
Culinary Institute
of America
Culinary Intensive
Workshop
Day 1

Culinary Institute of America

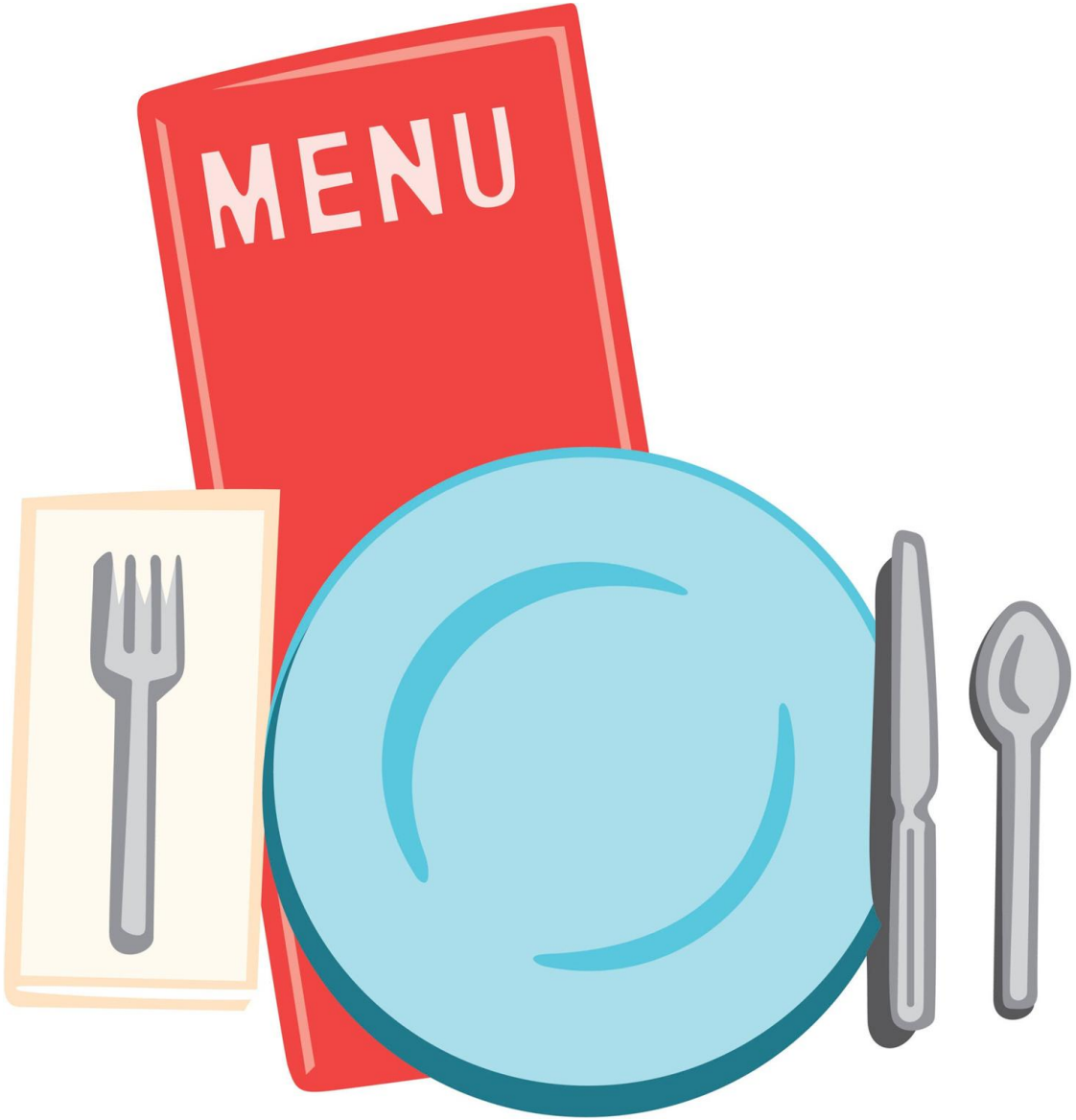
TEACHING KITCHEN COLLABORATIVE

Day 1

Principles of Healthy Kitchens Healthy Lives: Nutrition Basics, A Healthy Dietary Pattern, Food Systems, Sourcing Local and Sustainable Foods, Knife Techniques

Day Overview

9:00-9:15	Introductions
9:15-10:45	Lecture in PDR
11:00-11:30	Tour and Garden, pick vegetables
11:30- 12:45	Set up, Knife selection and cutting board and Knife cuts Demo
12:45-1:15	Lunch in PDR
1:15-2:15	Guest speakers PDR
2:15-2:30	Wrap up



