet and disease.
- Evidence for plant-based diets.
- 7 steps to an optimal plant-based diet for disease prevention and reversal.

My Dad



What We Know

- 70% of deaths globally are due to chronic diseases of our own making.
- An estimated 90% of type 2 diabetes, 80% of heart disease and 40-70% of cancers are considered entirely preventable.



The Big 4 Lifestyle Culprits



WHO. Global status report on noncommunicable diseases. 2011.

Unhealthy Diet Defined

An unhealthy diet is one that is based on processed foods with added fat, sugar and salt, and animal products rich in saturated fats. It is low in vegetables, fruits, legumes, whole grains, nuts and other high fiber foods.





Highest Risk

- ❑ Inactive populations consuming Western-style diets.
- ❑ Highest rates globally - North America, Northern Europe, Australia and....



...people in developing countries
that are adopting our Western ways!



Lowest Risk

- Populations who live simply, are physically active, and consume unprocessed, plant-based diets.
- Lowest rates globally – some parts of rural Asia, South America and



The Blue Zones

5 Blue Zones



Loma Linda, California

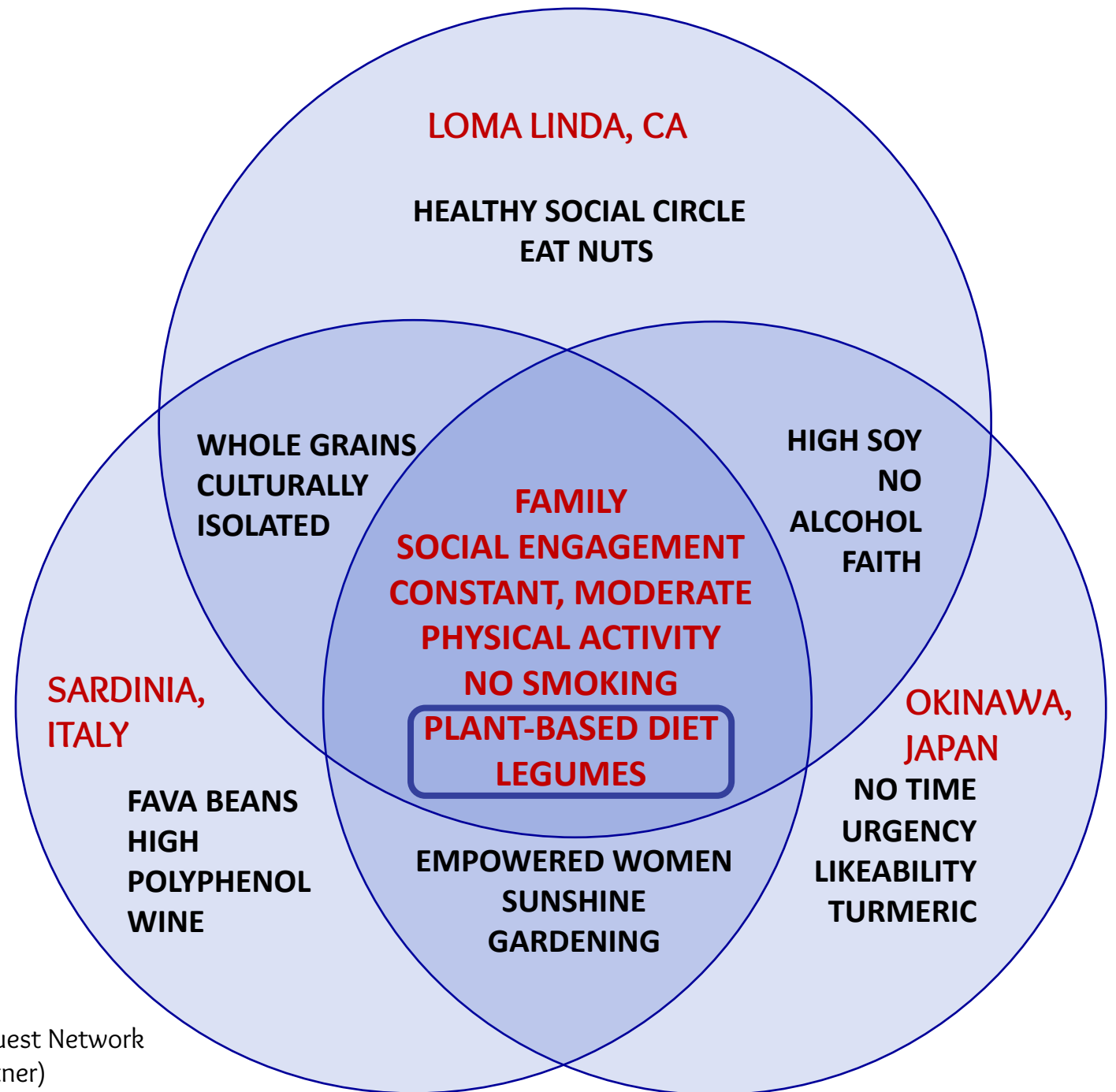
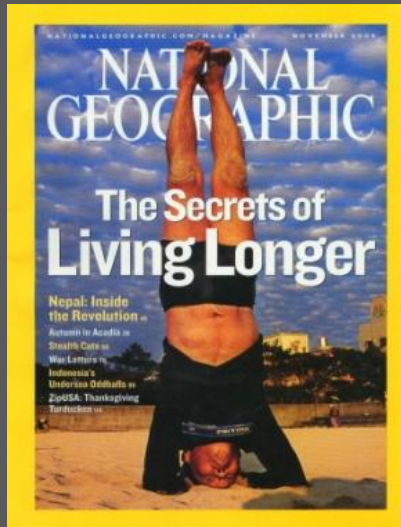
Nicoya, Costa Rica

Sardinia, Italy

Ikaria, Greece

Okinawa, Japan

- Some lifestyle practices are unique to each Blue Zone.
- Some are shared by 2 or more Blue Zones.
- Some are common to every Blue Zone known.



Source: Quest Network
(Dan Buettner)



The Evidence for Plant-based Continues to Mount

Similar Healthy Lifestyles; Different Dietary Patterns

3 Populations

1. **North America** – Adventist Health Study-2 (AHS-2)
>96,000 participants; began in 2002
2. **UK** – EPIC-Oxford >65,000 participants; began in 1993
3. **Taiwan** – Tzu Chi Health Study (>6,000 participants began in 2007) and Tzu Chi Vegetarian Study (>12,000 participants; began in 2005)



Health-Conscious Cohorts versus the General Population

People in these health-conscious cohorts (regardless of dietary group) die at about half the rates of the general population in their regions.



Key TJ. *Am J Clin Nutr* 2009;89(suppl):1S-7S.

Key TJ. *Am J Clin Nutr*. 1999;70(3 Suppl):516S-524S.

Heart Disease
NAFLD
Urinary Tract Infections
Cancer
Cataracts
Diabetes
Gout
Stroke
High Blood Pressure
Kidney Disease
Depression
Diverticular Disease

Findings?



Ischemic Heart Disease

Compared to similar, health-conscious meat eaters, IHD rates were:

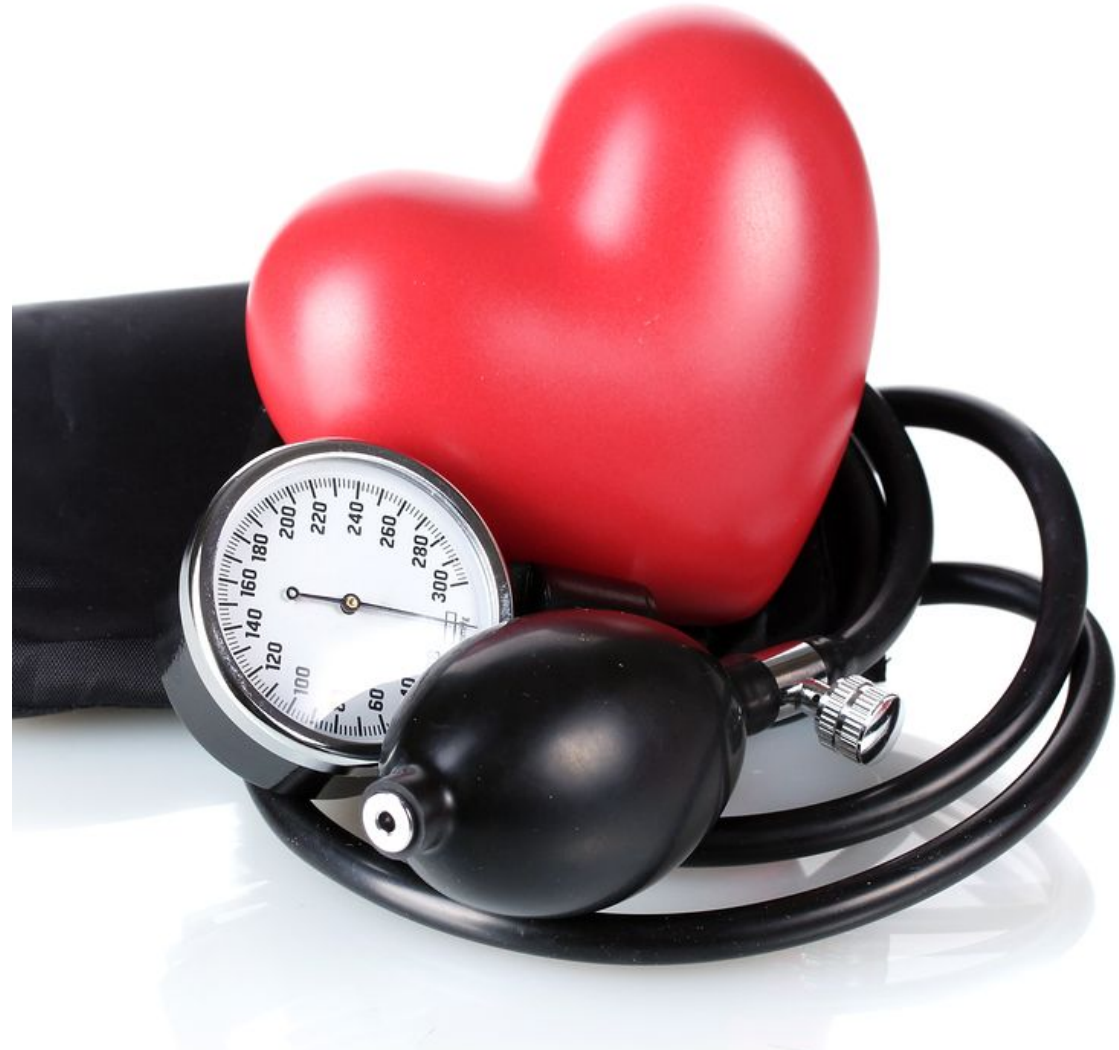
- EPIC Oxford
 - 13% lower among pescovegetarians (2019)
 - 22% lower among LOV and vegans (2019)
- AHS-2
 - 23% lower among pescovegetarian men
 - 24% lower among LOV men
 - 55% lower among vegan men
 - No significant differences among women



Hypertension AHS-2

Compared to similar,
health conscious
nonvegetarians, risk of
hypertension was:

- 55% lower among
LOV
- 75% lower among
vegans



What About Stroke???

EPIC Oxford

Compared to similar, health-conscious meat eaters:

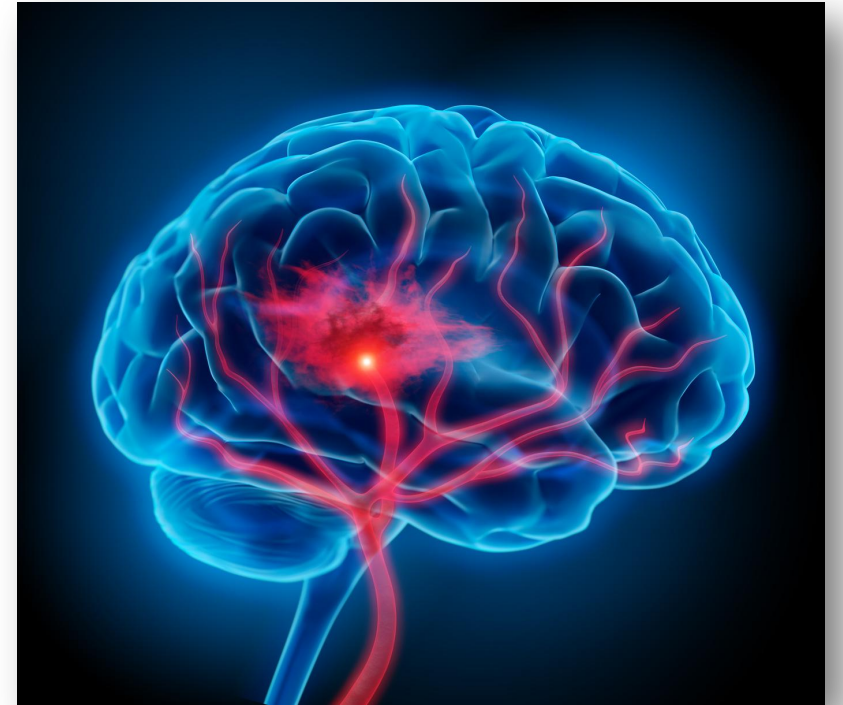
□ Total stroke:

- 20% **higher** risk among vegetarians/vegans
- 14% **higher** risk among pescovegetarians

□ Hemorrhagic stroke:

- 43% **higher** risk among vegetarians/vegans
- 12% **higher** risk among pescovegetarians

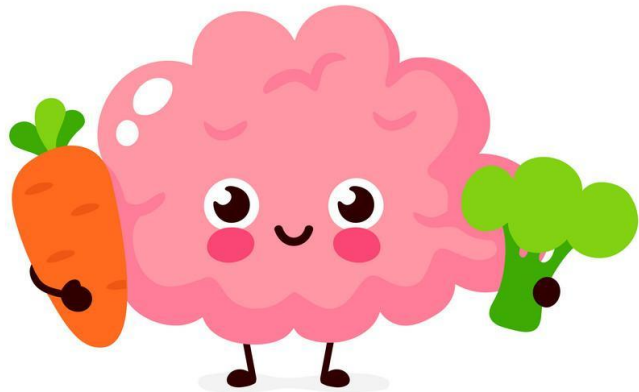
□ **Suggested reasons:** This cohort had low levels of vitamin D, vitamin B12, essential amino acids, and long-chain n-3 fatty acids.



Stroke Risk Lower Among LOV and Vegans

AHS-2 (compared to non-vegetarians)

- Systematic review of 8 studies, vegetarians had a 29% risk reduction for cerebrovascular disease.



Tzu Chi (compared to nonvegetarians)

□ Cohort 1 (Tzu Chi Health Study):

- Ischemic stroke – 74% risk reduction among vegetarians

□ Cohort 2 (Tzu Chi Vegetarian Study)

- Total stroke – 48% risk reduction among vegetarians
- Ischemic stroke – 59% risk reduction among vegetarians
- Hemorrhagic stroke – 66% risk reduction among vegetarians



Plant-Based Diet and Risk of Stroke

- Nurses Health Study, Nurses Health Study 2, Health Professionals Follow-Up Study (over 200,000 participants)
- Plant-based diet index (PDI) and stroke risk.
- Compared to participants with the lowest PDI, risk of stroke was:
 - 6% **lower** in those with the highest PDI.
 - 10% **lower** in those with the highest **healthy PDI**.
 - 5% **higher** in those with the highest **unhealthy PDI**.

Overall, a vegetarian diet was not associated with total stroke, although a lower total stroke risk was observed in those with a healthful plant-based diet.



Take Home Message:

Diet quality matters...
plant-based or
otherwise.

