



# Why the Future of Foodservice is Plant Powered



Lianna Levine  
Reisner, MSOD



Chef Rebecca  
Johnson

June 14, 2024



# Conflicts of Interest

*No conflicts to disclose.*

# Plant Powered Metro New York's Mission

**PPMNY empowers our diverse local communities to find better health and overcome chronic disease through whole food, plant-based nutrition.**

We offer evidence-based education, resources, and support to ignite awareness and change throughout the New York metropolitan area.



# Learning Objectives

- ❑ Recognize the role of whole food, plant-based nutrition in promoting lifelong health, preventing chronic disease, and enabling healing.
- ❑ Understand the most important aspects of meal preparation that will promote health within client communities.
- ❑ Learn the environmental impacts of our food system and how a plant-based approach will contribute significantly to sustainability.



# Plant-Based Nutrition in the News



health

Life, But Better

Fitness

Food

Sleep

Mindfulness

Relationships



## This type of plant-based diet helps battle diabetes and weight gain, study says

By Sandee LaMotte, CNN

🕒 3 minute read · Published 7:01 PM EST, Tue December 19, 2023





Health

Life, But Better

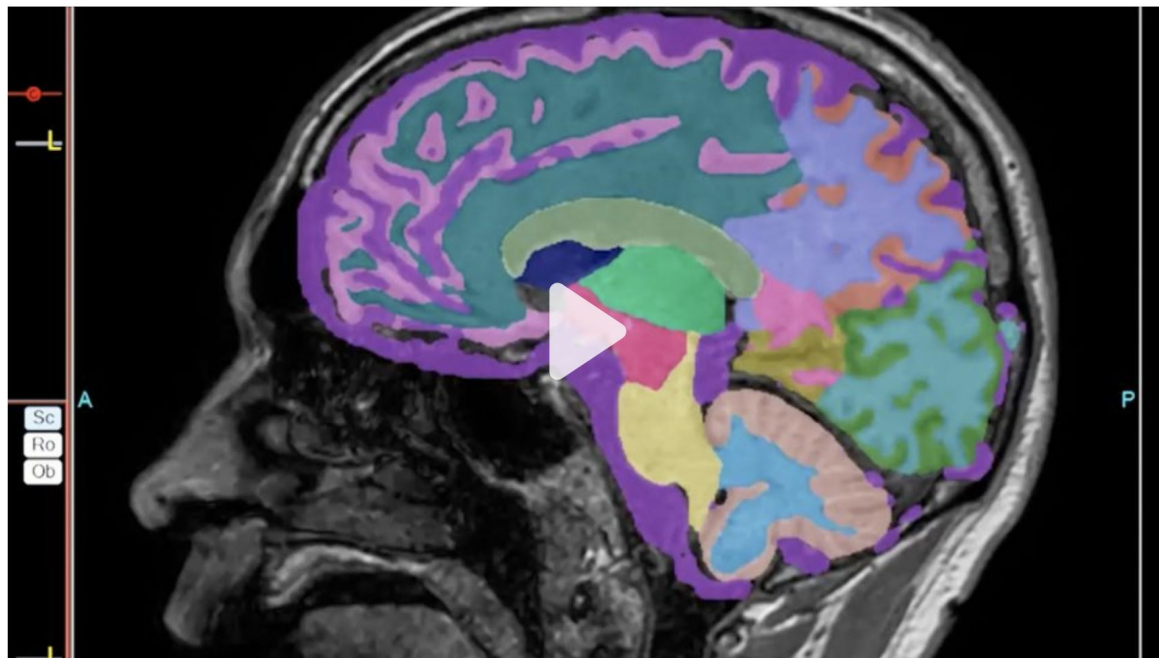
Fitness

Food

Sleep

Mindfulness

Relationships



Video Ad Feedback

## An Alzheimer's patient says intensive lifestyle changes reversed her condition



In "The Last Alzheimer's Patient," CNN chief medical correspondent follows Alzheimer's patient Cici Zerbe

# Plant-Based Lifestyle Medicine Programs in NYC Healthcare



## Mayor Adams, NYC Health + Hospitals Expand Access to Lifestyle Medicine Services City-Wide

February 7, 2022

*Announcement Represents Most Comprehensive Expansion of Lifestyle Medicine Programming in U.S.*

*New Expansion Will Provide Dedicated Team-Based Support for Healthy Lifestyle Changes, Including Emphasis on Plant-Based Diet*

Announcement Represents Most Comprehensive Expansion of Lifestyle Medicine Programming in U.S.

New Expansion Will Provide Dedicated Team-Based Support for Healthy Lifestyle Changes, Including Emphasis on Plant-Based Diet

# New York City's Mayoral Food Initiatives

## Mayor Adams, NYC H+H CEO Katz Announce Successful Rollout and Expansion of Plant-Based Meals as Default Option for Patients in NYC Public Hospitals

September 28, 2022

*NYC Health + Hospitals/Lincoln, Metropolitan, and Woodhull Now Serving Healthier and More Sustainable Dinners*

*New Initiative Builds on Plant-Based Lunch Program With 95 Percent Satisfactor*

## Mayor Adams And Chancellor Banks Announce Launch Of Inaugural Chefs Council

September 27, 2022

*Chefs Council Will Develop Scratch-Cooked, Plant-Based, and Culturally Relevant Recipes for the New York City Department of Education's Office of Food and Nutrition Services*

**NEW YORK** – New York City Mayor Eric Adams and New York City Department of Education (DOE) Chancellor David C. Banks today announced the launch of New York City's first-ever Chefs Council in partnership with Wellness in the Schools (WITS). The Council is chaired by Rachael Ray and includes celebrated chefs, culinary industry professionals, and food activists.

**"It was never my DNA. It was my dinner."  
— Mayor Eric Adams, on his type 2 diabetes diagnosis**

# Sodexo Campus commits to 50% plant-based menu by 2025

APRIL 18, 2023

**GAITHERSBURG, Md. (April 18, 2023)** - Sodexo, a global food services and facilities management leader, is committed to leading the movement toward plant-based dining. The Campus division is excited to celebrate Earth Month by increasing its commitment of plant-based planned menus to 50% by 2025. Sodexo's internal analysis has shown that at least 70% of the company's U.S. supply carbon footprint was related to animal-based food purchases in fiscal year 2020. Increasing the number of plant-based and plant-focused options on menus is part of the company's plan to reduce its global carbon footprint by 34% by 2025. It's also a vital part of meeting evolving consumer expectations, with 35% of Americans actively looking to eat less meat.

Although consumers value the many benefits of infusing more plant ingredients into their diets, they lead busy lives and need plant-based options that are convenient and flexible. In addition, food is an experience, and meals should offer genuine enjoyment and opportunities to connect. That's why Sodexo is mobilizing its resources to create plant-based dining options that meet consumers' needs and make it easy for them to incorporate more plant-based foods into their lives. The company is focused on improving the availability of plant-based dishes and creating delicious new recipes that consumers will be excited to try.



News | Sustainability

# Aramark to Increase Plant-Based Menu Offerings on College Campuses

October 09, 2022



**Philadelphia, PA (October 10-, 2022)** — Aramark, the largest U.S.-based foodservice provider, announced today that by 2025, 44% of its residential dining menu offerings at more than 250 colleges and universities will be plant-based.



# PLANT-POWERED CARBON CHALLENGE

**The Plant-Powered Carbon Challenge is a voluntary initiative led by private, institutional, and non-profit sectors, in partnership with the NYC Mayor's Office of Food Policy, to draw down carbon emissions and build a more sustainable food system in New York City.**

## **ELIGIBILITY**

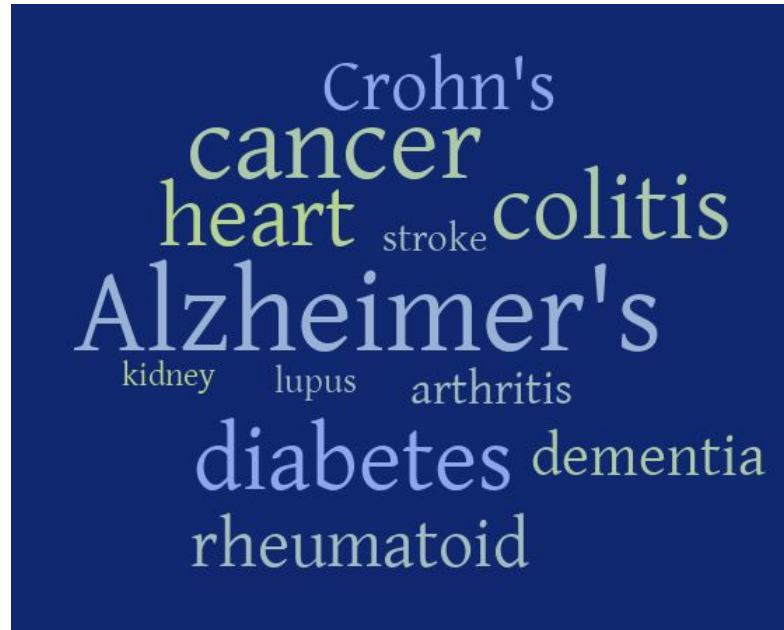
All organizations with food environments, from foodservice providers and caterers to university campuses and corporate offices, are eligible to participate in the Challenge.