Learning Objectives

By the end of this day, you should be able to …

- Discuss the tenets of the Food is Medicine philosophy.
- Identify key components of a healthy eating pattern.
- Define ultra-processed, processed, and whole foods.
- Learn basic nutrition as it relates to ingredients and cooking methods.
- Identify foods high in phytochemicals, vitamins, minerals and Omega 3 fatty acids.
- Identify resources for locally produced food products.
- Learn how social determinants affect patients' food choices and health.
- Understand how local food systems affect patients' diets.
- Discuss regenerative sources of food and nutrition as it applies to your local region. Use different knife techniques to cut a variety of ingredients.
- Use different knife techniques to cut a variety of ingredients.
- Differentiate between macronutrients and micronutrients.
- Explain how ultra-processed foods affect long-term health outcomes.
- Describe the relationship between dietary patterns and chronic disease prevention.
- Discuss the role of hospitals and health systems in modeling and promoting healthy food environments.

Lecture Overview

- The Importance of Nutrition for Health
  - Role of Healthcare System
  - State of American Food, Diet and Health
- Food is Medicine Intervention Strategies
  - Barriers to Healthy Eating
- Nutrition Overview
  - Healthy Dietary Patterns
  - Macro & Micronutrients
  - Whole foods
  - Ultra processed Foods
- Food Environment & Food Systems
  - Socioecological Model
  - Farm Bill, Commodity Crops, & Sourcing Local

Intros

- Who you are
- Where are you from
- Area of Speciality (peds, obgyn, etc)
- Food Story: First cooking experience or memorable cooking experience