Diabetes

Compared to similar, health-conscious meat eaters, risk of T2D was:



AHS-2

- 21% lower among pescovegetarians
- 38% lower among LOV
- 62% lower among vegans

EPIC-Oxford

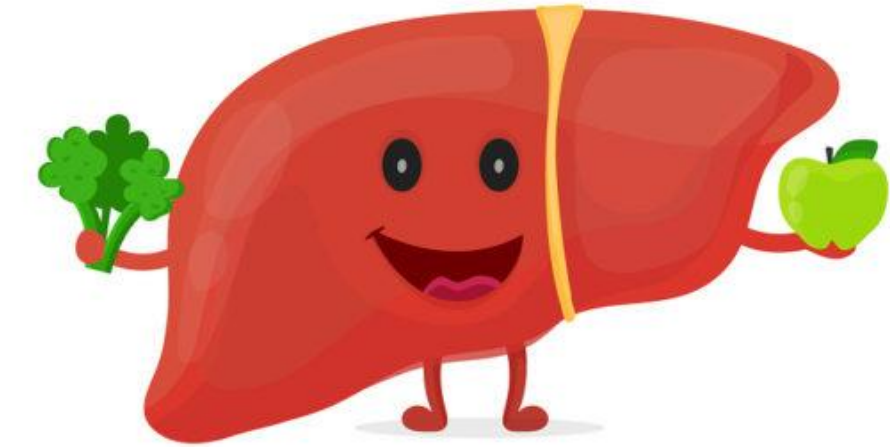
- 35% lower among LOV
- 47% lower among vegans
- 53% lower among pescovegetarians

Diabetes Tzu Chi

Compared to similar, health-conscious non-vegetarians, risk of developing type 2 diabetes was:

- 51% lower among vegetarian (near vegan) men
- 75% lower among vegetarian (near vegan) women





NAFLD – Tzu Chi

- Compared to similar, health conscious nonvegetarians, NAFLD (non-alcoholic fatty liver disease) was 21% lower among vegetarians.
- Replacing soy with meat or fish increased risk 12-13%.
- Replacing whole grains with refined grains increased risk 3-12%.



Cancer

Compared to similar, health-conscious meat eaters, cancer rates were:

EPIC Oxford

- 11% lower among LOV
- 12% lower among pesco-vegetarians
- 19% lower among vegans

AHS-2

- 8% lower among LOV
- 12% lower among pesco-vegetarian
- 16% lower among vegans

Key TJ, *Am J Clin Nutr.* 2014;100 Suppl 1:378S-85S.

Tantamango -Bartley Y. *Cancer Epidemiol Biomarkers Prev.* 2013;22(2):286-94.

Breast Cancer – Tzu Chi

- Compared to similar, health-conscious non-vegetarians, risk of **breast cancer was 58% lower** among vegetarian participants.
- Daily **soy isoflavone intake** was associated with a **63% lower risk**.

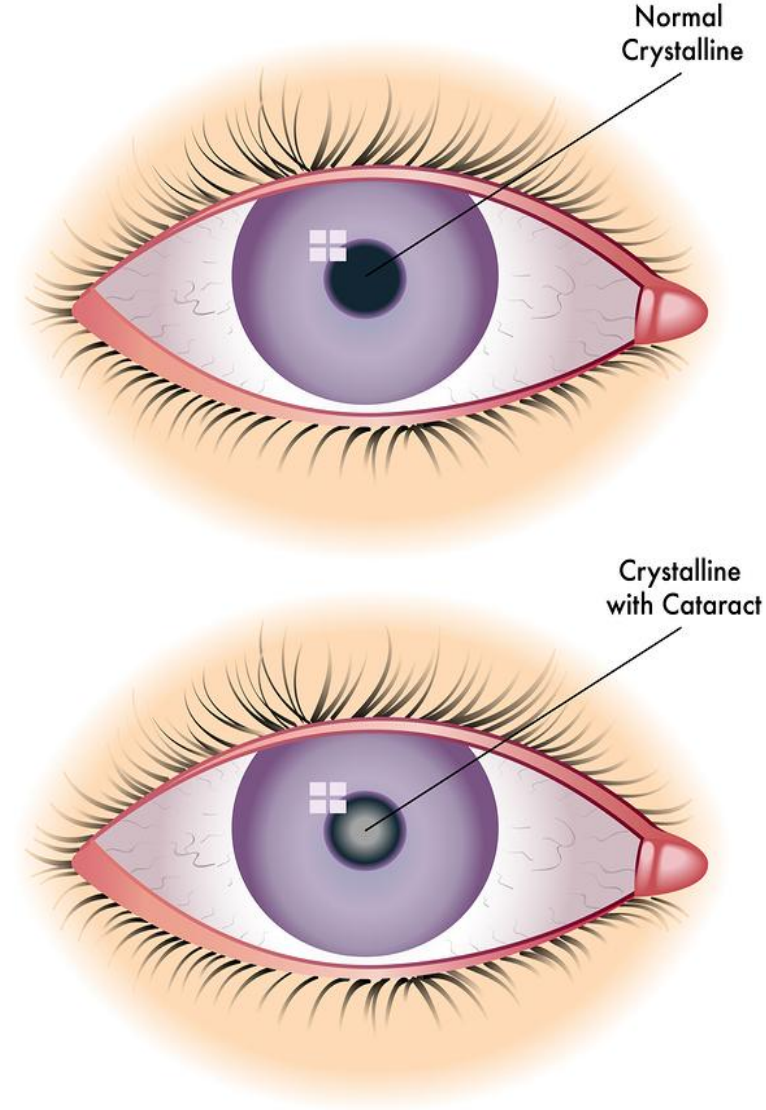


Cataracts

EPIC-Oxford

Compared to similar, health-conscious meat eaters, risk of cataracts was:

- 21% lower among pesco-vegetarians
- 30% lower among LOV
- 40% lower among vegans



Cataracts – Tzu Chi

Compared to similar,
health-conscious
nonvegetarians, the risk
of cataracts was:

- 20% lower among vegetarians
- 30% lower in overweight vegetarians (BMI>24)



Normal Vision



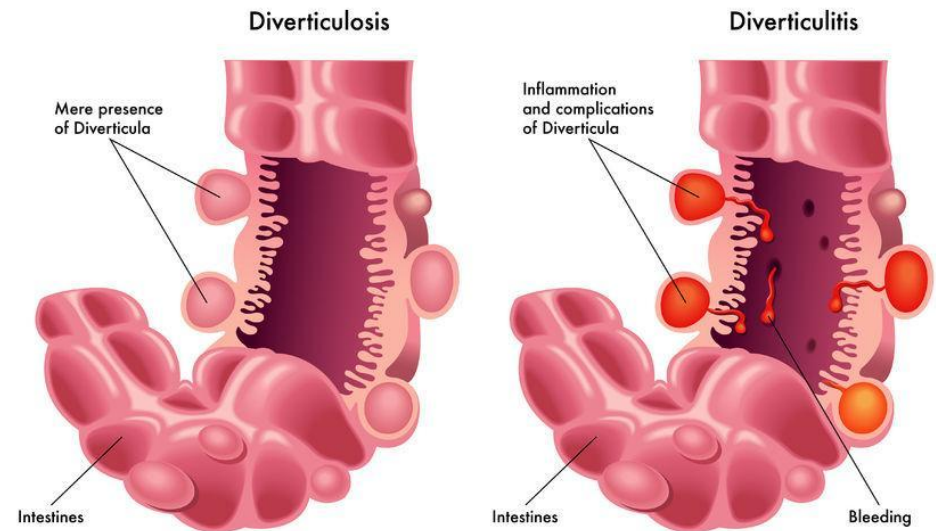
Cataract Vision

Diverticular Disease

EPIC-Oxford

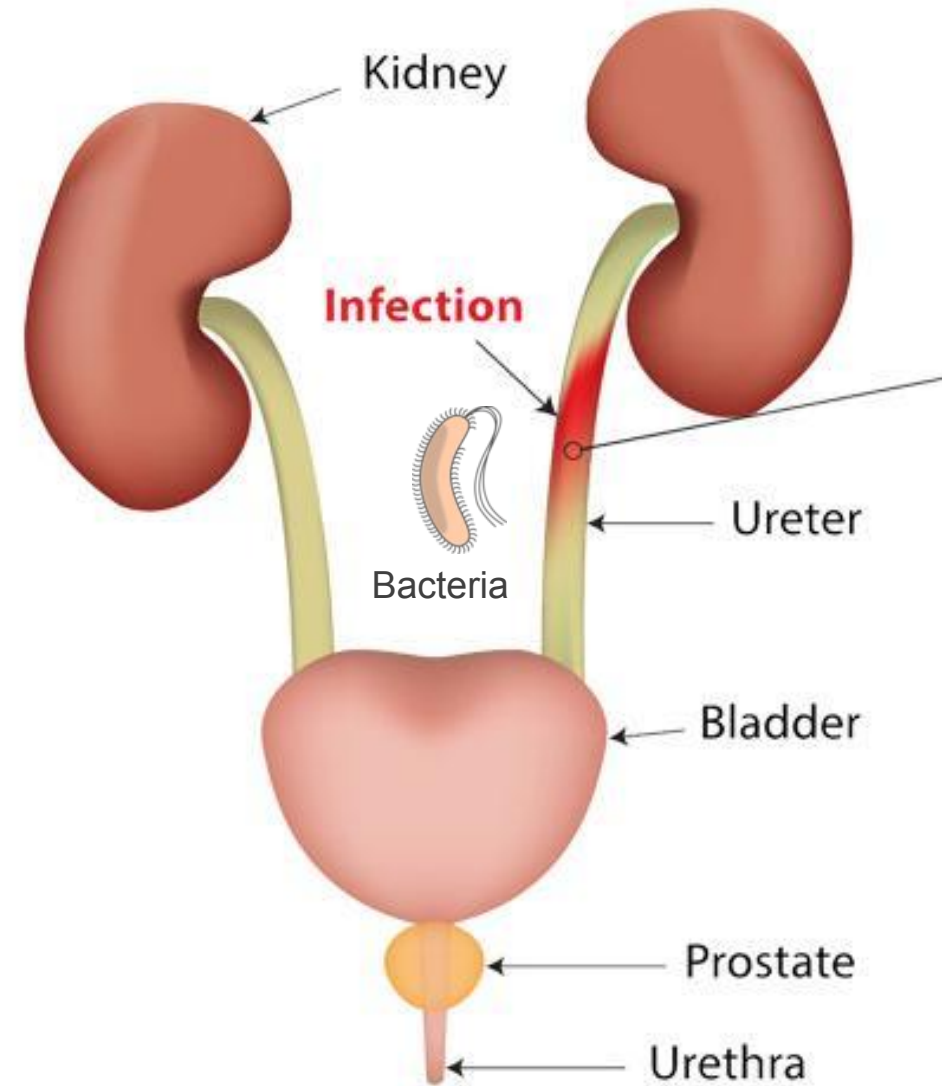
Compared to meat-eaters, risk of diverticular disease was:

- 10% lower among pesco-vegetarians
- 27% lower among LOV
- 72% lower among vegans



Urinary Tract Infections (UTI) Tzu Chi

- Compared to similar health conscious nonvegetarians, vegetarians (near vegans) had 16% fewer UTIs.
- The association was strongest in females.



Gout - Tzu Chi

**Compared to similar,
health-conscious meat eaters, risk
of gout was:**

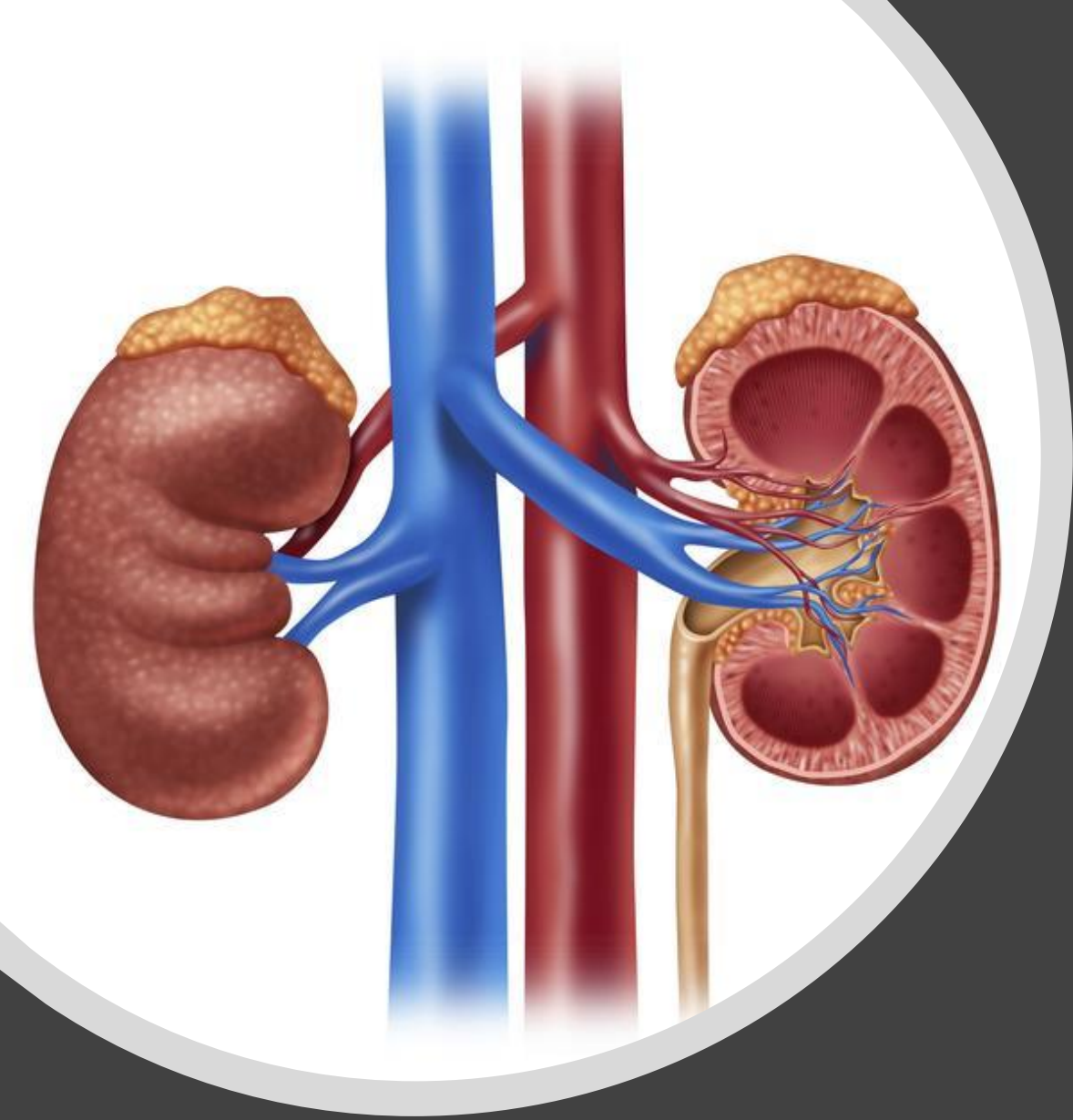
- 77% lower among vegetarians
(Tzu Chi Health Study)
- 39% lower among vegetarians
(Tzu Chi Vegetarian Study)



Depression – Tzu Chi

Compared to similar, health-conscious nonvegetarians, the risk of depressive disorders was 30% lower among vegetarians.





Kidney Disease

- In AHS-2, compared to meat eaters, vegetarians and vegans combined experienced 52% less kidney disease.
- In EPIC-Oxford, compared to those with high meat intake (>100 g/3.5 oz/day), kidney stones were reduced by:
 - 27% in pesco-vegetarians
 - 31% in vegetarians and vegans

Orlich MJ et al. *JAMA Intern Med*, 2013;173(13):1230-8.