# Plant Powered Health





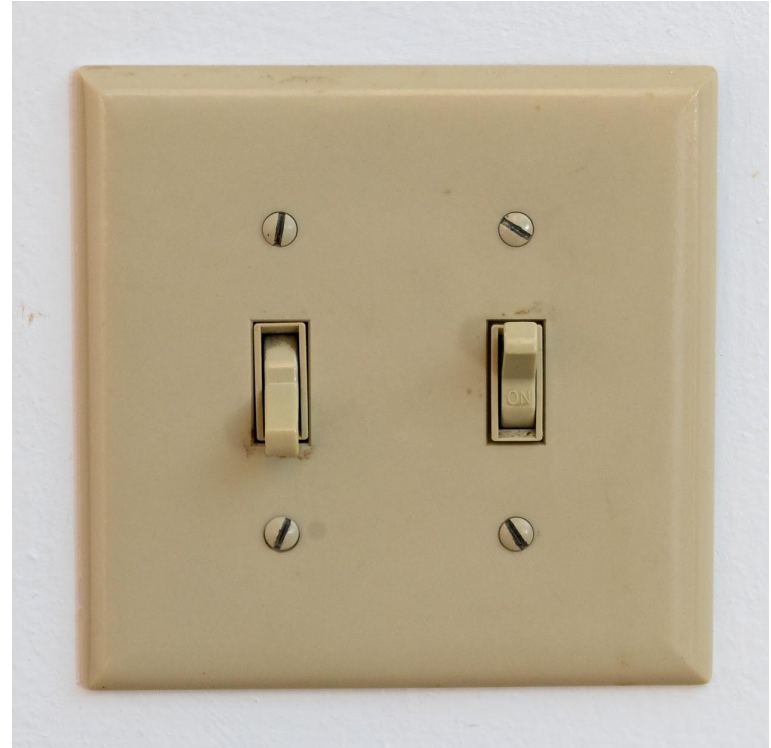
# Diseases of Affluence



*“Overnutrition” is a form of malnutrition.*

# Epigenetics: The Power of Gene Expression

T. Colin Campbell's early research revealed that **cancer genes can be turned "on"** when animal protein exceeds **10%** of total calories, **and turned off** with lower amounts.







## FOOD GUIDELINES

MONTHLY

**Retreat from meat:** Blue zones centenarians eat about 2 oz or less about 5x per month

**Reduce dairy**

WEEKLY

**Slash sugar:** Consume only 28 grams (7 teaspoons) of added sugar daily

**Eliminate eggs:**  
No more than 3 per week

**Go easy on fish:**  
Fewer than 3 oz, up to 3 times weekly

**Snack on nuts:**  
About 1-2 handful a day

**Drink mostly water:** About 7 glasses / day; coffee, tea, and wine in moderation

eat often with family and friends

**Daily dose of beans:** Half-cup to one cup / day

**Go wholly whole:** Single-ingredient, raw, cooked, ground, or fermented, and not highly processed

**95-100% plant-based**



PERSONAL BLUE ZONE GUIDELINES INSIDE

"A must-read if you want to stay young!"  
—DR. MEHMET C. OZ

New York  
Times  
Bestseller

THE  
**Blue  
Zones**

SECOND EDITION

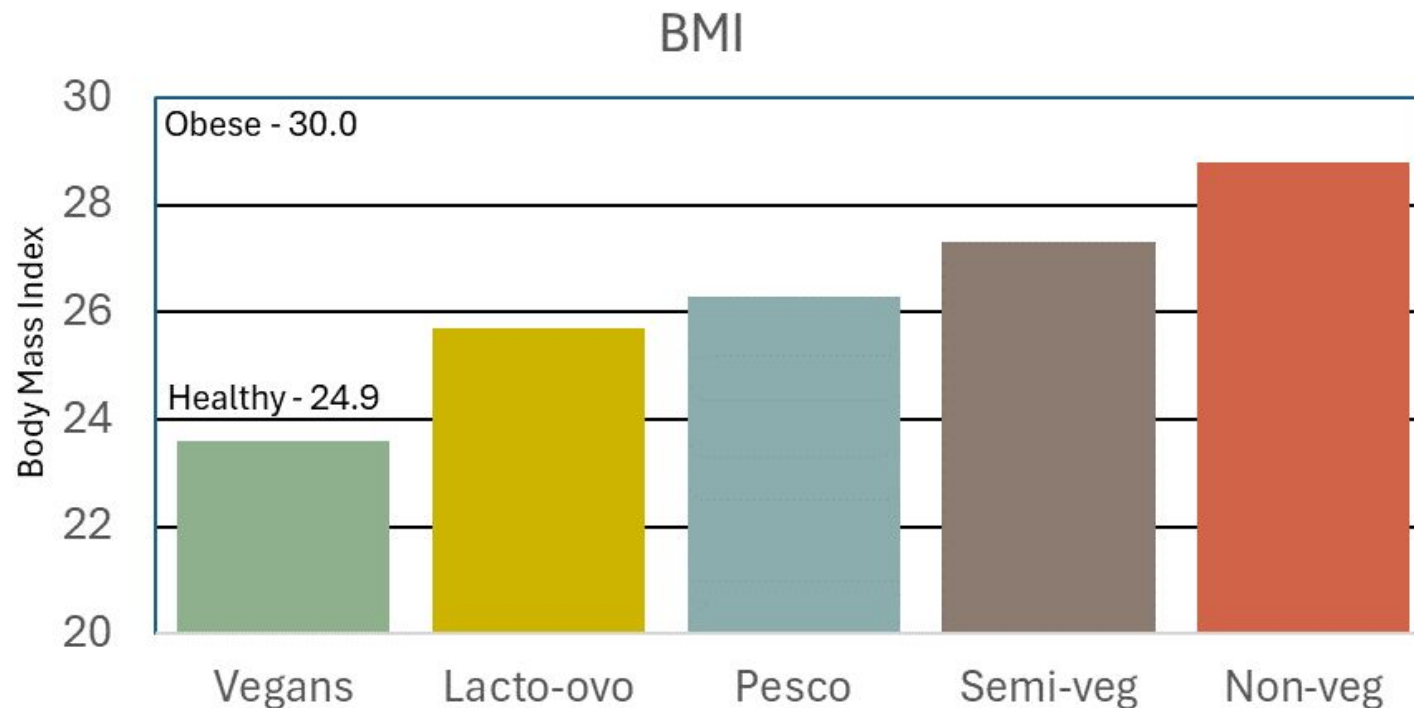
**9 LESSONS FOR  
LIVING LONGER**  
from the people who've  
lived the longest