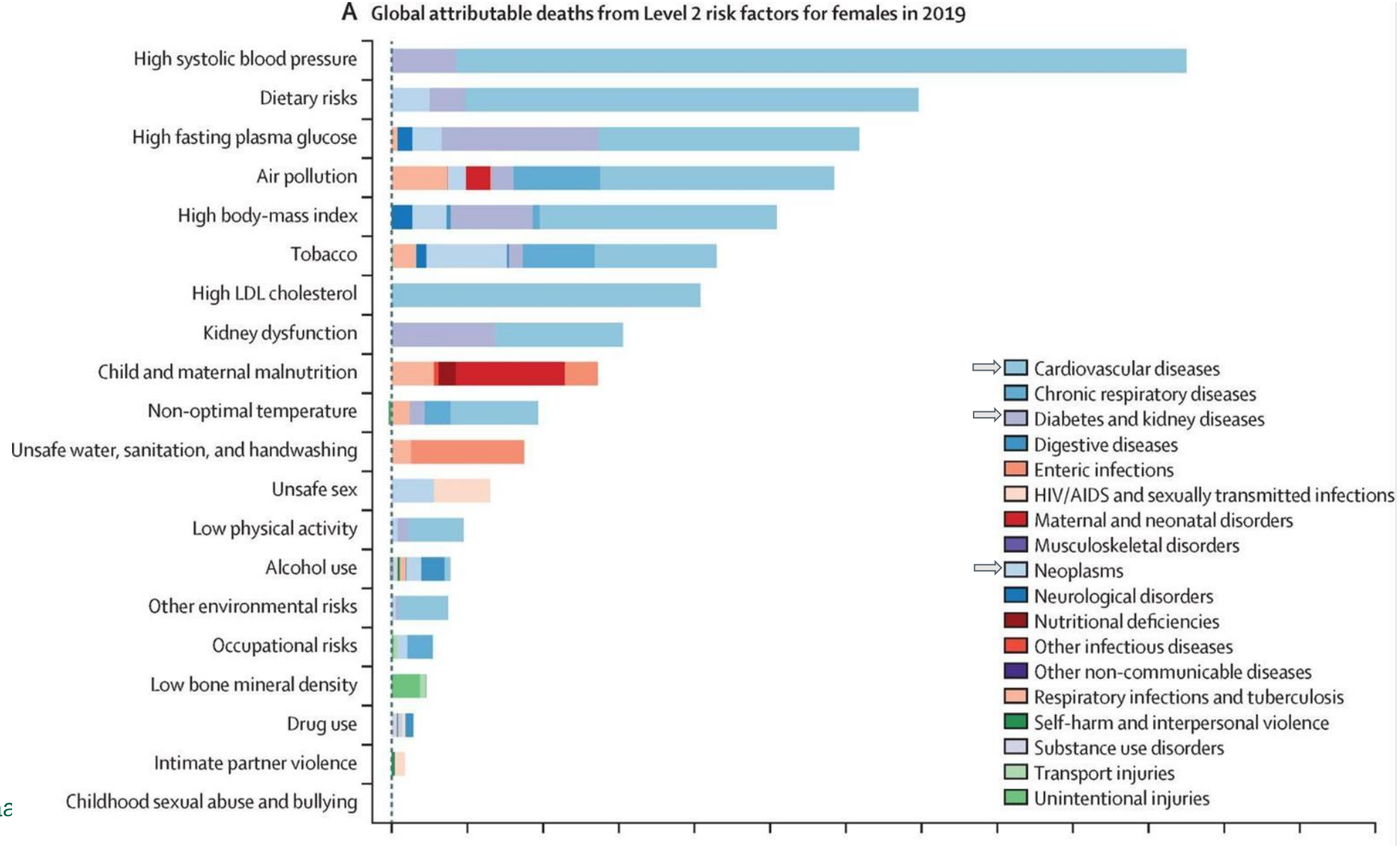
Top 10 Causes of Death in US

- Heart disease: 680,981
- Cancer: 613,352
- Accidents (unintentional injuries): 222,698
- Stroke (cerebrovascular diseases): 162,639
- Chronic lower respiratory diseases: 145,357
- Alzheimer's disease: 114,034
- Diabetes: 95,190
- Nephritis, nephrotic syndrome, and nephrosis: 55,253
- Chronic liver disease and cirrhosis: 52,222
- COVID-19: 49,932

Source: Mortality in the United States, 2023, data table for figure 4

High Prevalence of Chronic Diseases

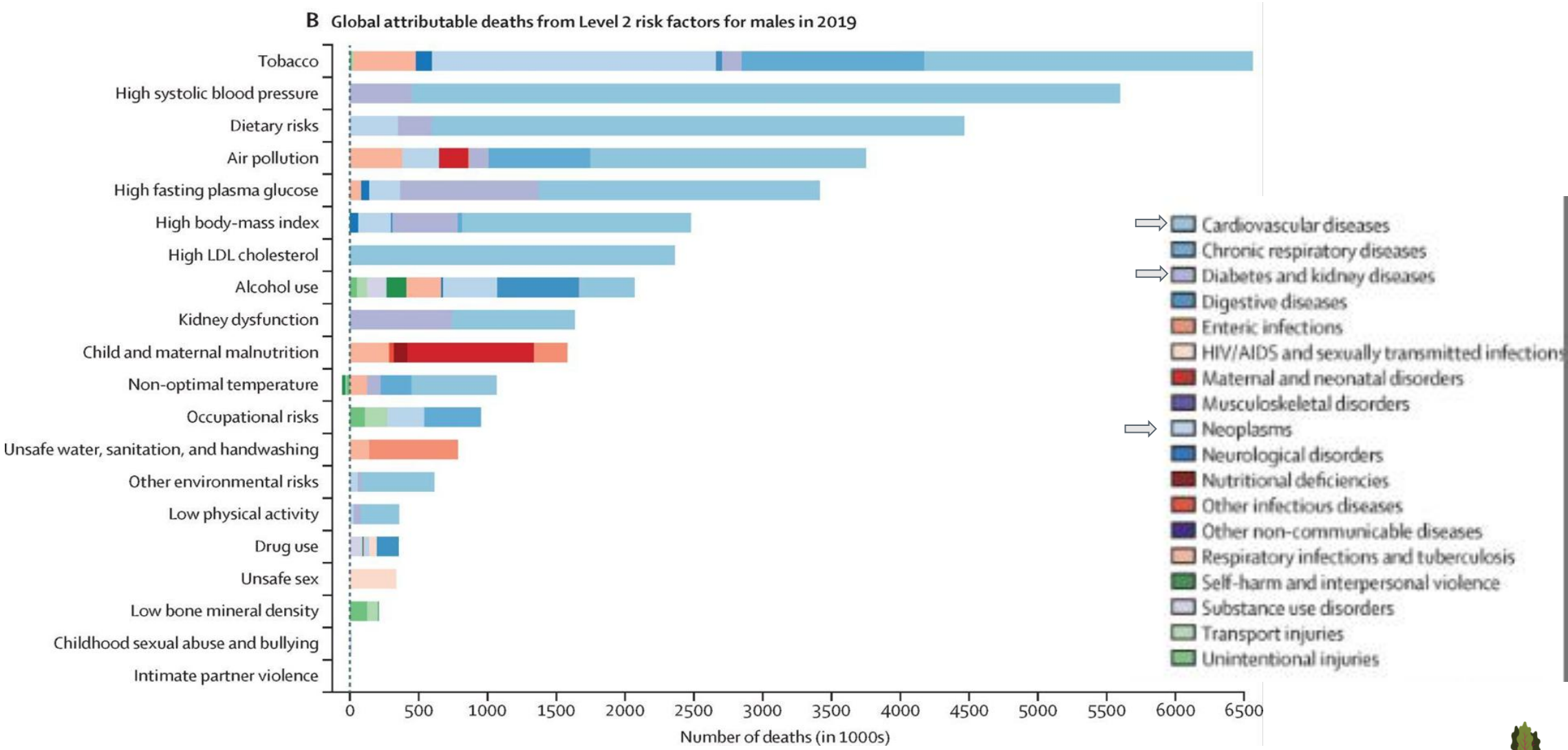
Poor Diet = Leading Cause of Death Females