Turney BW, et al. *Eur J Epidemiol*. 2014;29(5):363-9.



Not only do plant-based diets protect against many chronic diseases, but they provide a safe and powerful treatment option, in some cases reversing disease.



WHY YOUR DNA ISN'T YOUR DESTINY

The new science of epigenetics reveals how the choices you make can change your genes—and those of your kids

BY JOHN CLOUD

The Good News

- An estimated 5-10% of chronic disease is caused by genes.
- Healthy lifestyle choices can flip genetic switches to provide protection.



Prostate Cancer

Intensive lifestyle intervention;
plant-based diet x 3 months;
usual lab measures all improved;
genetic expression changed:

- Nearly 500 cancer-promoting genes were down-regulated.
- Nearly 50 cancer-preventing genes were up-regulated.



**Why are
plant-based
diets effective?**

Inflammation

Lipotoxicity

Dysbiosis

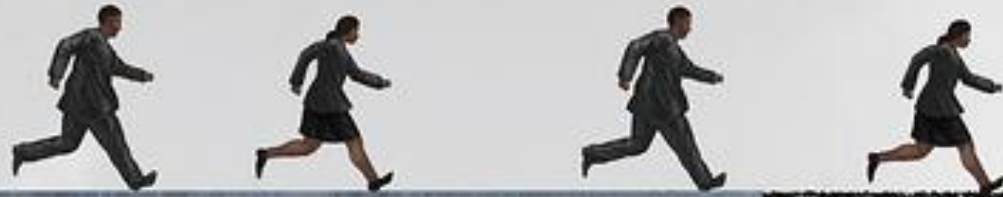
Oxidative Stress

They get to the root
causes of diseases.



The Most Effective Dietary Patterns

Minimize pathogenic dietary components.



Maximize protective dietary components.



Protective Factors

- ✓ Fiber
- ✓ Phytochemicals
- ✓ Plant enzymes
- ✓ Antioxidants
- ✓ Anti-inflammatory compounds
- ✓ Plant sterols and stanols
- ✓ Pre- and probiotics
- ✓ Macronutrients from healthy sources
- ✓ Micronutrients from healthy sources





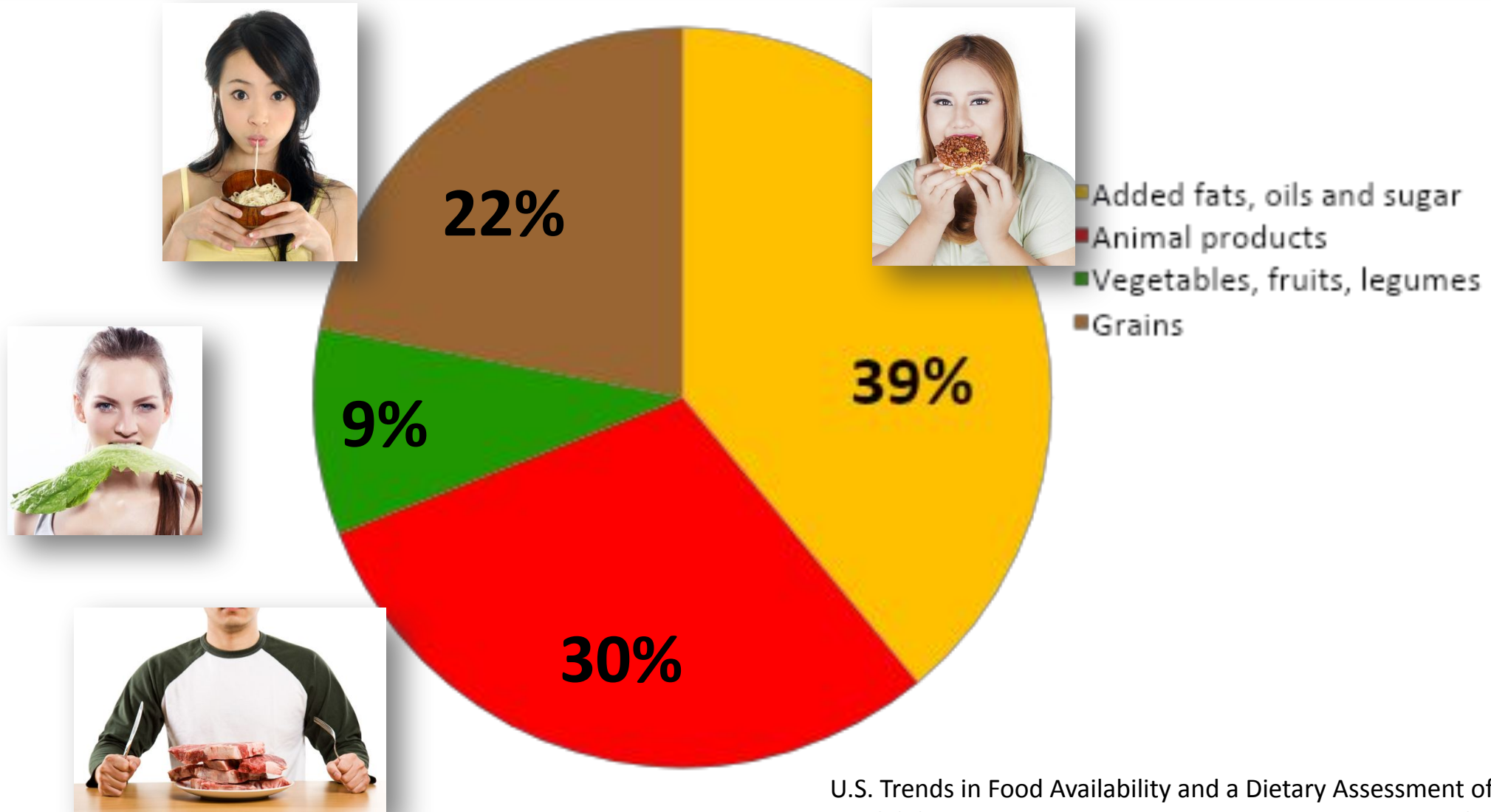
Pathogenic Factors

- ✓ Trans fatty acids
- ✓ Excessive saturated fat
- ✓ Refined carbohydrates
- ✓ Excessive sodium
- ✓ Neu5Gc
- ✓ Chemical contaminants
- ✓ Products of high temperature cooking
- ✓ Pro-oxidants
- ✓ TMAO
- ✓ Endotoxins



The SAD reality is
that much of
what consumers
eat is a threat to
health!

US Food Consumption as a % of Calories 2014



U.S. Trends in Food Availability and a Dietary Assessment of Loss-Adjusted Food Availability, 1970-2014, EIB-166 USDA, Economic Research Service. 2014

Fortunately, we
have a choice.



Story of Andres

- Received a rare cancer diagnosis at 36 years of age.
- Made a 180-degree shift from being a food and wine aficionado to a whole food, plant-based diet devotee.
- His cancer went into remission.





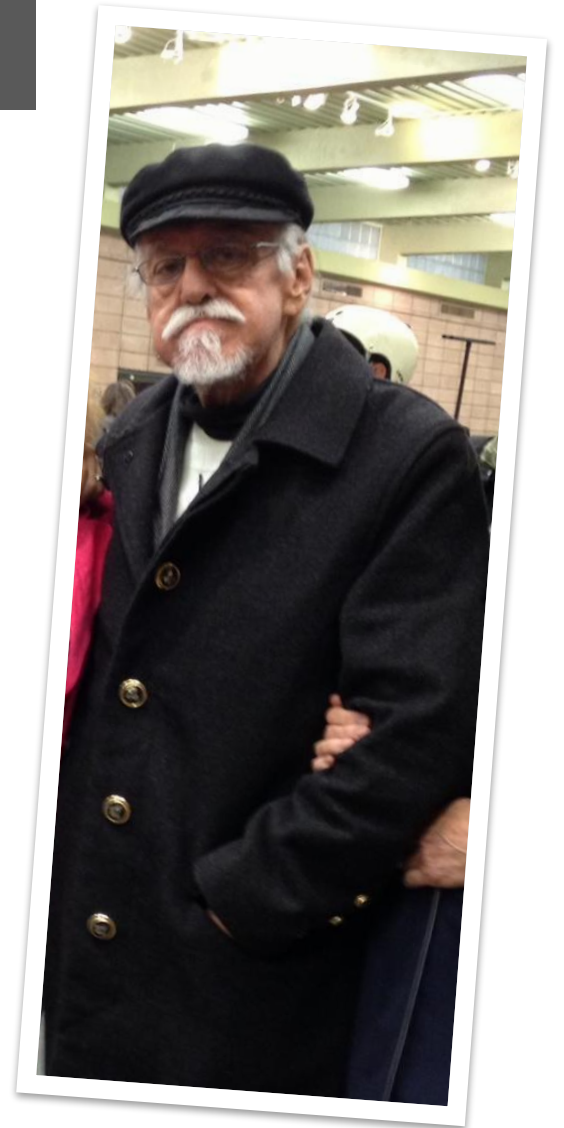
A Family Affair

His entire family supported him by following his dietary protocol.

Andres's Father

Carlos

- Type 2 diabetes (diagnosis 1993)
- CVD – one serious MI
- Hypertension
- High cholesterol
- Peripheral artery disease
- Early-stage renal failure
- Recurring gout



Prognosis and Treatment

Prognosis

- Progressive, irreversible diseases
- Expected survival – about 2 years

Daily Treatment

- 17 pills
- 35-40 units insulin





**After Less Than 1 Year
on a Whole Food,
Plant-based Diet**

Carlos was taking:

- ▣ ZERO insulin
- ▣ ZERO pills

Health Changes; Lab Results

- FASTING GLUCOSE – 4.4-4.9 mmol/l
(80-87 mg/dl)
- A1C – 5.1
- BLOOD PRESSURE – 115/70
- Arteries opened up, without surgery
- Peripheral artery disease disappeared
- Kidney function normalized
- No further recurrence of gout

9 years later, Carlos is still free of these diseases and these medications.

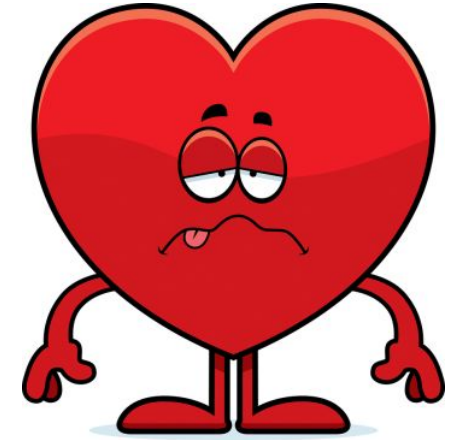


CAD Reports 2005 and 2017

2005

*Decreased uptake in the entire inferior wall; worse with stress.
Ischemia superimposed on area of infarct.*

1. Inferior wall infarct with superimposed ischemia.
2. Inferior wall hypokinesis.
3. Reduced LVEF of 50%.



2017

*No evidence of abnormal cardiac activity.
No evidence for reversible perfusion defects.
Light extent of fixed defect in the inferior wall.*

1. No evidence of Ischemia. Light inferior scar.
2. Normal LV chamber size.
3. Normal LVEF of 61%.





**This is what
is possible.**

Not everyone is willing to make the necessary lifestyle changes, but everyone has a right to know that lifestyle changes are a safe and highly effective treatment option.



WE KNOW
ENOUGH!

Enough to make lifestyle medicine the first line therapy for individuals with lifestyle-induced chronic diseases.



Dietary Guidelines:

7 Steps to an Optimal Plant-based Diet





Step 1



Make whole plant foods the foundation of the diet.



Vegetables and Fruits: 9+ Servings Daily

1 serving = ½ cup raw or cooked OR 1 cup raw leafy greens





Legumes: 2+ Servings Daily

1 serving = $\frac{1}{2}$ cup legumes, tofu; 1 cup fresh peas or sprouted lentils or peas; 2 Tbsp peanut butter





**Whole Grains. Mostly intact.
Vary Intake with Energy Needs.**





Nuts and Seeds: 1+ Serving Daily

1 serving = 1 oz or 2 Tbsp nut or seed butter

Ensure an omega-3 source!



A top-down view of a wooden surface covered with an assortment of herbs and spices. Several small metal bowls and a larger wooden spoon hold different powders: bright yellow turmeric, vibrant red paprika, and a light tan powder. Other bowls contain whole spices like dark peppercorns, light-colored coriander seeds, and dried red chilies. Scattered around are star anise, bay leaves, nutmeg, and pieces of ginger. A red onion is visible in the bottom left corner.

**Generous Amounts of
Herbs and Spices!**



The Only Foods with Fiber!



- Promotes regularity
- Source of our prebiotics which are essential to a healthy gut microbiome
- Increases satiety; reduces cravings
- Reduces risk of colorectal cancer
- Reduces cholesterol levels
- Stabilizes blood sugar
- Reduces risk of GI disorders
- Enhances immune function
- Lessens hormonal imbalances

Fiber Benefits



Recommended Intakes

- **RDA: 14 g per 1,000 kcal**
- 38 g/day - men; 25 g/day - women
- **Optimal Intakes: 40-60+ g/day**
- **Actual Intakes:**
 - *Standard North American Diet:*
~15-17 g/day
 - *WFPB Diet:* 40-80 g/day

Paleolithic intakes ranged from 70-150+ grams per day.



Step 2



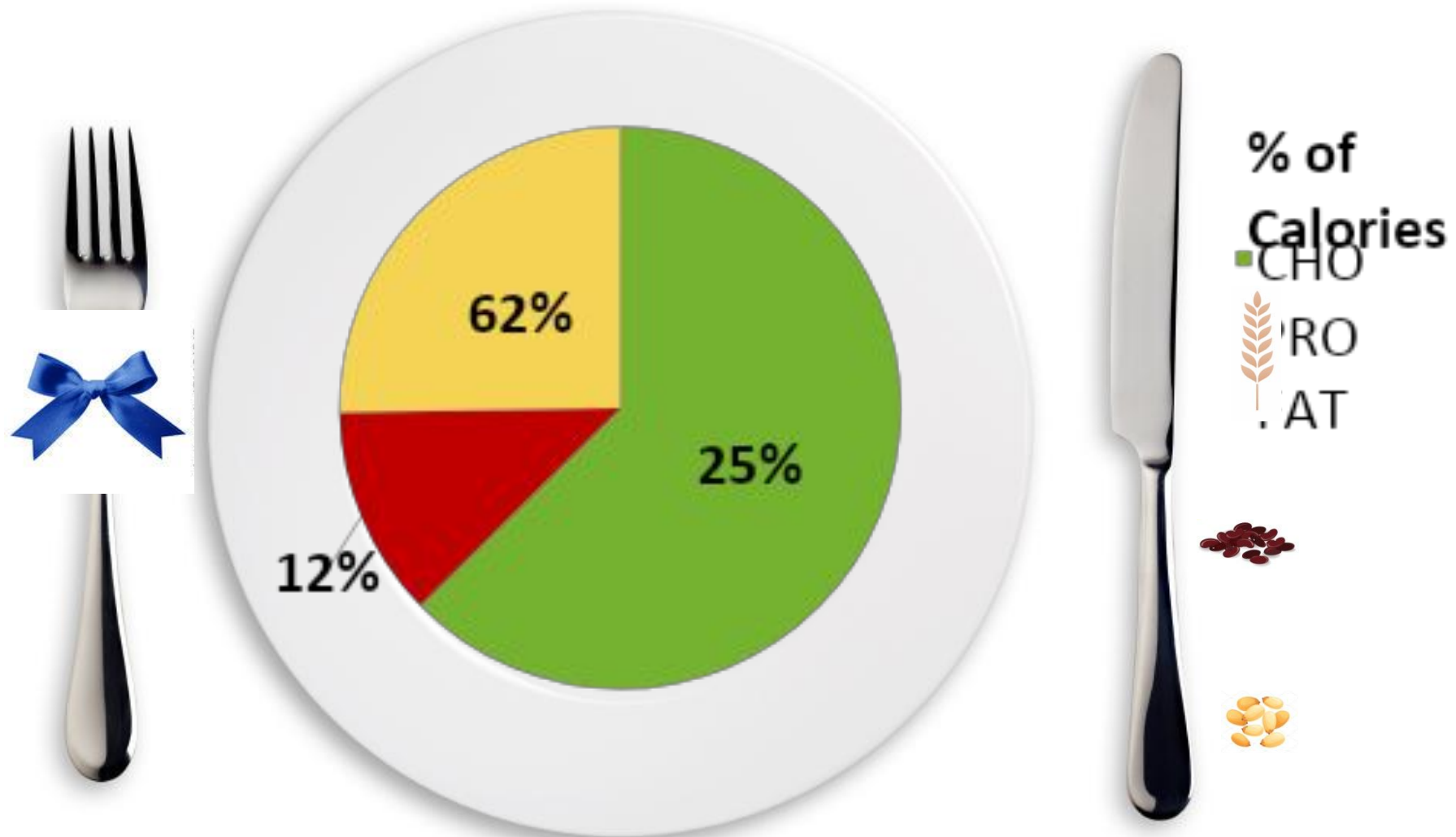
Be Picky About Carbohydrates



“Carbohydrates” are NOT the enemy.
CHO from whole foods are consistently protective.