**DAN BUETTNER**

Author of Thrive

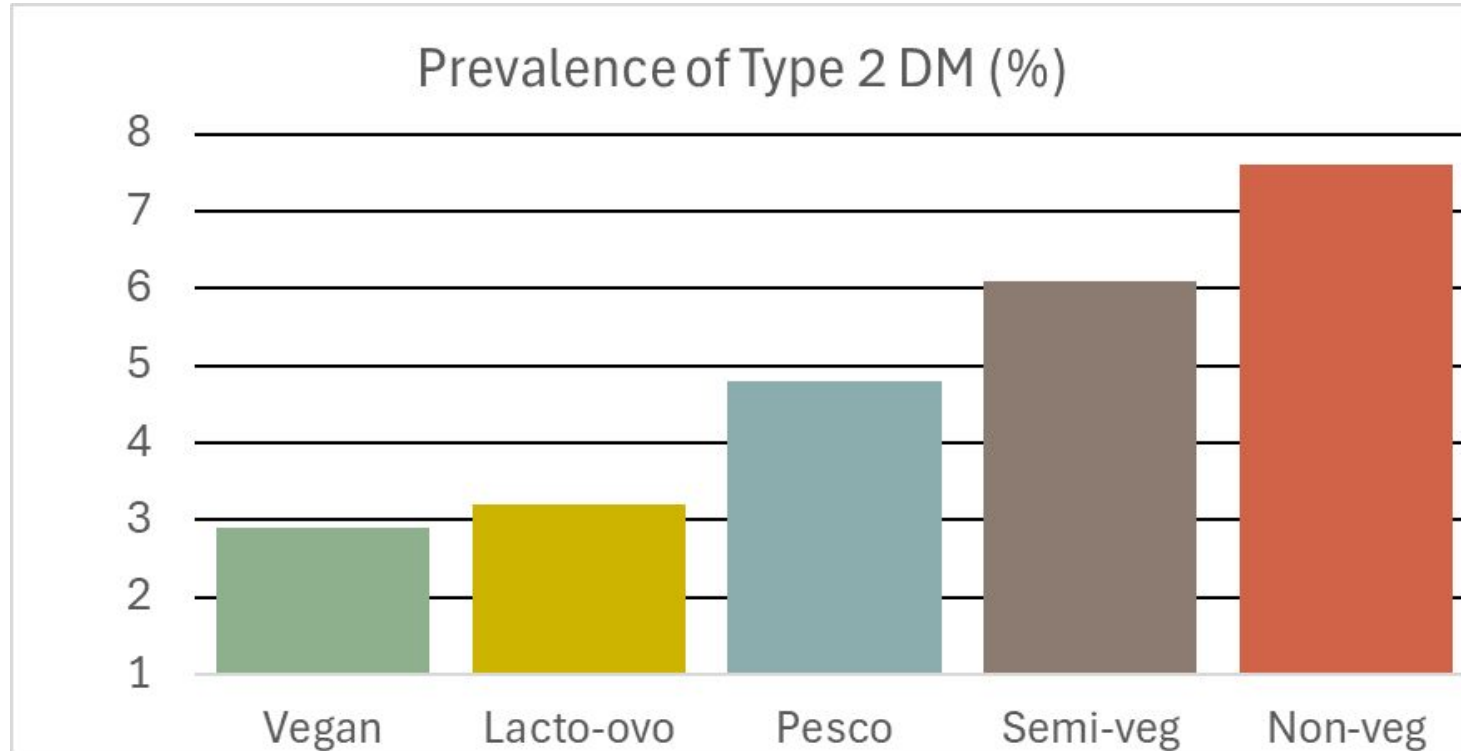
# Adventist Health Study 2: BMI

60,903 participants | aged  $\geq 30$  | enrolled 2002-2006



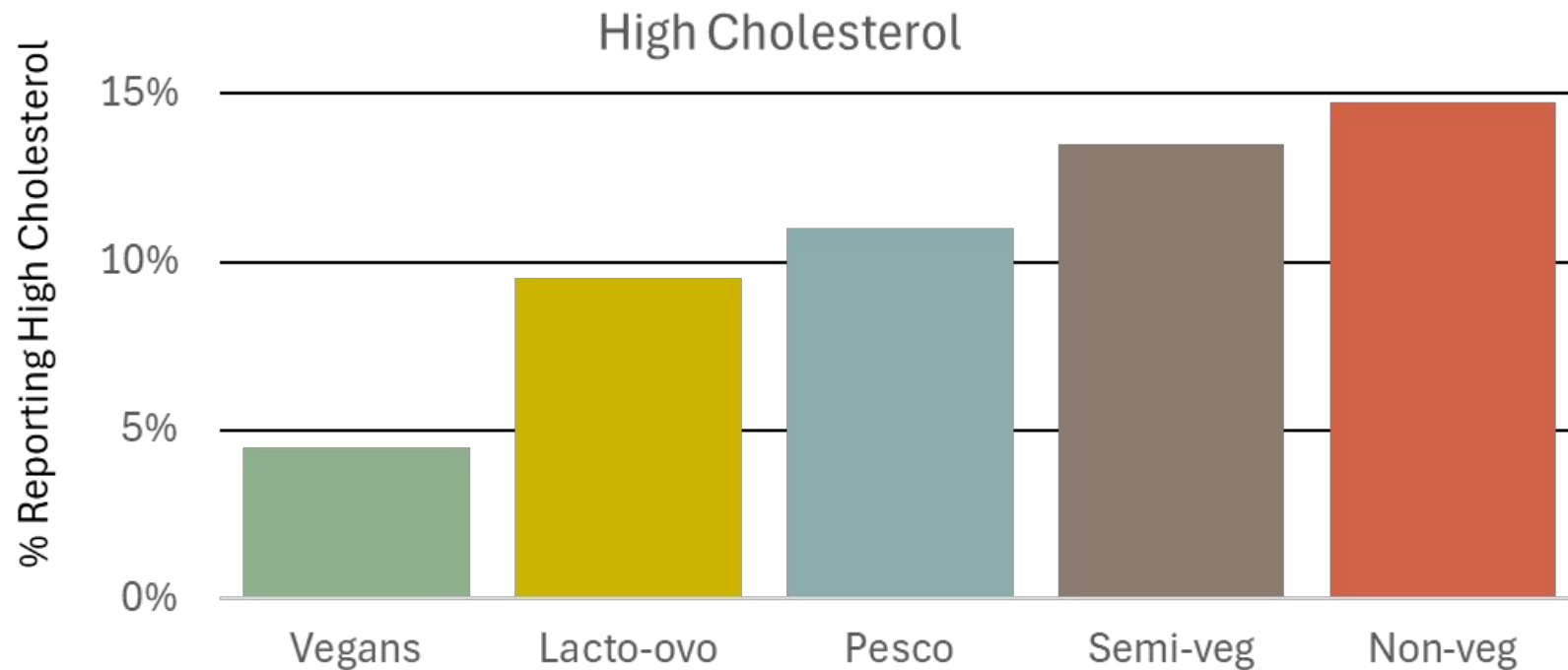
Source: Tonstad S, et al. Type of vegetarian diet, body weight and prevalence of type 2 diabetes. *Diabetes Care* 2009;32:791-6.

# Adventist Health Study 2: Diabetes



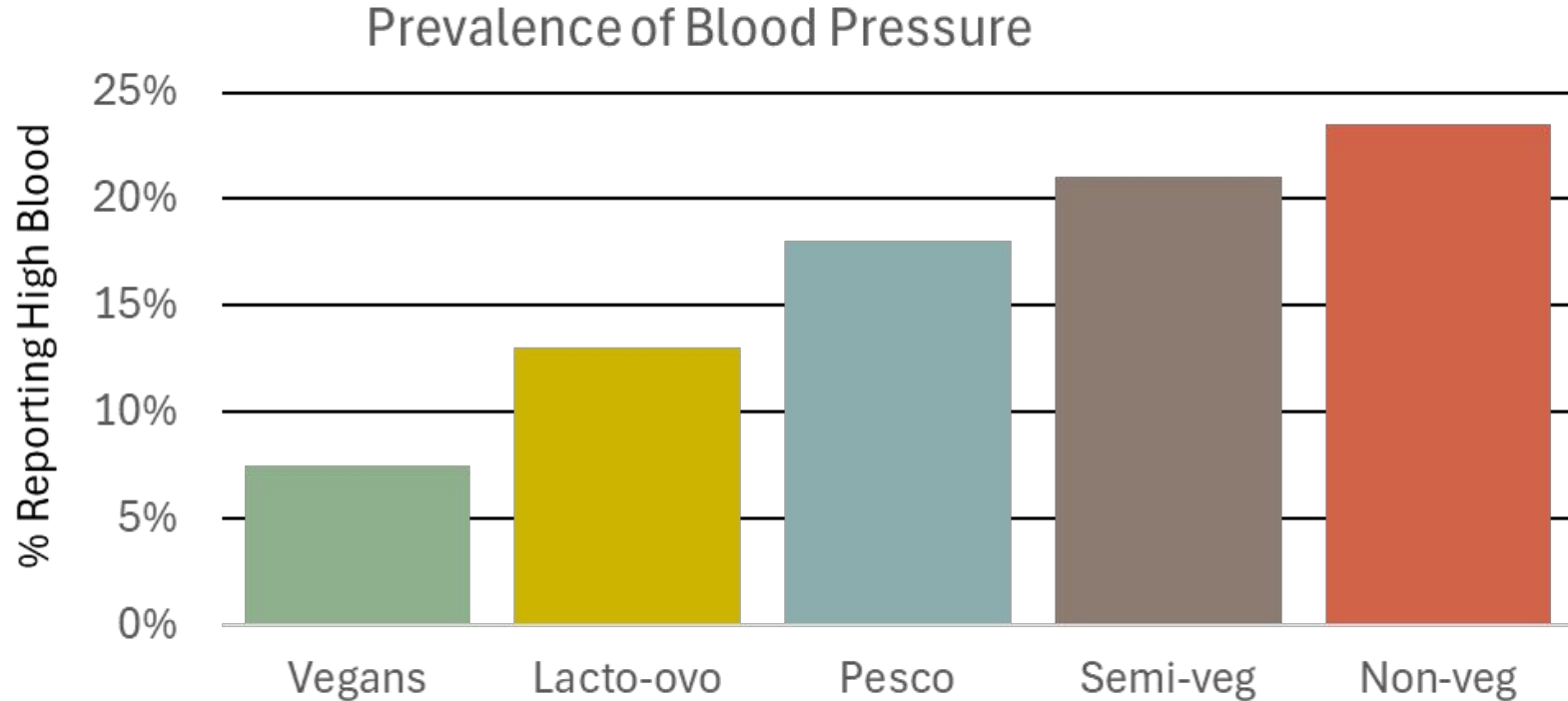
Source: Tonstad S, et al. Type of vegetarian diet, body weight and prevalence of type 2 diabetes. *Diabetes Care* 2009;32:791-6.