Murray, Christopher J L et al. **Global burden of 87 risk factors in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019.** The Lancet

Culina

Poor Diet = Leading Cause of Death Males

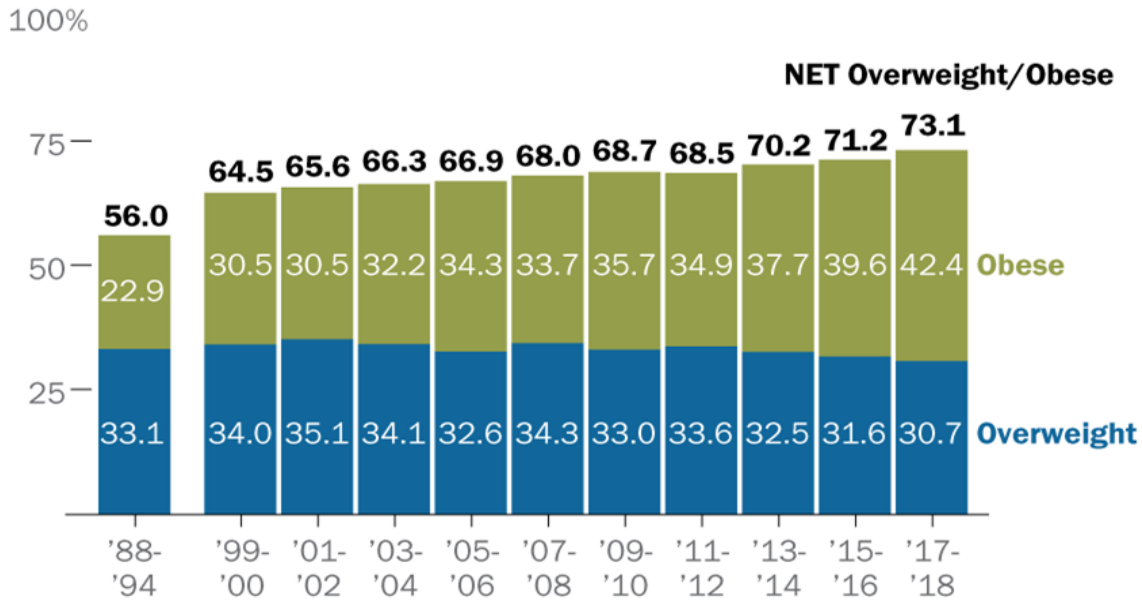


Murray, Christopher J L et al. **Global burden of 87 risk factors in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019.** The Lancet

Obesity Continues to Rise
Weightloss Drugs Top Spending Charts

Share of Americans who are considered overweight or obese has risen over the last 3 decades