Blue Zone Average Intakes

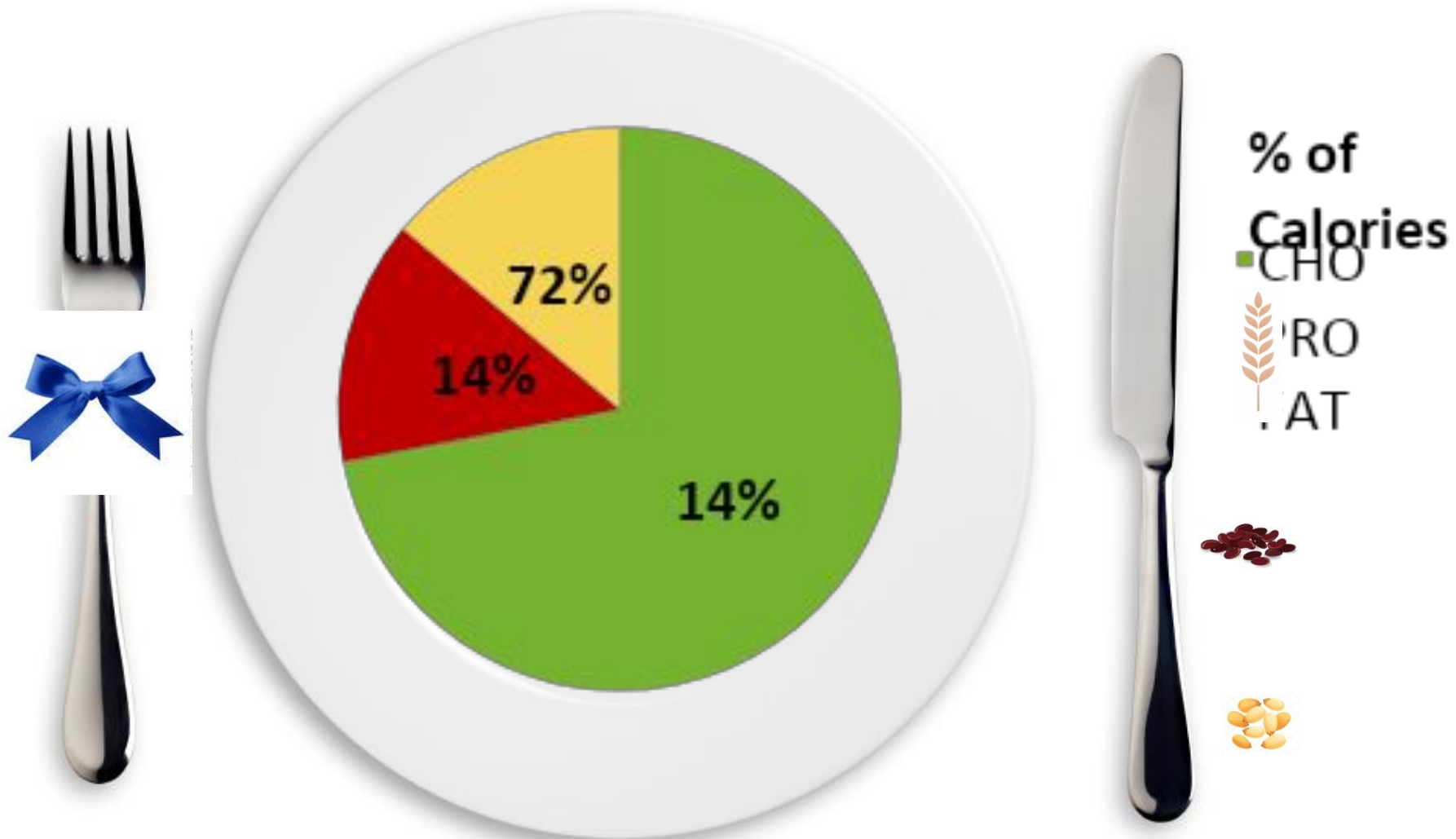


Tsimane Bolivia South America

Live a traditional hunter–gatherer lifestyle;
they have the lowest reported rates of heart disease of any population.

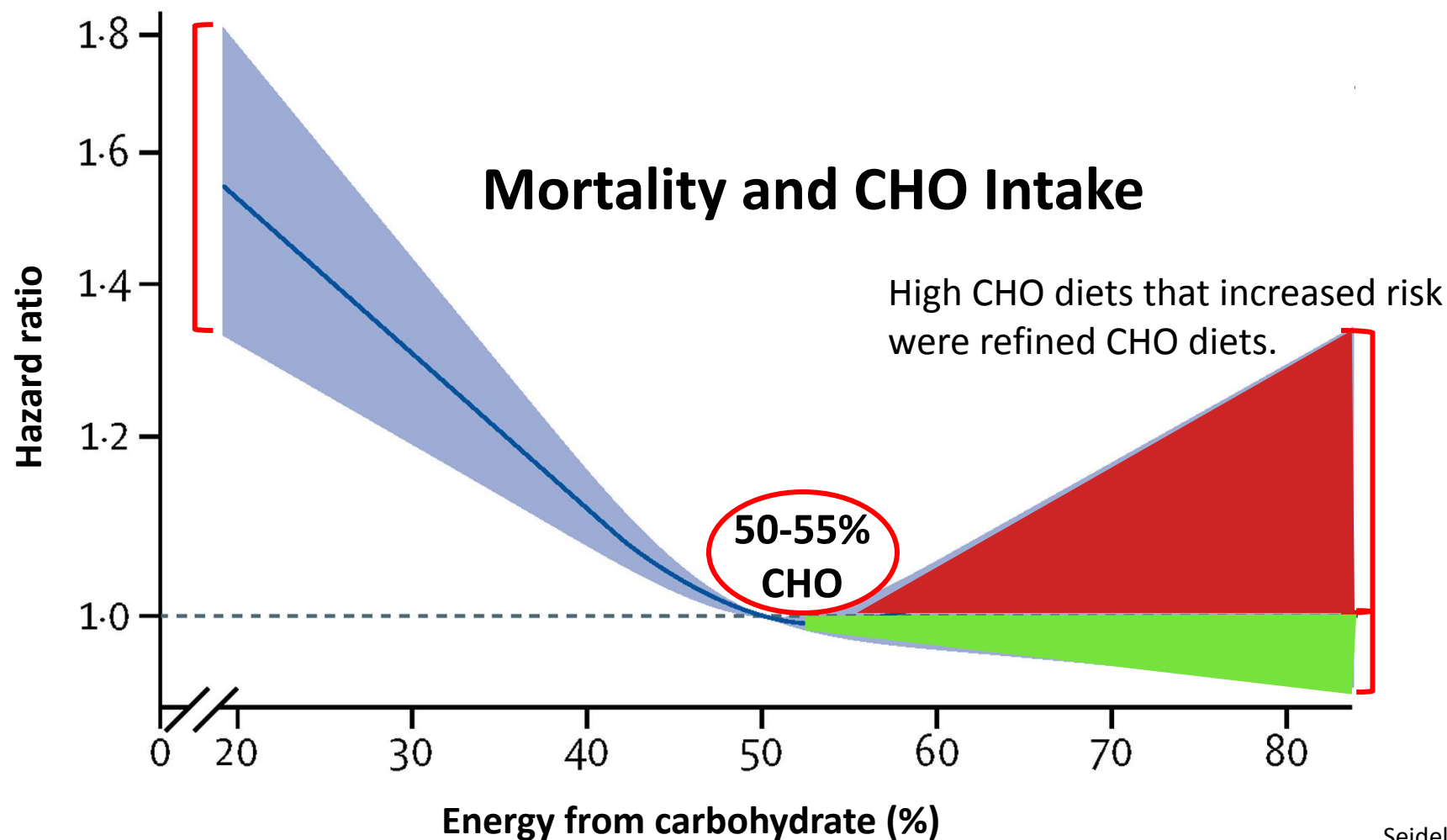


Tsimane Average Intakes



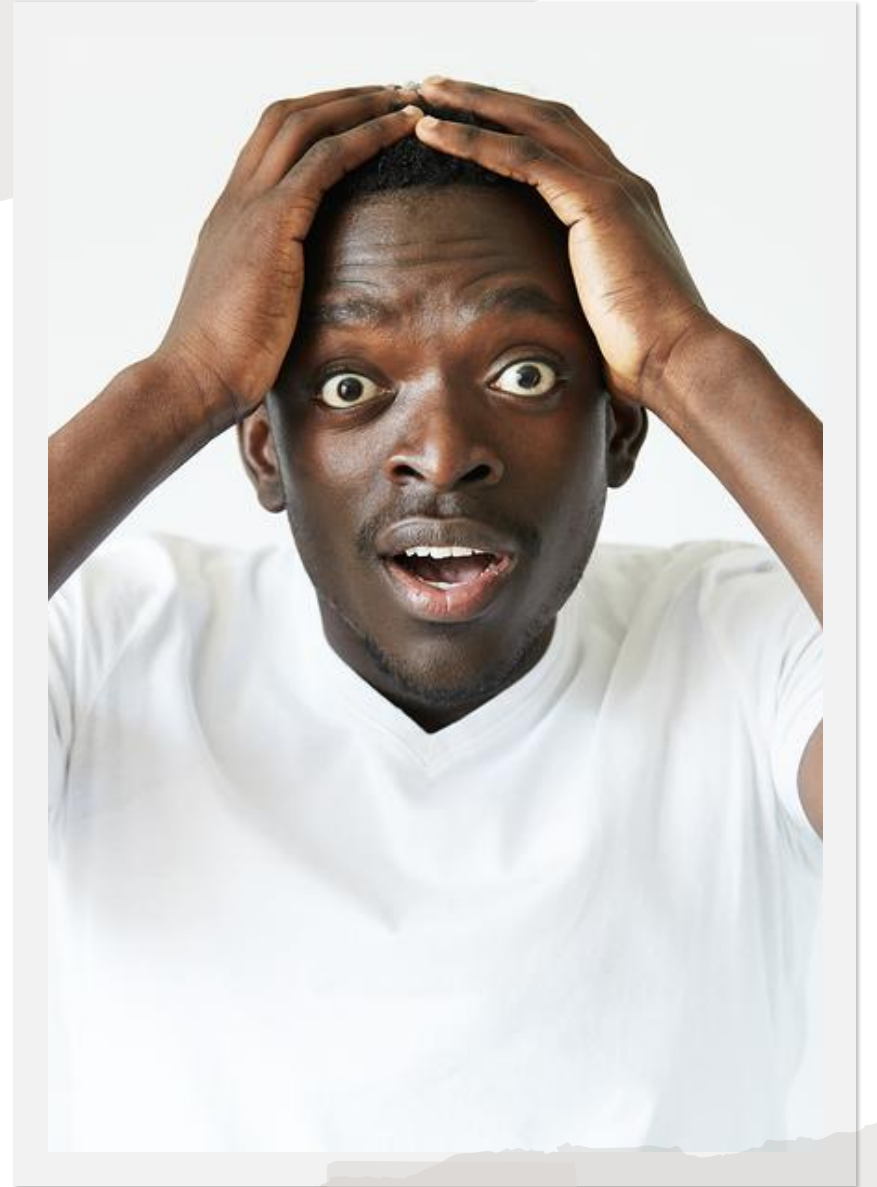
CHO & Mortality Meta-analysis 2018

115,428 adults (45-64 yrs); median follow up 25 yrs; 6283 deaths



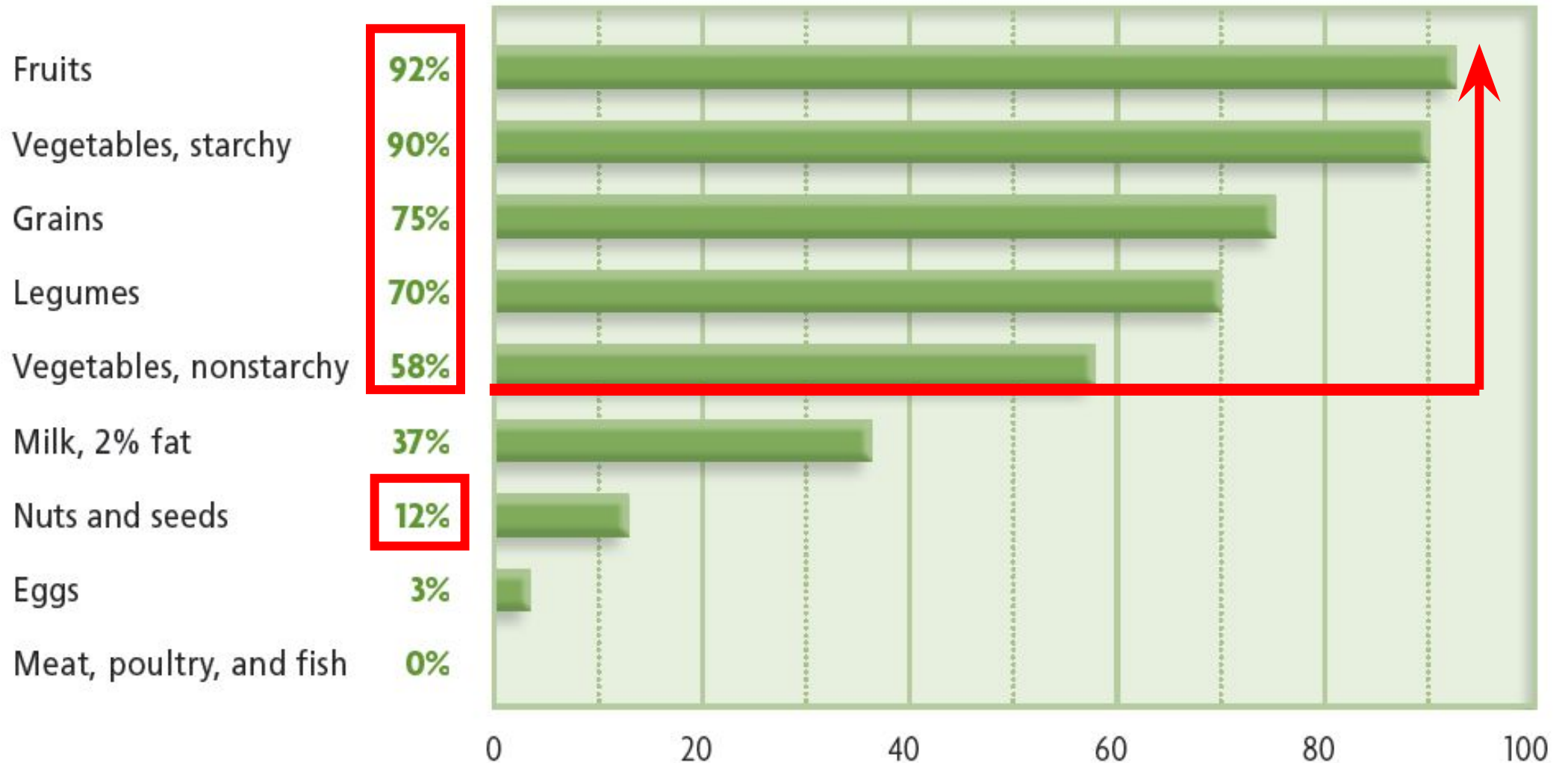
Longevity and Low-Carb Diets

- Low-carb diets are consistently associated with increased mortality.
- In the ARIC cohort (n = 15,428; 6,283 deaths), all-cause mortality, adjusted for age, race, and gender and compared to reference 50-55% carb was:
 - 58% higher for <30% CHO
 - 32% higher for 30-40% CHO
 - 12% higher for 40-50% CHO



What CHO Naysayers Forget

FIGURE 5.1. Average percentage of calories from carbohydrates in common foods



**Refined
Carbohydrates
are Bad News!**



What are Refined Carbohydrates?