# Adventist Health Study 2: Cholesterol



Source: [Advocate Mag](#)

# Adventist Health Study 2: Blood Pressure

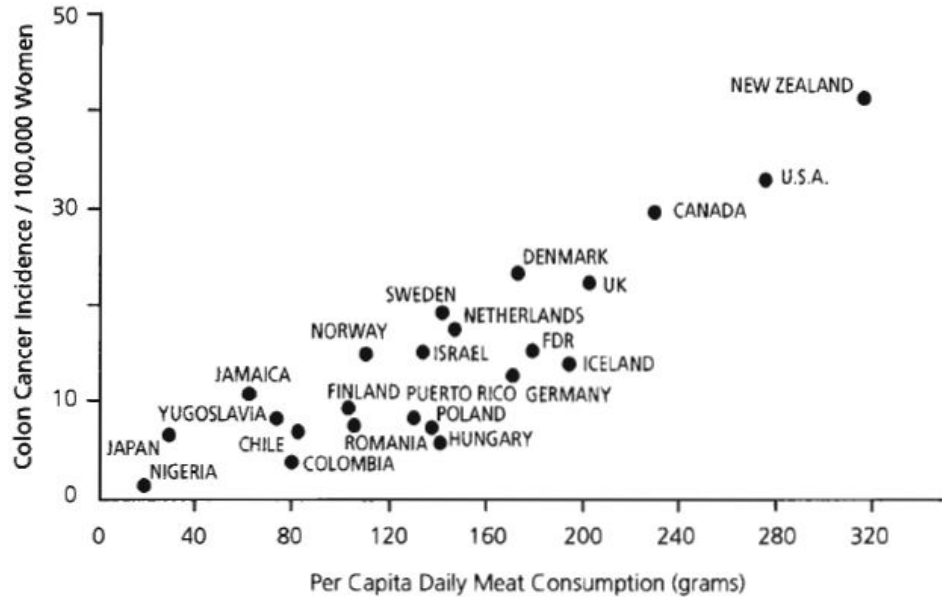


Source: [Gary E Fraser, Vegetarian diets: what do we know of their effects on common chronic diseases?; Advocate Mag](#)



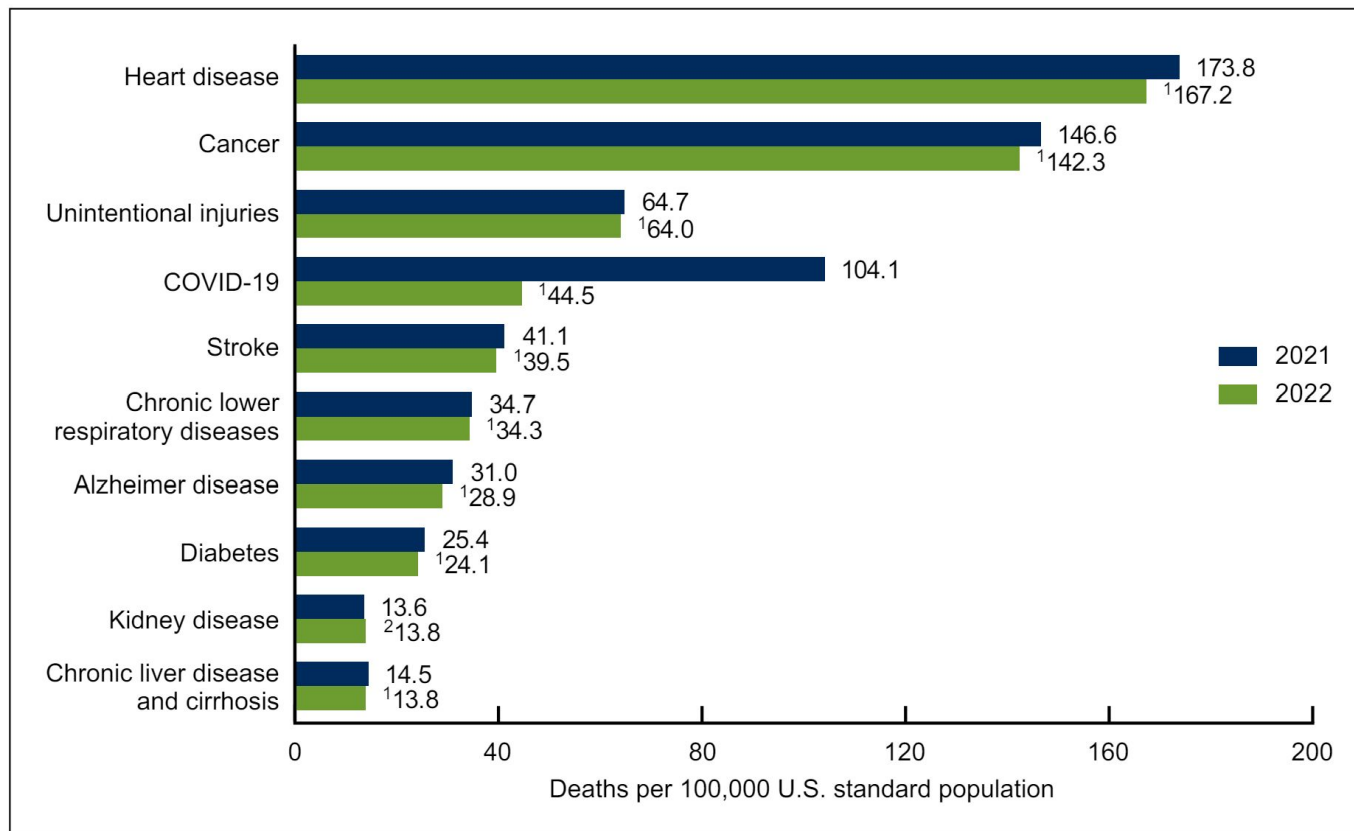
# Animal Protein & Cancer

**CHART 8.4: FEMALE COLON CANCER INCIDENCE AND DAILY MEAT CONSUMPTION**



# Leading Causes of Death in the U.S.

Figure 4. Age-adjusted death rate for the 10 leading causes of death in 2022: United States, 2021 and 2022



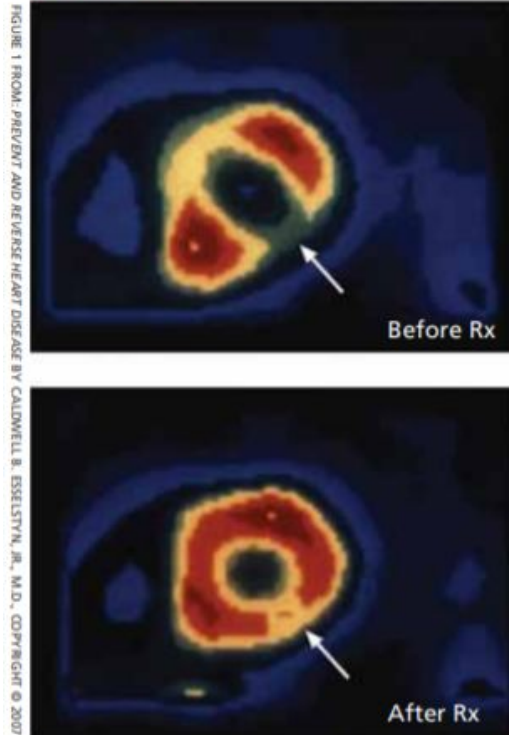
Source: CDC.gov, March 2024

# We Can Reverse Cardiovascular Disease

Source: Esselstyn C et al, July 2014, *Journal of Family Practice* - "A way to reverse CAD?"

FIGURE 1

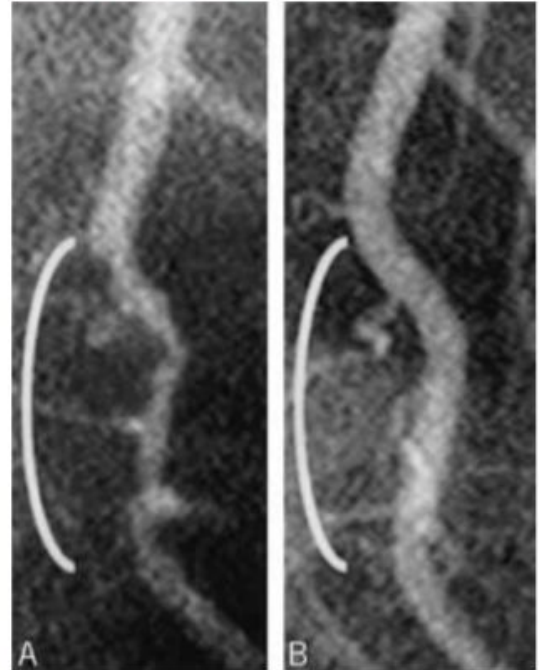
Restoration of myocardial perfusion<sup>2</sup>



Positron emission tomography performed on a patient with coronary artery disease shows an area of myocardium with insufficient blood flow (top). Following only 3 weeks of plant-based nutritional intervention, normal blood flow was restored (bottom).

FIGURE 2

Reversal of coronary artery disease<sup>4</sup>



Coronary angiography reveals a diseased distal left anterior descending artery (A). Following 32 months of a plant-based nutritional intervention without cholesterol-lowering medication, the artery regained its normal configuration (B).

# Fiber: The Missing Ingredient

“Only about **5%**  
of the population meets  
fiber recommendations.”

## Broccoli, Cruciferous Vegetables

Packed with Glucosinolates  
Fight Inflammation and Cancer



## Bananas

Fight Inflammation  
Stabilize Gut Bacteria



## Beans

Release Short-Chain Fatty Acids  
Boost Vitamin Absorption, Satiety

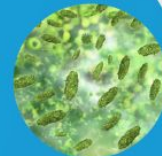


## Jerusalem Artichokes

Rich in Inulin Fiber  
Strong Prebiotic



Boost *Healthy* Gut Bacteria  
with **Plant-Based** Foods



Enhance Immune Function

Prevent Colon Cancer

Fight Inflammation

Boost Metabolism



## Blueberries

Enhance Immune System  
Destroy Harmful Bacteria



## Polenta

High in Fiber  
Fermentable Component



## Kimchee, Sauerkraut

Improves Health of Intestinal Walls  
Boosts Immune Function



## Tempeh

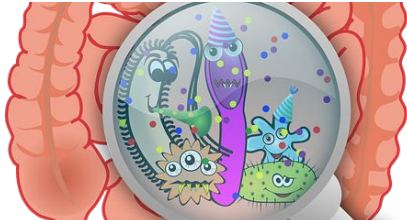
Crowds Out Unhealthy Bacteria  
Boosts Nutrient Absorption



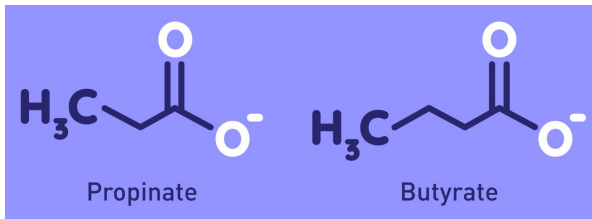
# More Than Probiotics



Prebiotics/fiber-rich plant foods...



feed the intestinal microorganisms...



that produce short-chain fatty acids which...

“

## **The Golden Rule:**

The single greatest predictor of a healthy microbiome is the diversity of plants in one's diet.

”

— **Will Bulsiewicz, MD, MSCI,**  
***Fiber Fueled***

- Reduce inflammation throughout the body
- Increase intestinal motility
- Repair leaky gut, the breakdown of the blood-gut barrier in the intestinal lining

# The Standard American Diet in Calories

## PLANT FOOD:

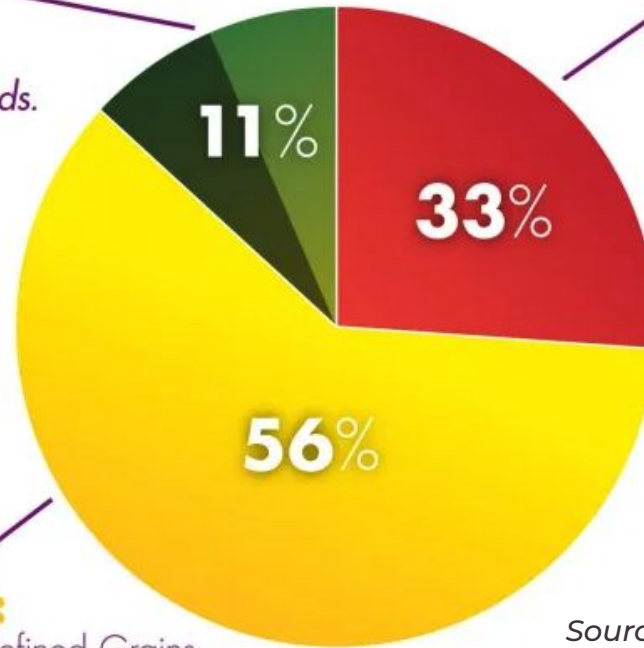
Vegetables, Fruits, Legumes,  
Nuts & Seeds, Whole Grains

**Fiber** is found only in plant foods.

## ANIMAL FOOD:

Meat, Dairy, Eggs, Fish, Seafood

**Cholesterol** is found only in animal foods. Animal foods are the **PRIMARY** source of saturated fat.



## PROCESSED FOOD:

Added Fats & Oils, Sugars, Refined Grains

Source: USDA Economic Research Service &  
Coalition for Healthy School Food, 2019

# Comparing Macronutrients

Macronutrient	Standard American Diet	WFPB Nutrition
Carbohydrate	 <p>Mostly refined</p>	 <p>Mostly unrefined</p>
Fat	 <p>Mostly saturated</p>	 <p>Mostly unsaturated</p>
Protein	 <p>Mostly from animals</p>	 <p>Mostly from plants</p>

# Calorie Density

## Fruit & Vegetables



400 CALORIES



## Beans, Grains & Potatoes



400 CALORIES



## Animal Products



400 CALORIES



## Cheese



400 CALORIES



## Oils



400 CALORIES





Consumption of these foods can lead to weight loss

Consumption of these foods can lead to weight gain

Calories per Pound

4,000  
3,000  
2,000  
1,000  
zero



**Water**



**Vegetables**

Asparagus,  
beets, broccoli,  
leafy greens,  
potatoes.



**Fruits**

Apples,  
bananas,  
blueberries,  
pears, melons.



**Grains &  
Starches**

Whole wheat,  
oats, brown  
rice, various  
potatoes.



**Legumes**

Many varieties  
of beans,  
peas, and  
lentils.



**Avocados**



**Animal  
Products**

Dairy, eggs,  
fish, seafood,  
poultry, beef,  
turkey.



**Processed  
Carbs**

Breads, refined  
(white) pasta,  
processed  
foods.



**Junk Food**

Chips, cookies,  
doughnuts, ice  
cream, muffins,  
pretzels,  
sugar.



**Nuts & Seeds**

Almonds,  
cashews,  
peanuts,  
pecans,  
walnuts.