High carbohydrate foods that have been stripped of their nutrients by food processing techniques.

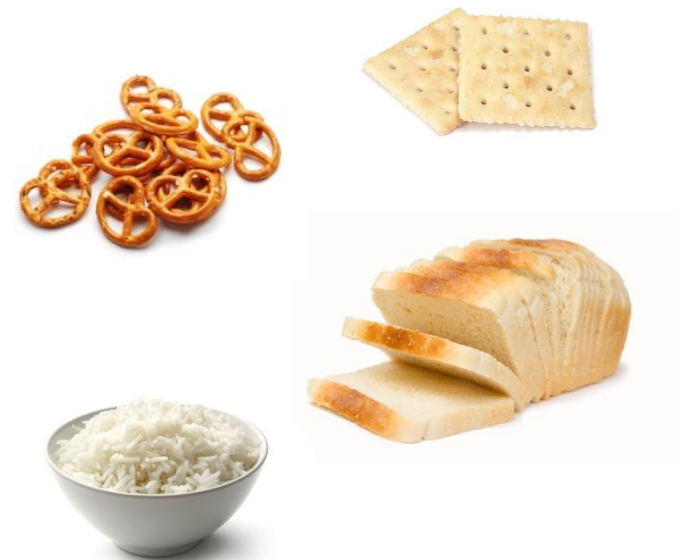
Refined Sugars

- White or brown sugar, syrup, jam, jelly, candy, sweetened beverages.



Refined Starches

- White flour products, white rice, concentrated starches.



Refined Carbohydrates Increase Risk of:

- ❑ Overeating and obesity
- ❑ NAFLD
- ❑ Insulin resistance and diabetes
- ❑ High triglycerides and heart disease

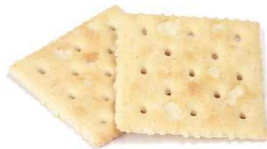
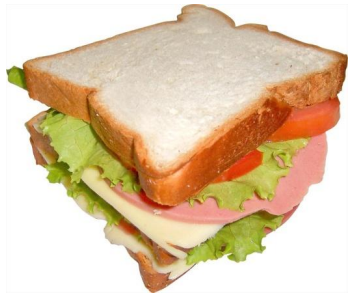


Augustin LSA. *Br J Nutr.* 2017 Oct 9:1-8.

Davy B. *Curr Opin Clin Nutr Metab Care.* 2016;19(4):282-8.

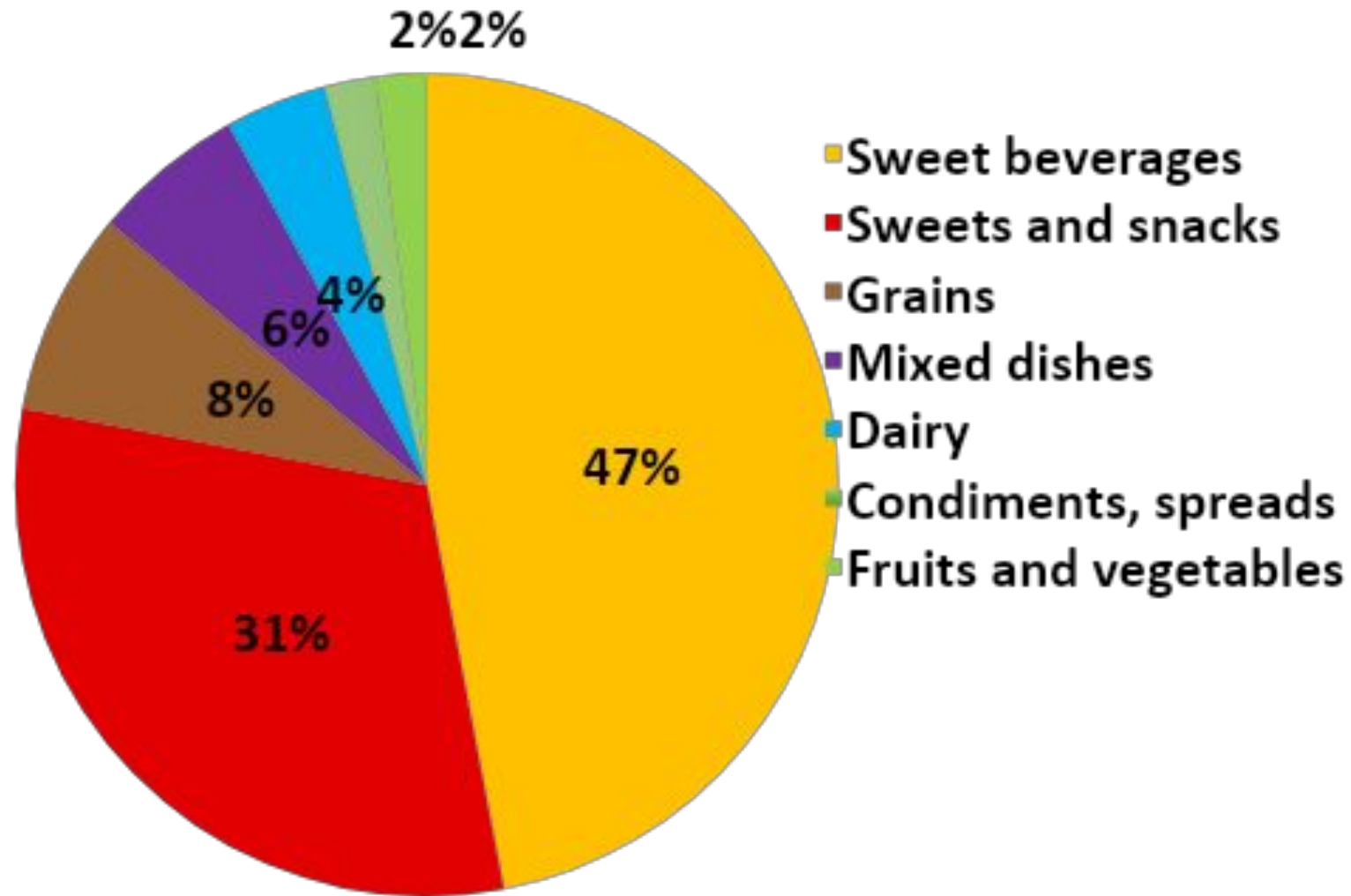
Stanhope KL. *Crit Rev Clin Lab Sci.* 2016;53(1):52-67.

Most carbohydrates people eat are refined.



Refined Sugars

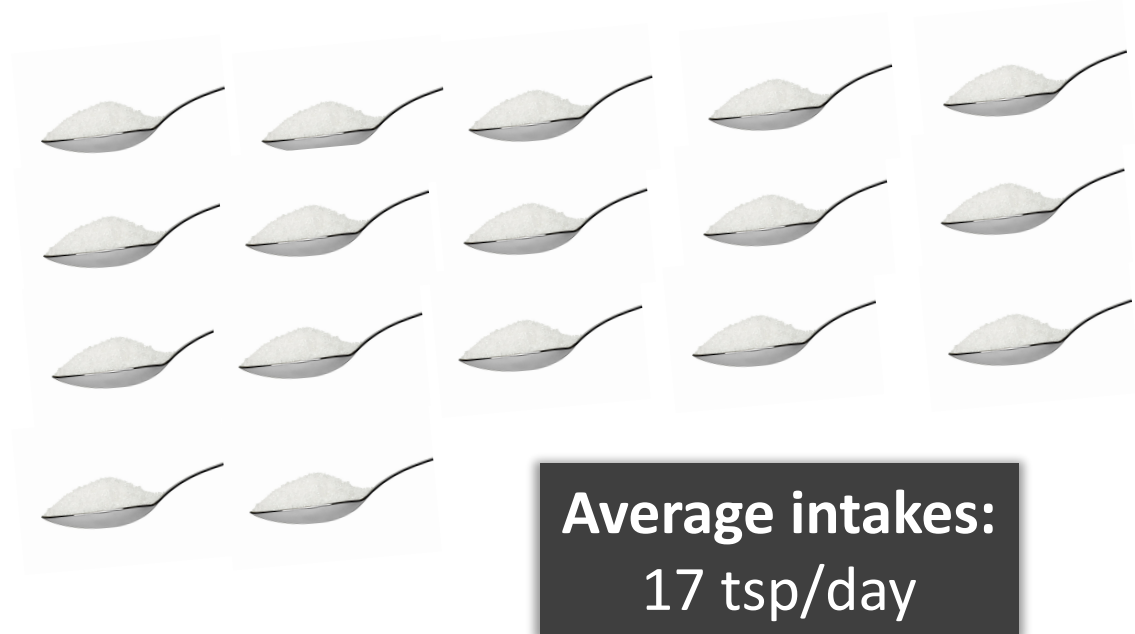
Sources of Added Sugars in the US (As a % of calories from added sugars)



Safe Level of Added Sugars

World Health Organization Recommendations:

- <10% calories (12 tsp in a 2000 kcal diet)
- <5% calories (6 tsp) for additional health benefits



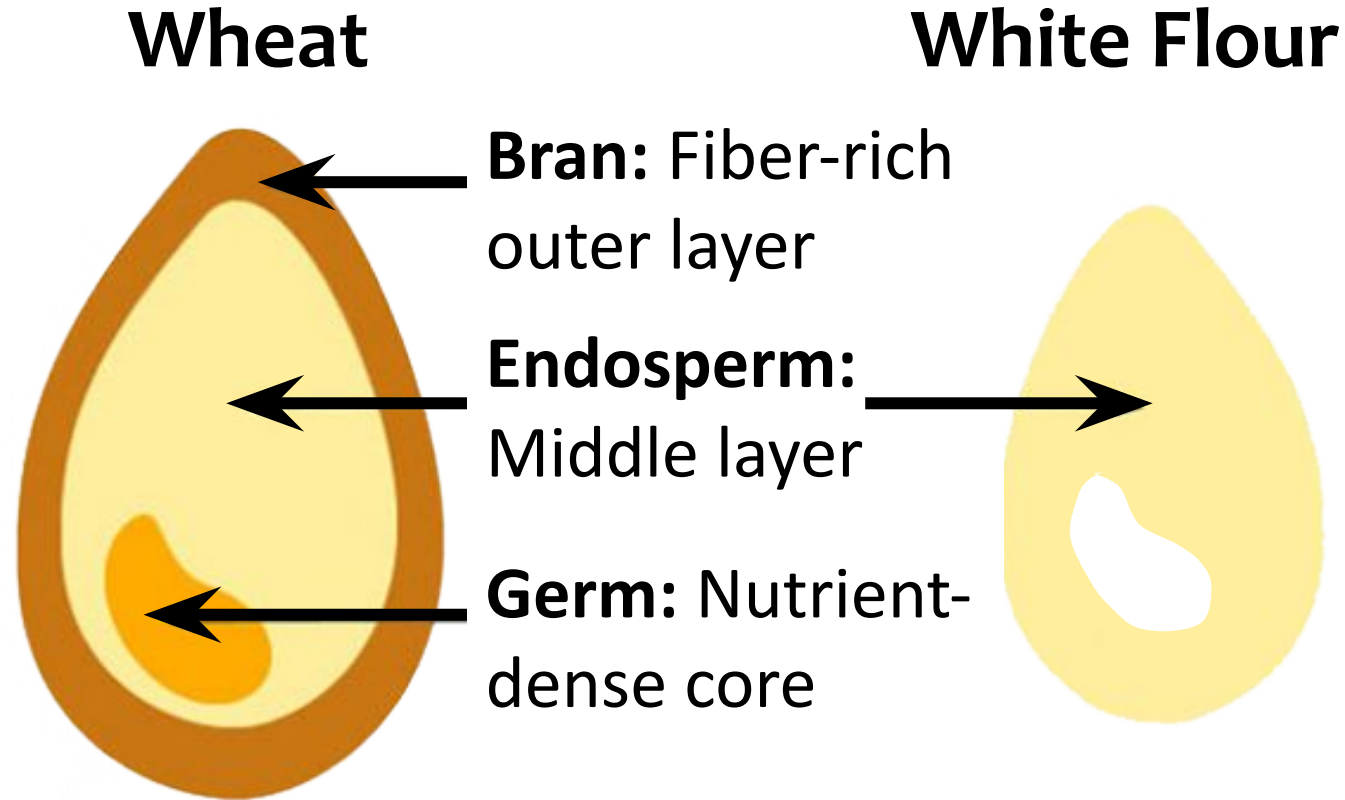
How Much is in Food?

FOOD	SUGAR (TSP/5 ml)
Soda, 375 ml (12 oz)	10-13
Flavored coffee, large	7-18
Yogurt, fruit, 250 ml (1 cup)	9-12
Cinnamon bun, 1 large	12
Energy bar, 1	5
BBQ Sauce, 60 ml (¼ cup)	4
Instant oatmeal, flavored, 1	3.5

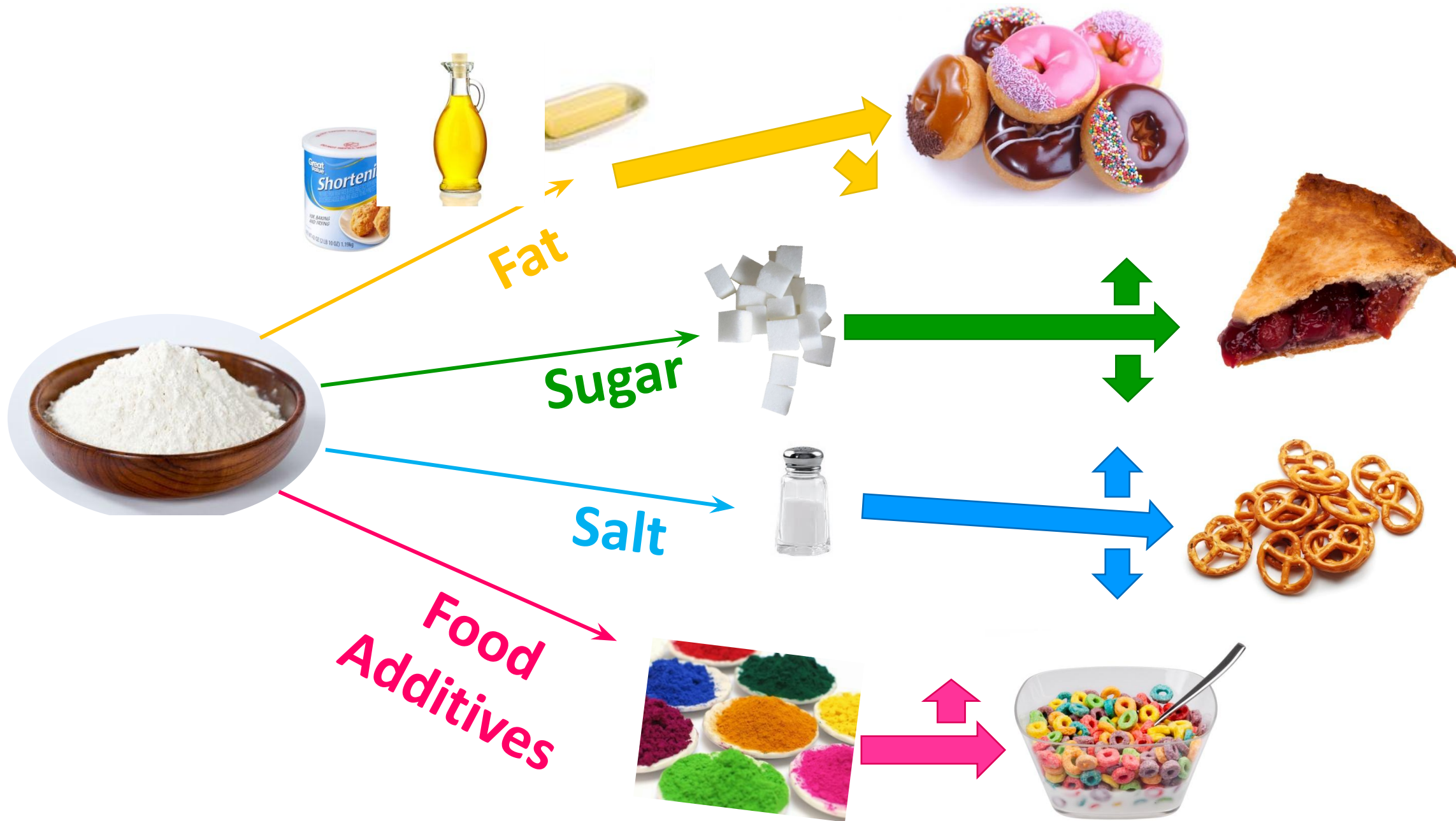


1 tsp (5 ml) ~ 4 grams sugar

Refined Starches



Typical losses: → 80-90% of the fiber
→ 70-80% of the vitamins and minerals
→ 95% of the phytochemicals



Whole Grains are Healthy!

**2016 meta-analysis of 45 studies
reported reduced risk of
mortality per 90 g (3 oz) whole
grain intake:**

- All cause mortality (17%)
- Cardiovascular disease (22%)
- Diabetes (51%)
- Total cancer (15%)
- Respiratory diseases (22%)



All Whole Grains are NOT Equal!



≠



≠



Whole Grain Hierarchy

Intact whole grains

e.g., wheat berries, barley, oat groats, quinoa



Broken whole grains

e.g., steel cut oats, cracked wheat

Rolled whole grains

e.g., rolled oats, barley, rye



Flaked whole grains

e.g., flaked wheat

Grind whole grains

e.g., whole wheat flour products



Grain cereals

e.g., cereals

Whole grains

e.g., wheat, rice, millet



Carbohydrate Commonsense

- ❑ Get carbohydrates from high fiber, whole plant foods.
- ❑ Avoid added sugars, especially in beverages.
- ❑ Minimize ALL refined carbohydrates – both sugars and starches.





Step 3



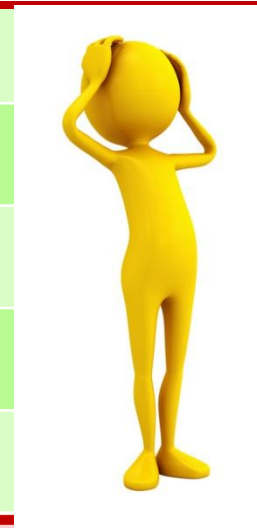
Get protein from legumes instead of meat.



Legumes vs Meat



Food Component	Legumes	Meat
Fiber	Very High	Zero
Phytochemicals	High	Zero
Antioxidants	High	Low
Prebiotics	Very High	Zero
Plant sterols and stanols	High	Zero
Trans fatty acids	Zero	Moderate
Total/saturated fat	Low	High
Heme Iron	Zero	Moderate/High
Neu5Gc	Zero	High in red meat
Chemical Contaminants	Low	Moderate/High
Endotoxins	Very low	Low to High

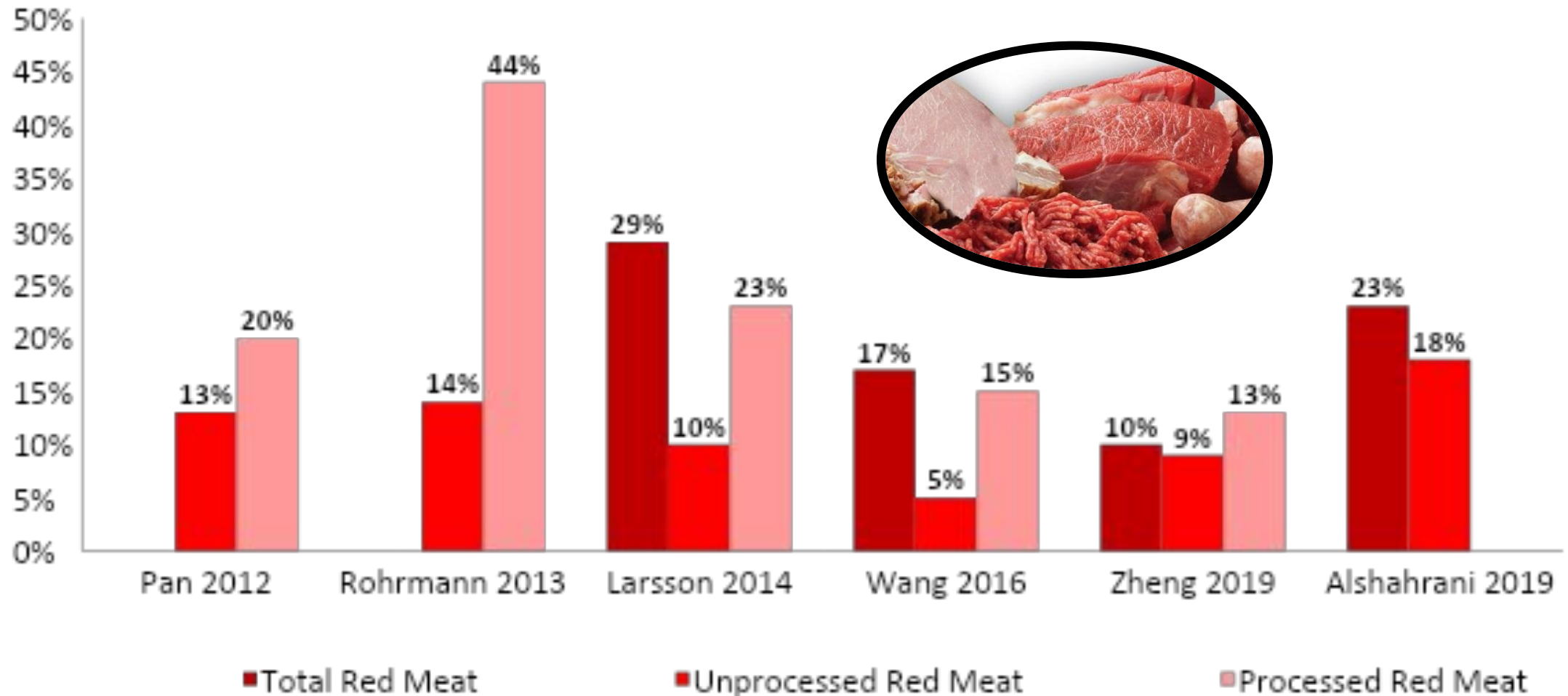




Legumes and Mortality

- Legumes are consistently associated with reduced mortality. A 2017 meta-analysis reported a 7% risk reduction in highest vs lowest intake groups.
- Another study of people 70+ reported a 7-8% reduction in mortality for every 20 g (2/3 oz) consumed.

Red Meat and Mortality



Animal vs Plant Protein

Harvard Health Professionals Study 2016

131,342 participants followed for 27-32 yrs.

Replacing only 3% of calories from animal protein with plant protein.

Protein Source	Reduction in risk of death when replaced with plant protein		
Processed red meat		34%	
Eggs		19%	
Unprocessed red meat		12%	
Dairy		8%	
Poultry or fish		6%	

Animal vs Plant Protein 2019

Japan Public Health Center– Prospective Study Group

70,696 healthy 45-74 yr olds; followed 17-21 yrs

Replacing only 3% of calories from meat with plant protein:

Food	Total Mortality		Cancer Mortality
Red Meat	↓34%		↓42%
Processed Meat	↓46%		↓50%

Budhathoki S, et al. Japan Public Health Center–based Prospective Study Group. *JAMA Intern Med.* 2019 Aug 26. [Epub ahead of print]

Animal vs Plant Protein 2020

US National Institutes of Health –AARP Diet and Health Study

416,104 participants followed for 16 years

Replacing only 3% of calories from animal protein with plant protein reduced overall mortality by 10%.

Protein Source	Reduction in risk of death when replaced with plant protein	
Eggs		24% - M; 21% - F
Red meat		13% - M; 15% - F
Dairy		8%
White meat		2% - M; 5% - F



... and yes, people can get
enough protein eating plants!



**100%
plant-based!**



Step 4

Replace harmful fat with healthy fat



Make whole plant foods our primary sources of fat.



□ High fat whole plant foods are rich in:

- ✓ Fiber
- ✓ Antioxidants
- ✓ Plant sterols and stanols
- ✓ Phytochemicals

□ Concentrated fats and oils provide many calories with few nutrients – limit.



Cut Back on Saturated Fat

American Heart Association (AHA) and American College of Cardiology (ACC) guidelines for heart disease risk reduction:
≤5-6% of calories.

5-6% of calories =

□ 11-13 g on a 2000 calorie diet



Saturated Fat in Food

Food		Saturated Fat (grams)
Meat lover's pizza, 2 slices		22
Double cheeseburger		18
Soft taco with beef and cheese		16
Milk, whole, 1 c (250 ml)		7
Cheddar cheese, 1 oz (30 g)		5
Coconut, 1 oz (30 g)		7
Avocado, ½ medium		2
Nuts or seeds, 1 oz (30 g)		1-2
Tofu, firm, ½ c (125 g)		0.6
Olives, 10 large		0.6

Minimize Exposure to Damaged Fats

- ❑ Avoid fried and highly processed foods.
- ❑ Minimize oils in cooking. If used, do not allow oils to smoke.
- ❑ Store high fat foods (including shelled nuts and seeds) in the fridge or freezer.



Optimize Omega-3 Fatty Acids



- Ensure sufficient ALA (2-4 g)
- Consider direct sources of EPA/DHA

Plant Sources of Omega-3 (ALA)

Food	Omega-3 (grams)
Walnuts, 1 oz.	2.6
Chia seeds, 1 Tbsp	2.5
Ground flax, 1 Tbsp	1.6
Hempseeds, 1 Tbsp	1.0
Leafy greens, 1 cup	<0.1





Microalgae-based Supplements

- Some people do not convert ALA to EPA/DHA very efficiently. EPA/DHA microalgae-based supplements are widely available.
- Generally, 200-300 mg day are recommended; some need more.





Step 5



Maximize Phytochemicals and Antioxidants!

Think Variety!

The wider the range of vegetables, fruits, legumes, whole grains, nuts and seeds in your diet, the greater the variety and content of phytochemicals and antioxidants you will consume.



Think Color!

The richest sources are often the most colorful. To maximize protective phytochemicals and antioxidants, choose:

□ Purple instead of white onions



vs



□ Black instead of brown rice



vs



□ Dark instead of light greens



vs



Eat a Rainbow of Vegetables and Fruits



- 3 green

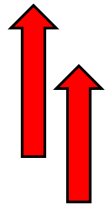
- 2 orange/yellow

- 2 red/pink

- 1 purple/blue

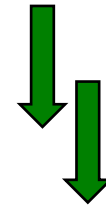
- 1 white/beige

Eat More Raw Foods



Myrosinase helps convert glucosinolates to isothiocyanates

Alliinase helps convert alliin to allicin





Start Sprouting

The phytochemical
army poised to protect
the delicate new plant
multiplies, often by
5-50 times.



Pile on the herbs and spices!