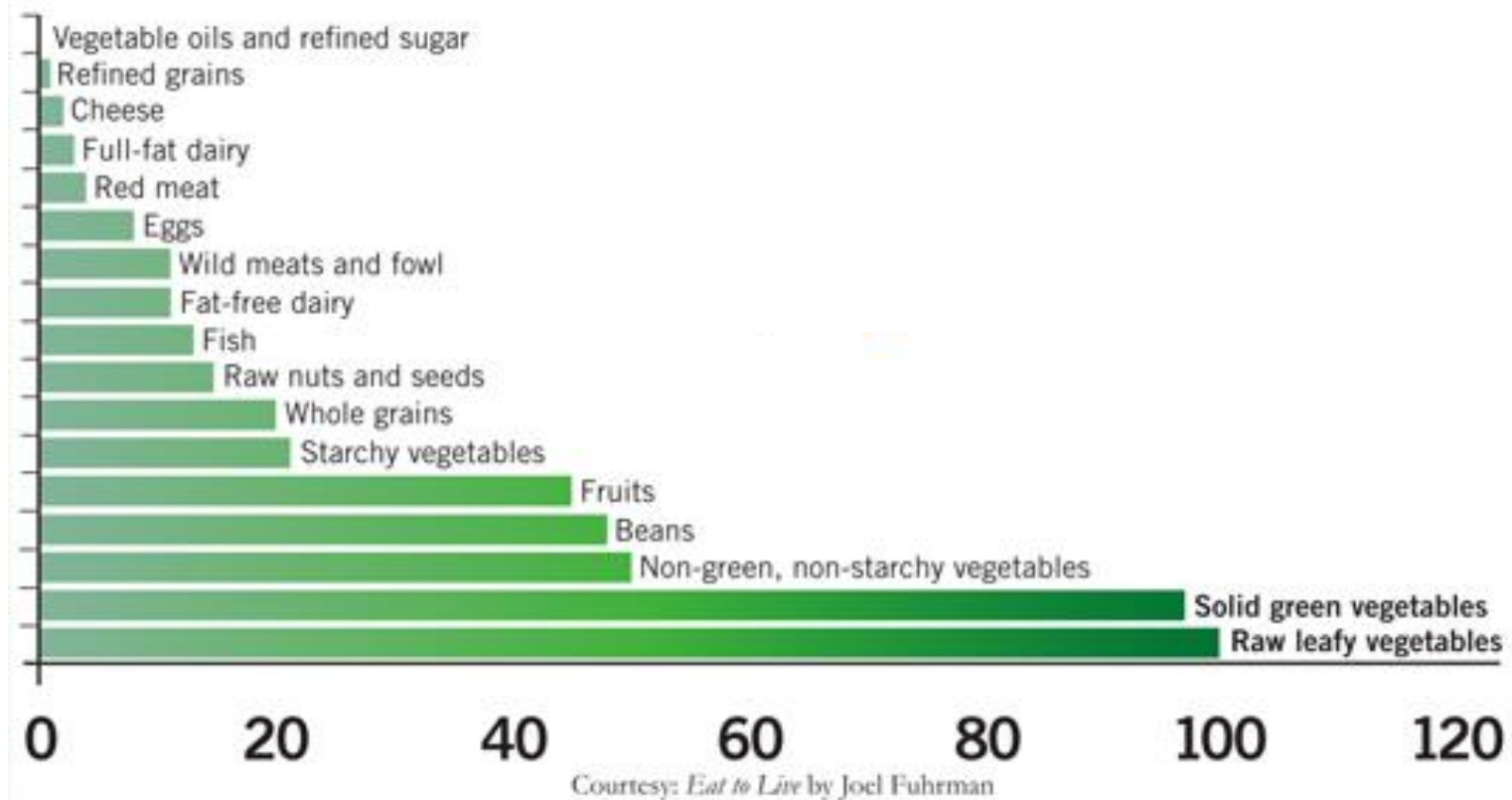


**Oils & Fats**

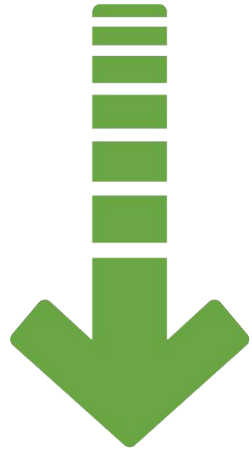
Butter, lard,  
all vegetables  
oils.

Updated and adapted from Jeff Novick's (1998) caloric density chart.

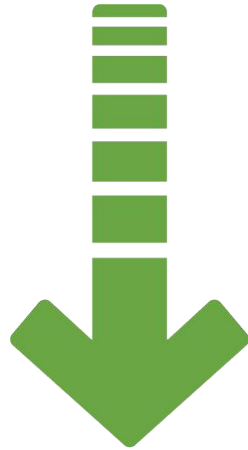
# Nutrient Density Per Calorie



# Impacts of Eating Whole Plant Foods



**Decrease  
calories**

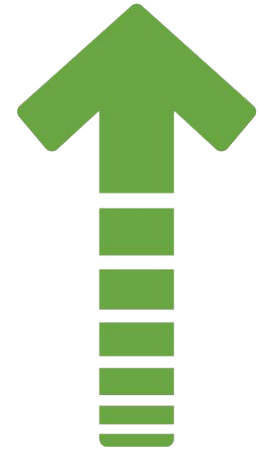


**Decrease  
inflammation**

**Increase nutrients**



**Increase gut  
microbiota diversity**



# Three Keys for Lifelong Health

1. Eat primarily plant foods
2. Eat primarily whole foods (unprocessed)
3. Keep dietary fat consumption low



# The Plant Powered Plate



water



**Vitamins B12 + D3**

*Other supplements only as advised*

**Sources of omega-3 fatty acids**





# Core Food Groups



## Whole Grains

Brown rice, oatmeal, barley, buckwheat, farro, quinoa

---



## Veggies

**Non-starchy:** Broccoli, cabbage, carrots, leafy greens, onions, mushrooms

**Starchy:** White & sweet potatoes, squash

---



## Beans

Beans, chickpeas, lentils, peas, soybeans

---



## Fruits

Apples, berries, citrus, melons, etc.