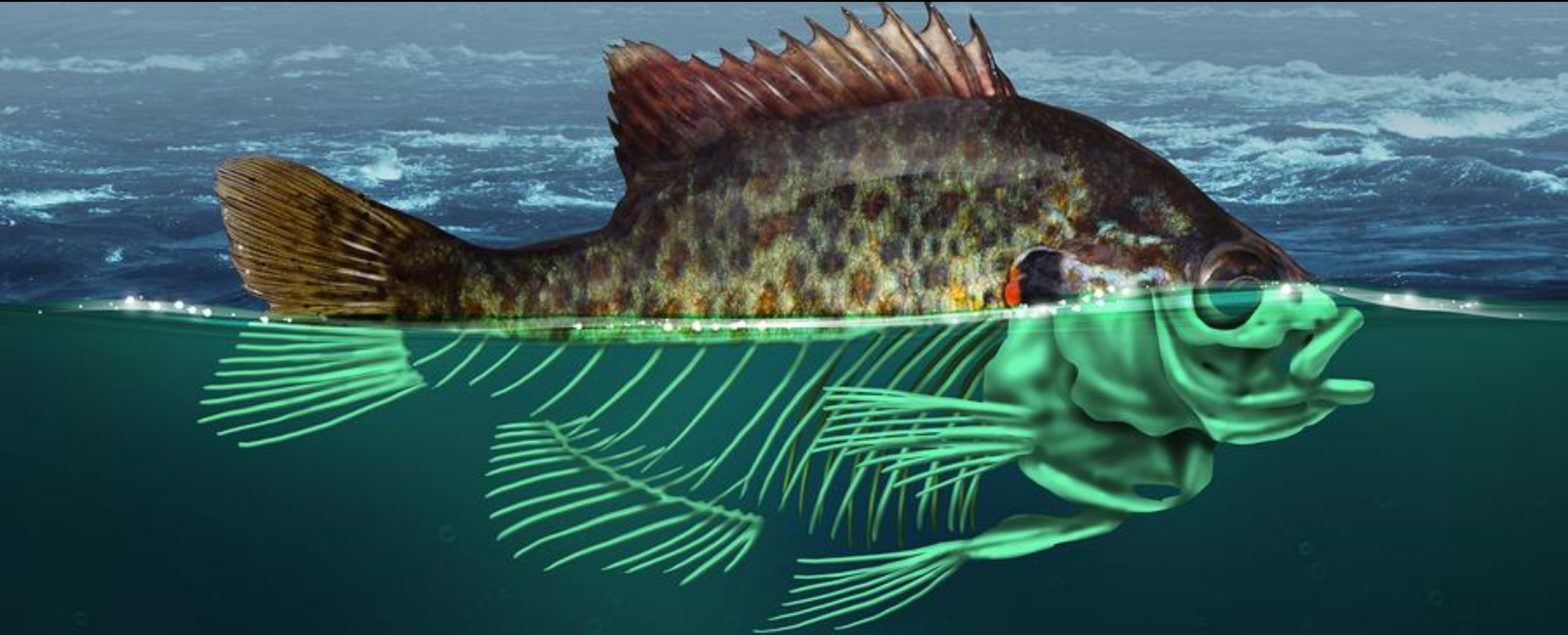
**Drink
Antioxidant-Rich
Teas**





Step 6

Minimize Dietary Contaminants



Worst Offenders

Environmental contaminants

By-products of high temperature cooking



Environmental Contaminants

Pesticides

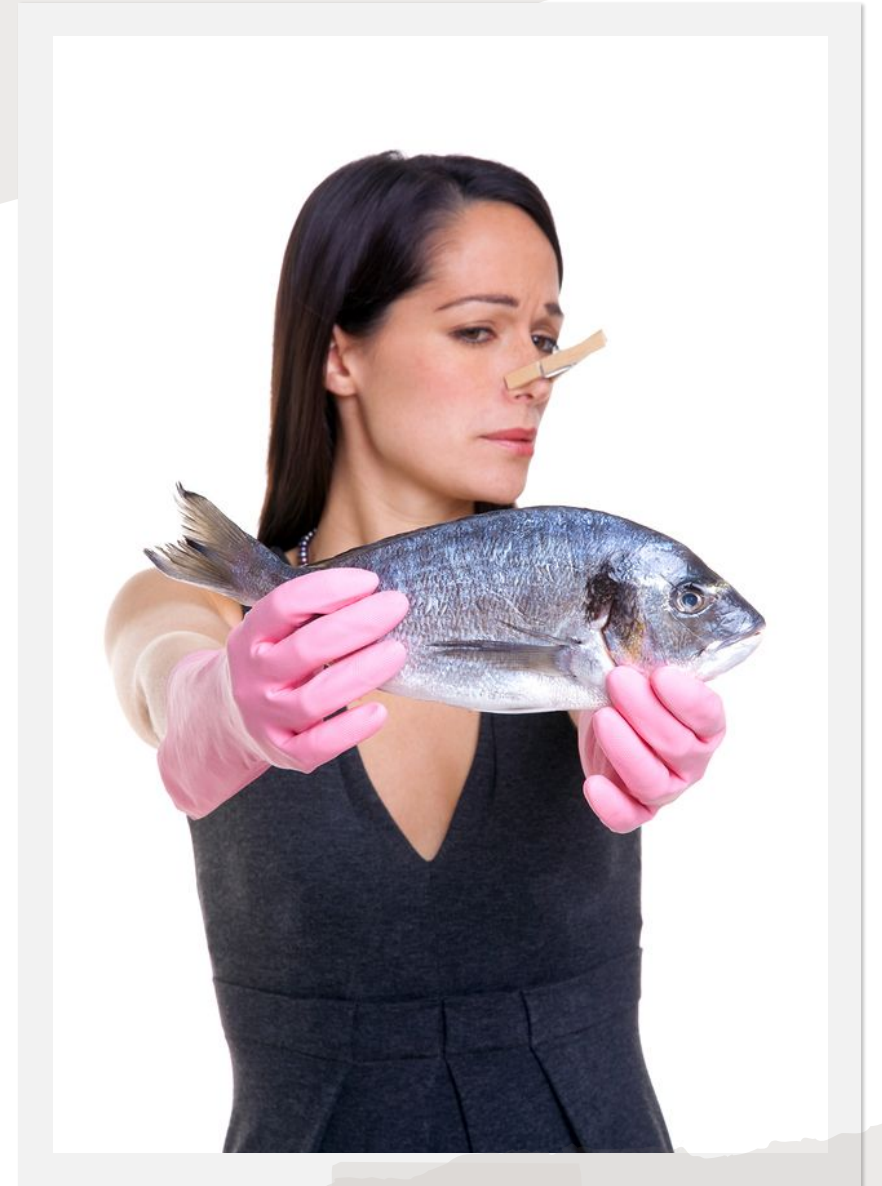
- ▢ Conventional produce

Heavy metals

- ▢ Mercury – fish and seafood
- ▢ Arsenic – rice, chicken, fish, seaweed

POPs (e.g., PCBs, DDT, dioxins)

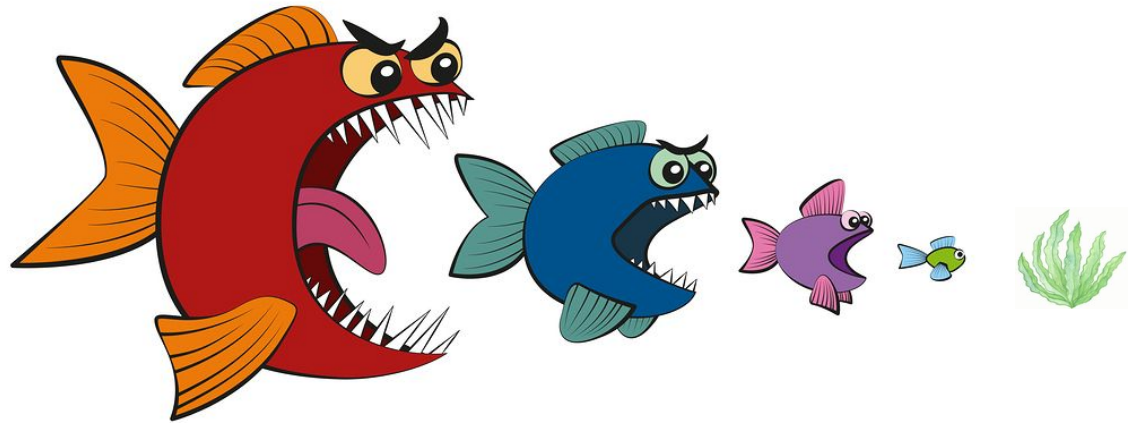
- ▢ Fish, meat and dairy products





Solutions

**Eat lower on the
food chain.**



**CHOOSE
ORGANIC**



EWG 2021

DIRTY DOZEN

1. Strawberries
2. Spinach
3. Kale
4. Nectarines
5. Apples
6. Grapes
7. Cherries
8. Peaches
9. Pears
10. Bell and hot peppers
11. Celery
12. Tomatoes



CLEAN FIFTEEN

1. Avocados
2. Corn
3. Pineapples
4. Onions
5. Papaya
6. Frozen Peas
7. Eggplant
8. Asparagus
9. Cauliflower
10. Cantaloupe
11. Broccoli
12. Mushrooms
13. Cabbage
14. Honeydew
15. Kiwi



Vary Grains



- ❑ Inorganic arsenic can cause cancer and increase risk of diabetes and CVD.
- ❑ Eat a wide variety of grains.
- ❑ Carefully select rice; cook in large amount of water; drain.

Products of High Temperature Cooking

- ❑ Heterocyclic Amines
- ❑ Polycyclic Aromatic Hydrocarbons
- ❑ Acrylamide
- ❑ Advanced Glycation End-Products





Heterocyclic Amines

- HCAs are carcinogens.
- Formed only in animal products – meat, poultry, fish, and eggs, when cooked at high temperatures.
- Plant foods do not form HCA because they don't contain creatine or creatinine.

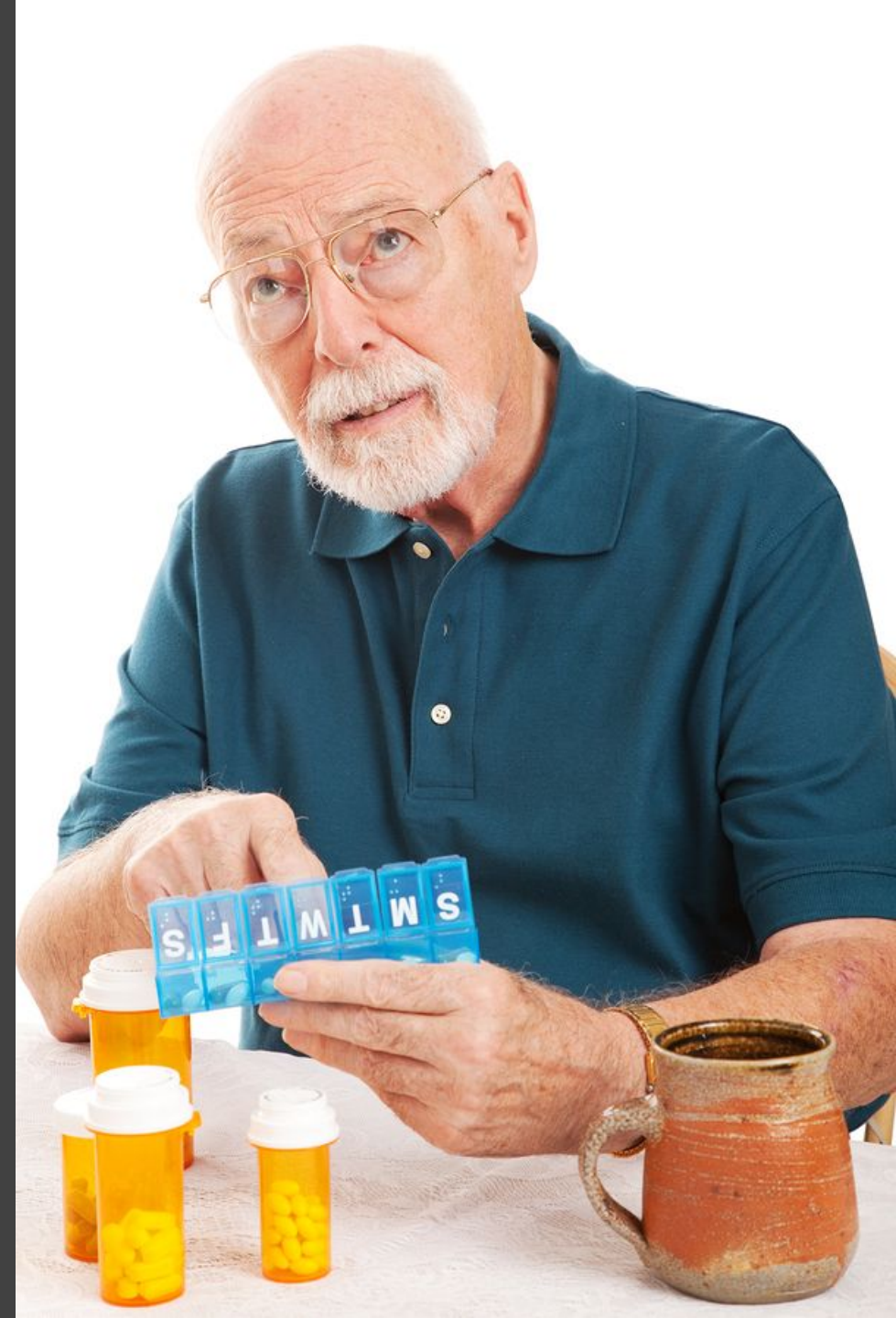


Polycyclic Aromatic Hydrocarbons

- ❑ Known mutagens linked with lung, skin, and genitourinary cancers. Present in grilled or charred foods.
- ❑ The incomplete burning of carbon-containing substances in food or in fat heated above 392° F (200° C) forms PAHs.

Advanced Glycation End-Products

- Impair immune system function.
- Accelerate aging.
- Contribute to multiple disease processes including Alzheimer's disease, diabetes, heart disease and cancers.



AGE in Common Foods

Food	AGE (kU)
Bacon, 1 oz/30g 	23,810
Broiled frankfurters (3 oz/90 g)	>10,000
Boiled frankfurters (3 oz/90 g) 	>7,000
Grilled or fried meat, poultry, fish (3 oz/90 g)	>5,000
Butter (1 Tbsp/15 ml) 	4,000
Grilled or fried tofu (3 oz/90 g)	3,000-4,000
Boiled/steamed meat, poultry, fish (3 oz/ 90 g)	1,000-3,000
Roasted nuts or seeds (1 oz/ 30 g)	1,000-2,500
Snack foods (e.g. chips, cookies) (1 oz/ 30 g) 	200-1,000

Acrylamide

- Formed when high carbohydrate foods are heated above 248° F/120 ° C.
- Foods that are rich in the amino acid asparagine form the greatest amounts of acrylamide.
- Acrylamide has been classified as a probable human carcinogen.



Acrylamide in Foods

Food (100 g)	Acrylamide Content (PPB)
Sweet potato chips	800-2800
Potato chips	200-1300
Rye crispbread	200-600
French fries	200-500
Coffee	200-350
RTE cereal	50-300
Nuts and nut butters	30-300
Crackers	20-300
Bread	30-60



Solutions

**Avoid charred or blackened foods –
especially meat, poultry or fish.**



Avoid Fried Foods





Use Moist Cooking Methods

Moist cooking methods (e.g., steaming, stewing, boiling, water sautéing) produce fewer products of oxidation.



Eat Whole Foods

Avoid Highly Processed Foods





Step 7



Meet Needs for ALL Nutrients without Overeating

Macronutrients

- ✓ Carbohydrates
- ✓ Protein
- ✓ Fats (EFA)

Micronutrients

- ✓ Vitamin B12
- ✓ Vitamin D
- ✓ Iron
- ✓ Zinc
- ✓ Calcium
- ✓ Iodine

Canada's Food Guide



Have plenty of
vegetables and fruits

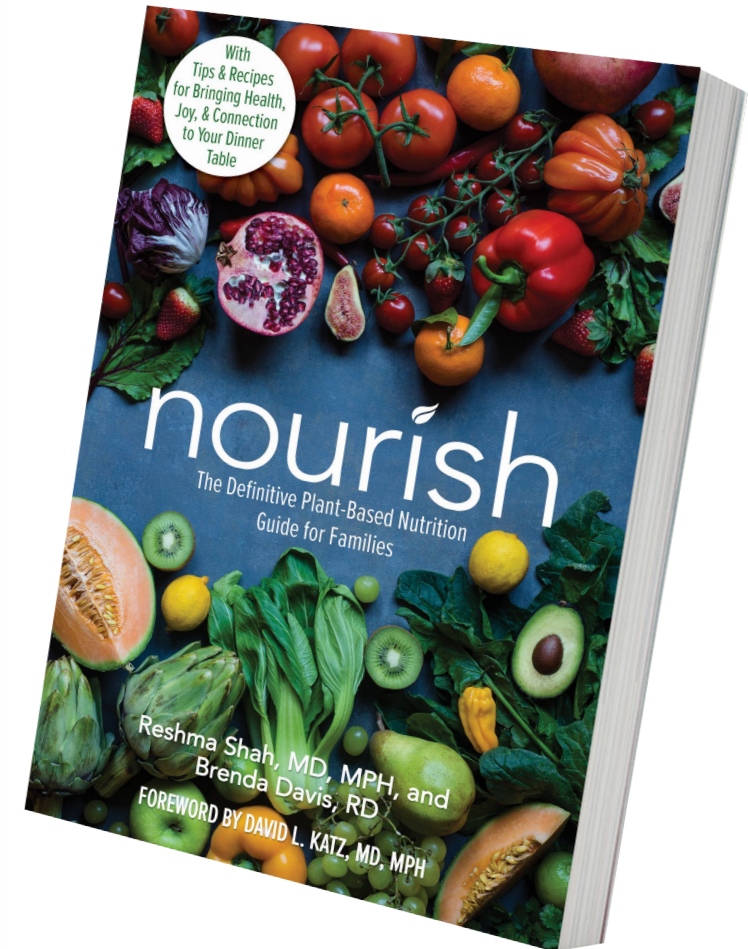
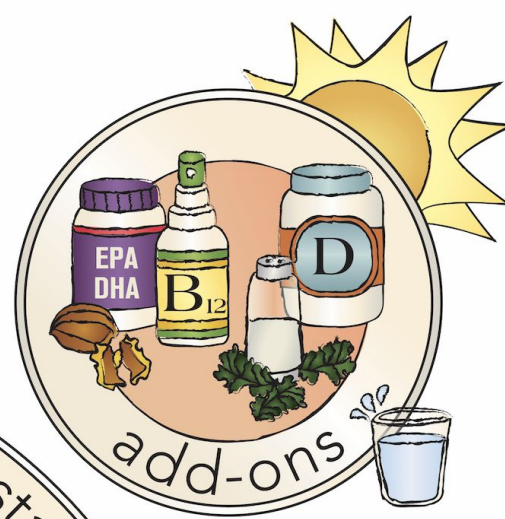
Eat protein foods