---



## Nuts & Seeds

Generally eat raw, in limited amounts

---

# Breakfast

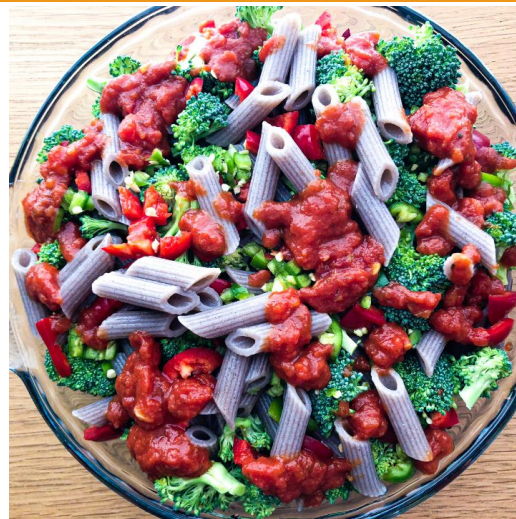


# Lunch

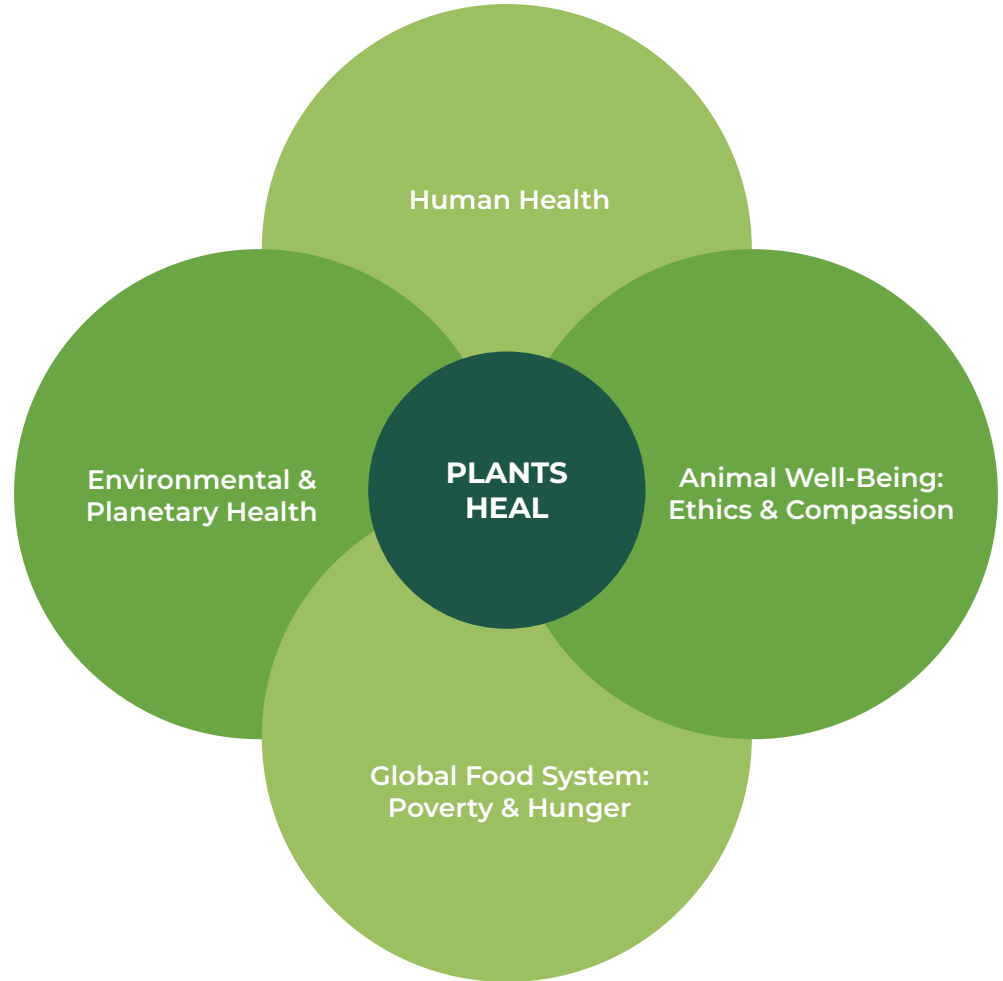




# Dinner



# The Ripple Effect of Eating for Human Health





# The Climate Connection



Raising animals for food uses **30% of the earth's land mass.**



OR



That's about the same size as Asia!

**= 17 Million sq. miles**

The surface of the moon has less area than that, at 14.6 million square miles.



LAND



More than **260 million acres of U.S. forest** have been cleared to create cropland to grow grain to feed farmed animals.

The equivalent of **7 football fields** are **bulldozed** every minute to create more room for farmed animals.



**Livestock grazing** is the number one cause of plant species becoming threatened or going extinct in the U.S.



# Land Use and “Carrying Capacity”

- Estimated land use for one person eating Western diet: **3.25 acres**
- Estimated land use for one person eating a vegan diet: **between 0.17 and 0.5 acres**
- Each person choosing plant-based diets **freed up land to feed another 6-19 people**
- “Replacing all animal-based items with plant-based replacement diets can add enough food to feed 350 million additional people.”

For further information: [www.ourworldindata.org](http://www.ourworldindata.org)



**4.2 billion acres**

*Estimated global sum of arable land (land that can grow food)*



**8.1 billion people**

*Global population*



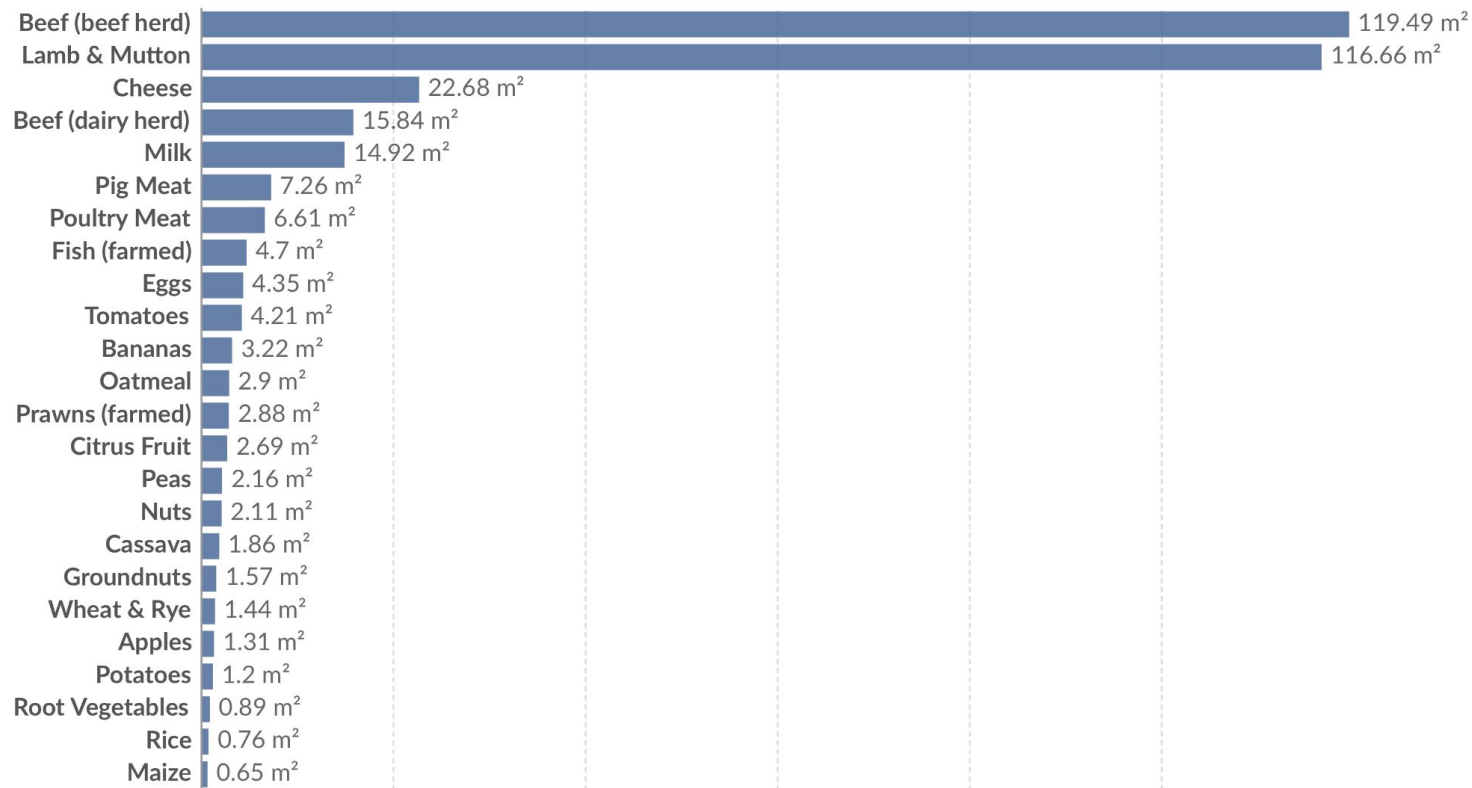
**~0.52 acres**

*Arable land available per person*



# Land use of foods per 1000 kilocalories

Land use is measured in meters squared ( $\text{m}^2$ ) required to produce 1000 kilocalories of a given food product.

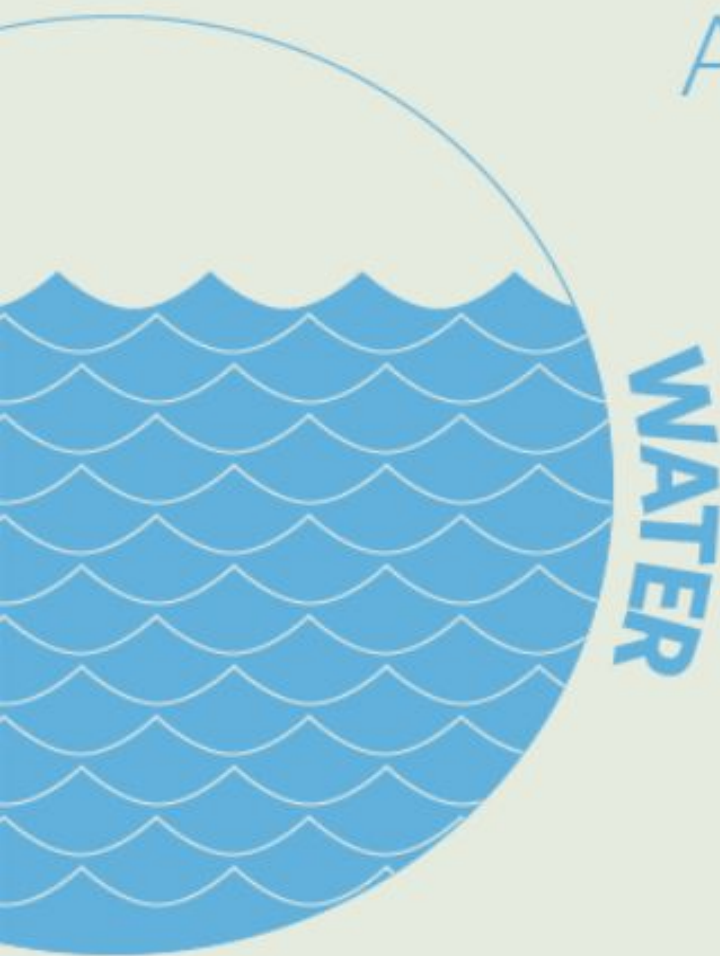


Data source: Joseph Poore and Thomas Nemecek (2018). Additional calculations by Our World in Data.

Note: The median year of the studies involved in this research was 2010.

[OurWorldInData.org/environmental-impacts-of-food](https://OurWorldInData.org/environmental-impacts-of-food) | CC BY

# A THIRSTY INDUSTRY



Nearly **half** of all water used in the **United States** goes to raising animals for food.

It takes more than 2,400 gallons of water to produce 1 pound of meat.



**2,400  
gallons =**

**1lb.  
of meat**



VS.

1 pound of wheat takes 25 gallons.

**25  
gallons =**

**1lb.  
of wheat**



You'd save more water by not eating one pound of meat than you would by **not taking a shower for 6 months.**



A vegan diet requires 300 gallons of water per day vs. a **meat-eating diet which requires 4,000 gallons per day.**

WATER  
REQUIREMENTS  
PER DIET

4,000  
gallons



300  
gallons



Animals raised for food create **89,000 pounds of excrement per second**, none of which benefits from the waste-treatment facilities like human excrement does.

This situation creates massive amounts of groundwater pollution.



Chicken, Hog, and Cattle excrement has **polluted 35,000 miles of rivers in 22 states.**



# 3 PRIMARY GASSES ARE RESPONSIBLE FOR GLOBAL WARMING:

## Carbon Dioxide

If one person exchanges a "regular" car for a hybrid, they'll **reduce carbon dioxide emissions by 1 ton per year.**



If one person exchanges eating meat for a vegan diet, they'll **reduce carbon dioxide emissions by 1.5 tons per year.**



If every American dropped one serving of chicken per week from their diet, it would save the **same amount of CO2 emissions as taking 500,000 cars off the road.**





## Methane

Chickens, turkeys, pigs, and cows are collectively the **largest producers of methane in the U.S.**



**20x more powerful**

Methane is 20x more powerful at trapping heat in the earth's atmosphere than carbon dioxide.



## Nitrous Oxide

The **meat, egg, and dairy** industries produce **65% of worldwide nitrous oxide emissions.**



**300x more powerful**

Nitrous oxide is 300x more powerful at trapping heat in the earth's atmosphere than carbon dioxide.





# What About the Animals?



92+ billion land animals eaten each year  
➤ 74 billion chickens



Possibly trillions of aquatic life  
➤ 30% farmed (and 40% of farmed fish die first)

# How many animals get slaughtered for meat every day?

Our World  
in Data

The numbers are based on the global totals for 2021.

To express them for the average day the totals were divided by 365.



900,000 cows



1.4 million goats



1.7 million sheep



3.8 million pigs



11.8 million ducks



202 million chickens

This means that every average minute  
140,000 chicken get slaughtered



Hundreds of millions of fish\*

Data: Food and Agriculture Organization. The icons are from the Noun Project.



\*Estimates of the number of fish killed are, unfortunately, very uncertain. But while the uncertainty is high, it is clear that the number of fish killed is extremely large. Hundreds of millions of fish are certainly killed every day.

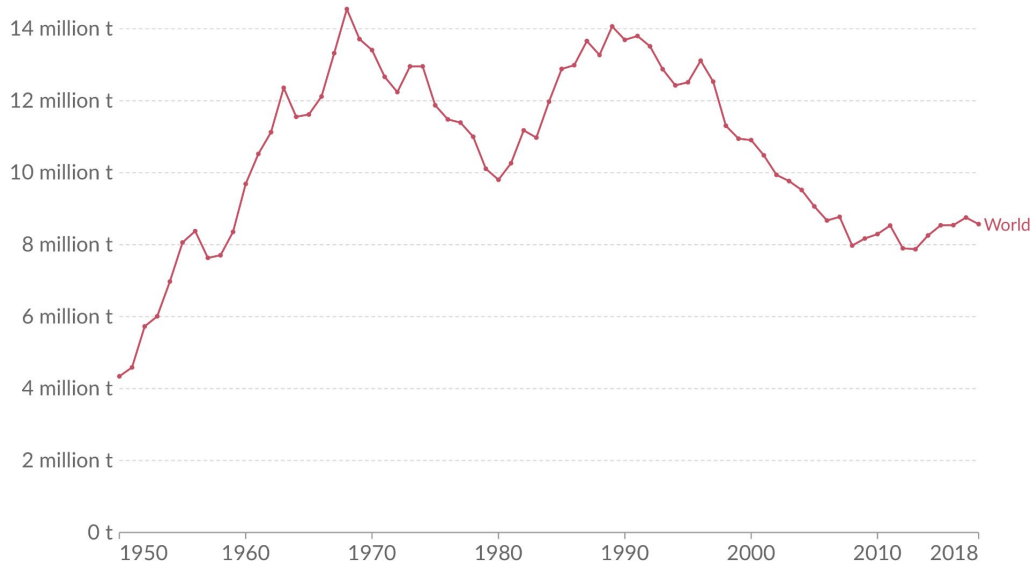
This is discussed in the accompanying article: [ourworldindata.org/how-many-animals-get-slaughtered-every-day](https://ourworldindata.org/how-many-animals-get-slaughtered-every-day)  
Research is needed to close the existing gaps in our statistical understanding of how many animals are killed by humans.

## Fish discards

Our World  
in Data

Discards are animals thrown back (alive or dead) into the sea after being caught during fishing activities.

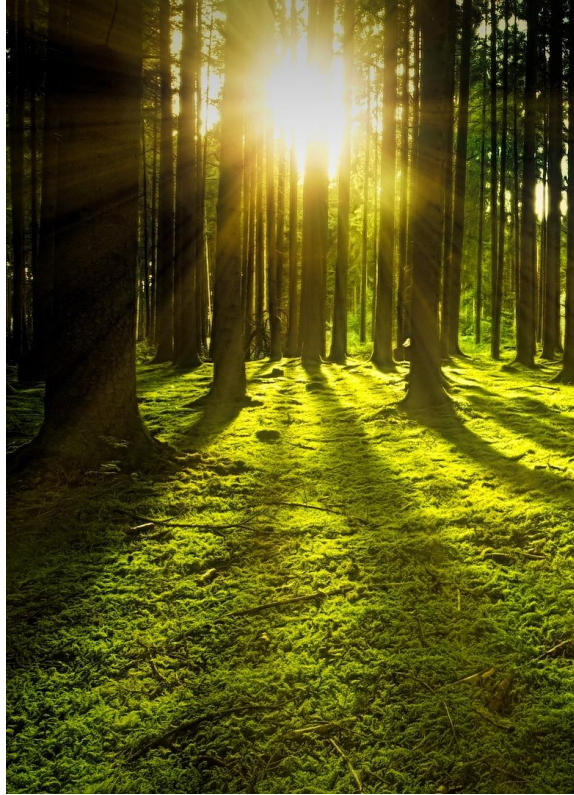
This represents bycatch (fish caught unintentionally) that is not brought ashore for use.



Data source: FishStat via Pauly, Zeller, and Palomares from Sea Around Us Concepts, Design and Data.

[OurWorldInData.org/fish-and-overfishing](https://ourworldindata.org/fish-and-overfishing) | CC BY

# Be the Change We Wish to See in the World





# PPMNY's Educational Partnership

## Introductory Events & Workshops

Basic nutrition education  
Culinary demonstrations  
Film screenings & talk-backs



Interactive classes on a variety of health and disease topics, with culinary demos & recipes (created by PCRM)

## Health Empowerment Seminars or Retreats

Day-long deep dives into the role of nutrition in chronic disease, and disease-specific support



Supports a full dietary transition with substantial education & support

## Community Support & Mentorship

Recurring support circles for lifestyle change & maintenance + 1:1 and group peer mentorship



Guiding and training restaurant and food service leaders to improve menu options for health promotion



## Whole Food Recipe Solutions for Restaurants & Foodservice

*Plant Powered Plates was developed with the  
support of the Grubhub Community Fund*



**Plant Powered**  
Metro New York







change   
your plate,   
transform   
your health 

[www.plantpoweredmetrony.org](http://www.plantpoweredmetrony.org)



@PlantPoweredMNY



@PlantPoweredMetroNY



**Plant Powered**  
Metro New York

[ppmnyinyourkitchen.org](http://ppmnyinyourkitchen.org)