Make water
your drink
of choice



Choose
whole grain
foods

The Plant-Based Plate

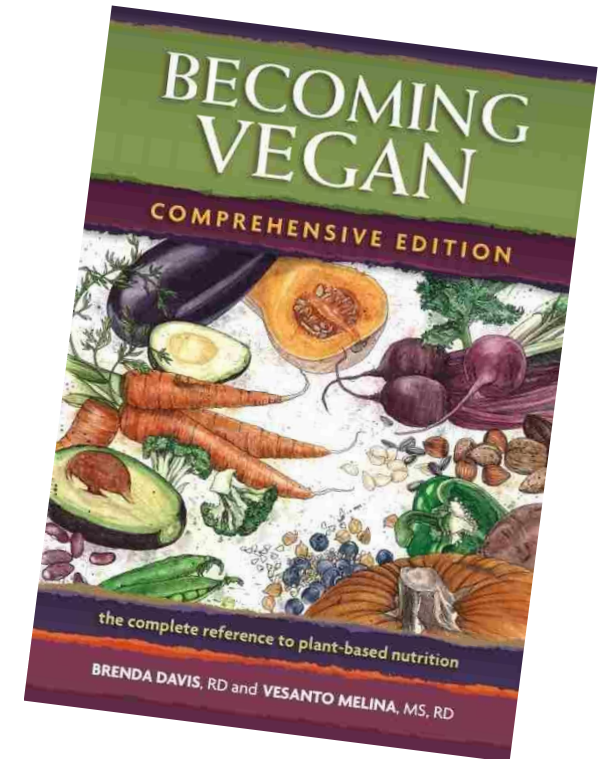


THE VEGAN PLATE



OTHER ESSENTIALS*

*Omega 3s
Vitamin B₁₂
Vitamin D
Iodine



Eat more nutrient-dense foods.

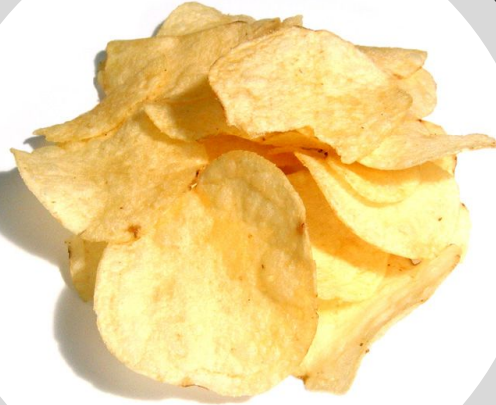
Food	Nutrients/Calorie
Green leafy vegetables	300-1000
Other non-starchy vegetables	100-500
Fruit	50-200
Starchy vegetables	30-100
Legumes	50-70
Fish	30-50
Nuts and seeds	15-115
Whole grains	20-40
Milk, yogurt	20-35
Meat, poultry, eggs	10-30
Hard Cheese	11
French fries	7
Vegetable oil	2



Aggregate Nutrient Density Index (ANDI) (by Dr. Joel Fuhrman) is calculated using vitamins, minerals, fiber and ORAC score.

**Drink Water
NOT Sugar!**





Minimize foods with added fat, sugar and salt.

Avoid Supersizing



Except for Salad!





Increase Physical Activity

- ❑ IDEAL - 1 hour per day of moderate to vigorous activity.
- ❑ MINIMUM - 150 minutes per week of moderate to vigorous activity.



Take Home Message

Every time you eat or drink...



...you either **feed** disease or **fight** disease.

A large, vibrant assortment of fresh fruits and vegetables is arranged in a circular border around a central text area. The produce includes a pineapple, yellow bell peppers, asparagus, starfruit, fennel, green grapes, oranges, corn on the cob, leeks, yellow squash, tomatoes, purple cabbage, red potatoes, red bell peppers, blueberries, strawberries, raspberries, eggplants, celery, and various leafy greens. The entire arrangement is set against a light-colored wooden background.

Well designed whole food,
plant-based diets provide a
powerful and effective
means of fighting disease.



**The Good News is
that the power of
plant-based diets
extend far beyond
ourselves.**



Ecologically Sustainable

Climate Change Mitigation Through Dietary Change 2020

Systematic Review – 18 studies

- Compared to current food consumption patterns, GHG emissions would be about:
 - 25% lower with “sustainable diets” (reduced animal foods; increased plant foods)
 - 70% lower with vegan diets

The greatest benefits for both health and the environment were associated with vegan diets.



**Ethically
Justifiable**





**70 billion land animals are slaughtered for food every year globally.
Over 90% are raised in CAFOs.**





Eating Plants Spares Animals

It makes no sense to cause pain, suffering and death in other living beings when it is not only unnecessary, but it undermines the life support systems of humanity.



Animal-based Diets Breed Human Hunger

The greater our meat intake, the more resources we use and the fewer people we feed. If everyone ate plant-based, the global calorie supply would increase by an estimated 50% which could effectively wipe out hunger.

Foley JA. Scientific American.
Nov. 2011: 60-65.

**By getting
our nutrition
from plants...
WE ALL WIN!**



We have a choice.

When we consider the consequences of our food choices, both for ourselves and beyond ourselves, a plant-based diet becomes both an ecological and ethical imperative.





**My Dad...
the rest of
the story**



My Mom and
Dad dancing
at their 50th
wedding
anniversary.

With
Tips & Recipes
for Bringing Health,
Joy, & Connection
to Your Dinner
Table

nourish

The Definitive Plant-Based Nutrition
Guide for Families

Reshma Shah, MD, MPH, and
Brenda Davis, RD

FOREWORD BY DAVID L. KATZ, MD



: Brenda Davis



: [brendadavisrd](#)



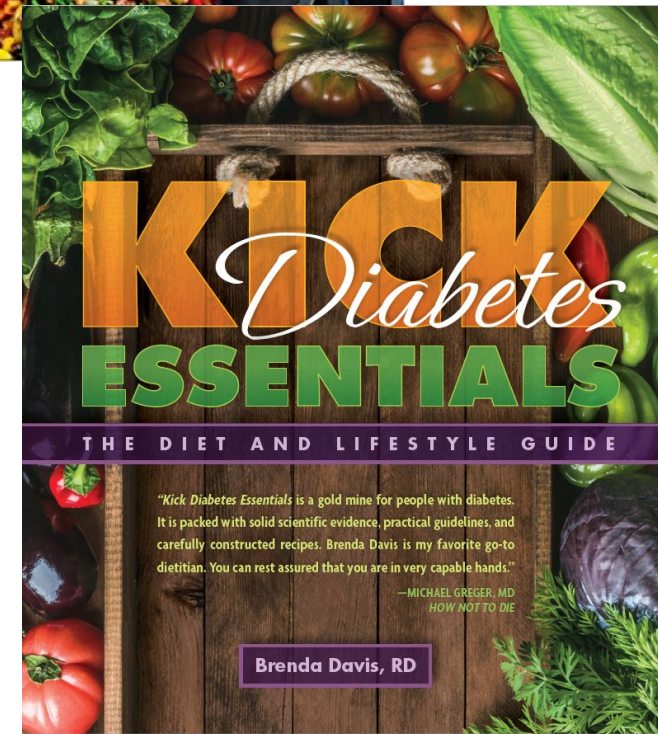
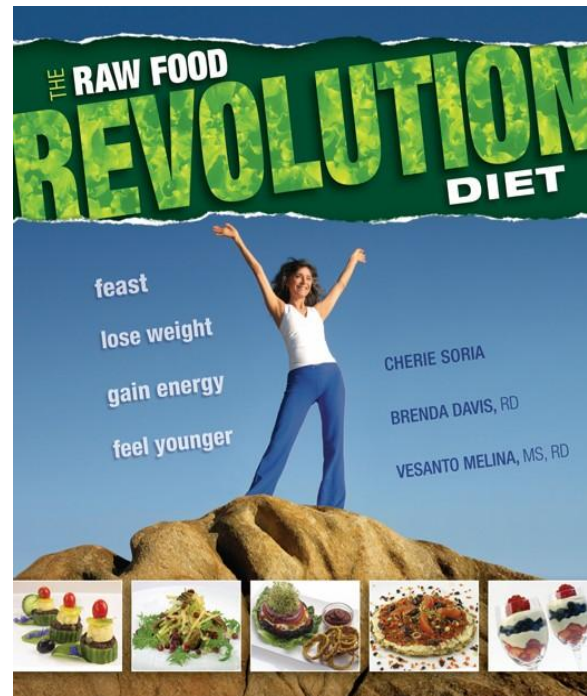
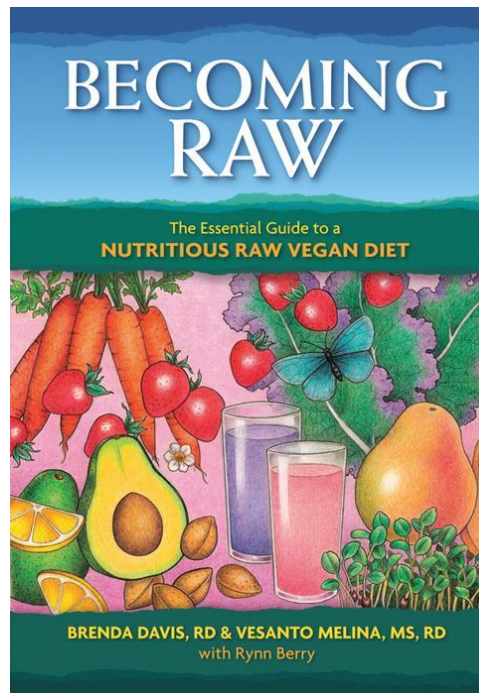
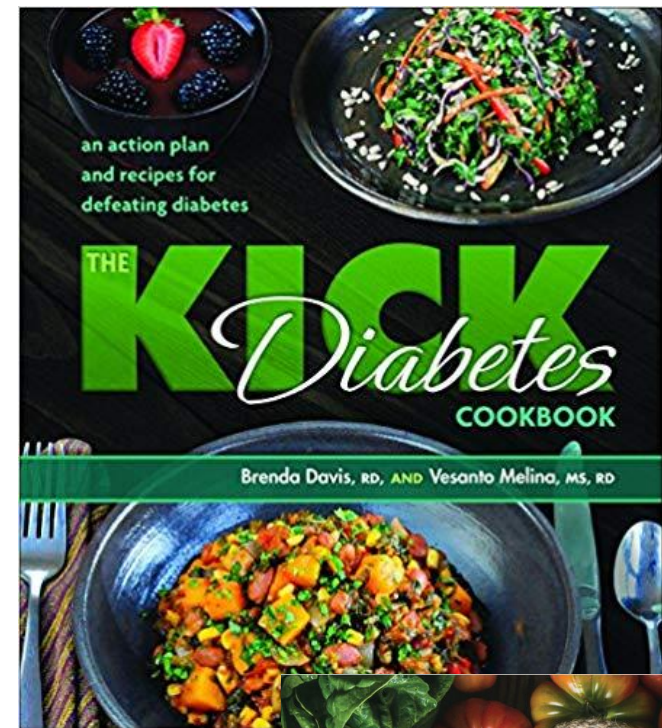
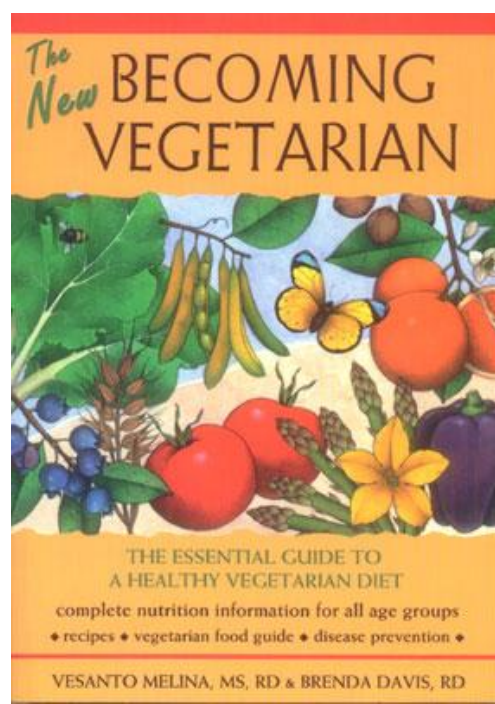
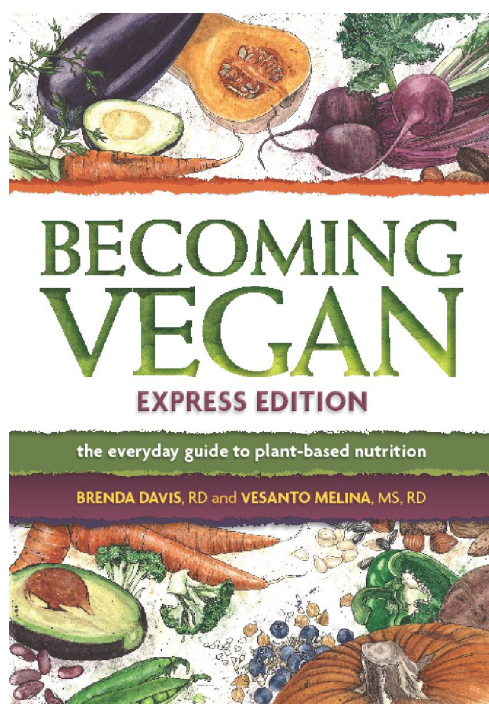
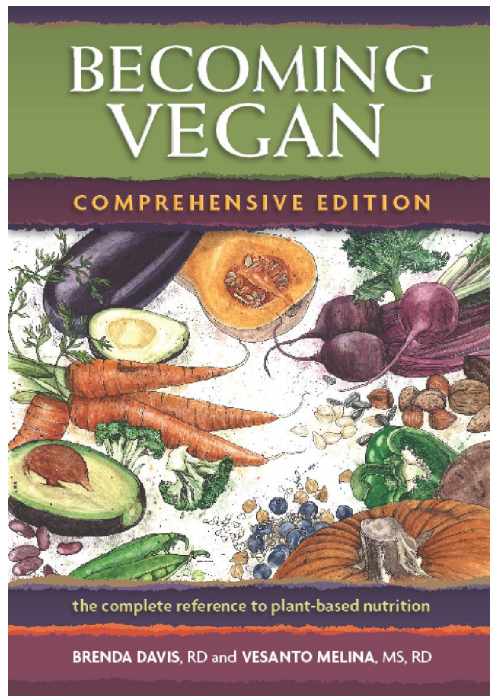
: [@BrendaCDavis](#)



: Brenda Davis



: <https://www.brendadavisrd.com/>



Thank you.