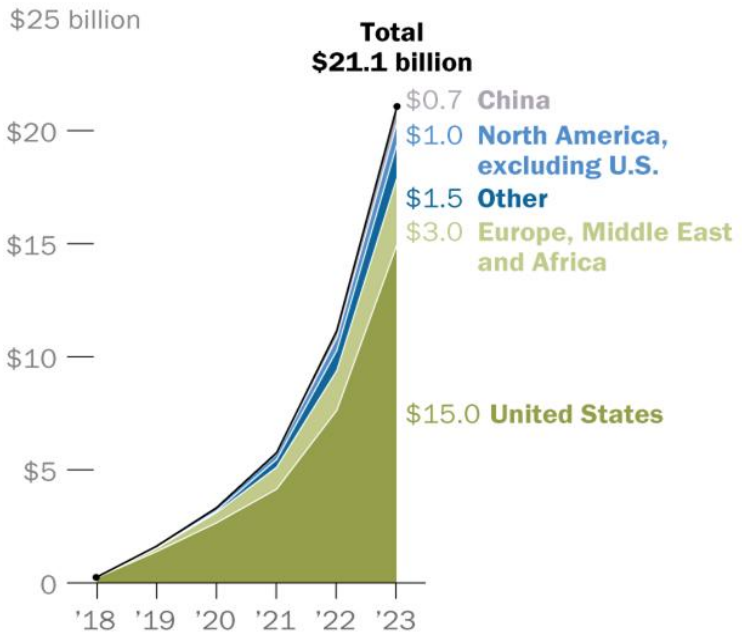
% of U.S. adults ages 20 and older whose BMI classifies them as ...



Note: According to the Centers for Disease Control and Prevention, "overweight" is defined as a body mass index (BMI) of 25.0 to 29.9 kg/m^2. "Obese" is defined as BMI greater than or equal to 30 kg/m^2. Figures are age-adjusted.
Source: "Prevalence of Overweight, Obesity and Severe Obesity Among Adults Aged 20 and Over," National Center for Health Statistics (revised Jan. 29, 2021).

Weight-loss drug sales reach 5-year high

Combined annual sales for Ozempic, Rybelsus and Wegovy, in billions of U.S. dollars



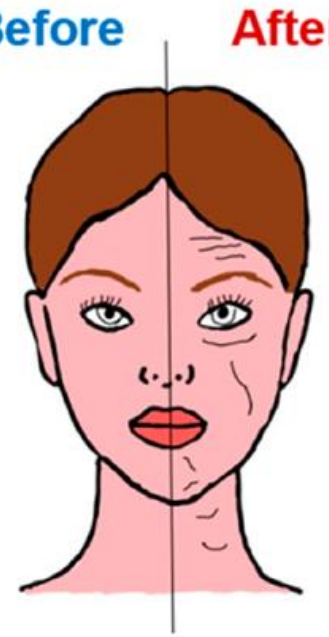
Note: Figures converted from Danish kroner to U.S. dollars, at rate of 1 krone = $0.145.
Source: Novo Nordisk annual reports, accessed through U.S. Securities and Exchange Commission's EDGAR database.

Adverse Effects of GLP1

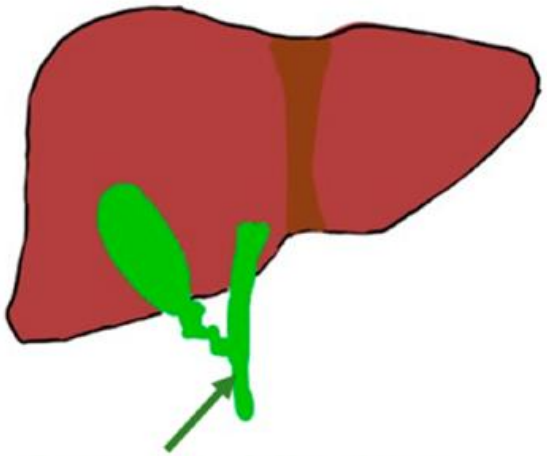
Gastrointestinal:

- diarrhea
- vomiting
- nausea
- constipation
- pancreatitis

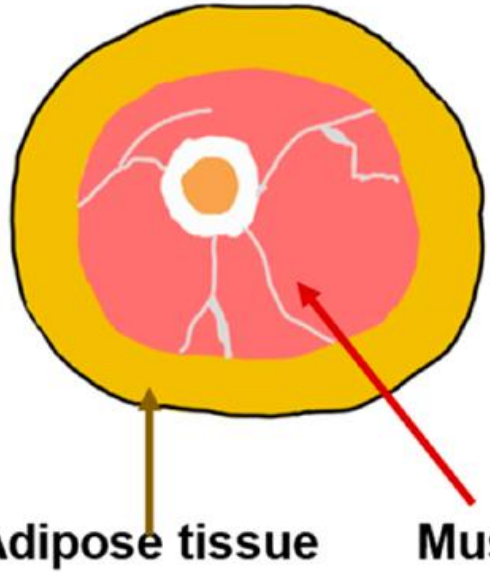
"Ozempic" face



Biliary Disease



Sarcopenia



Alopecia

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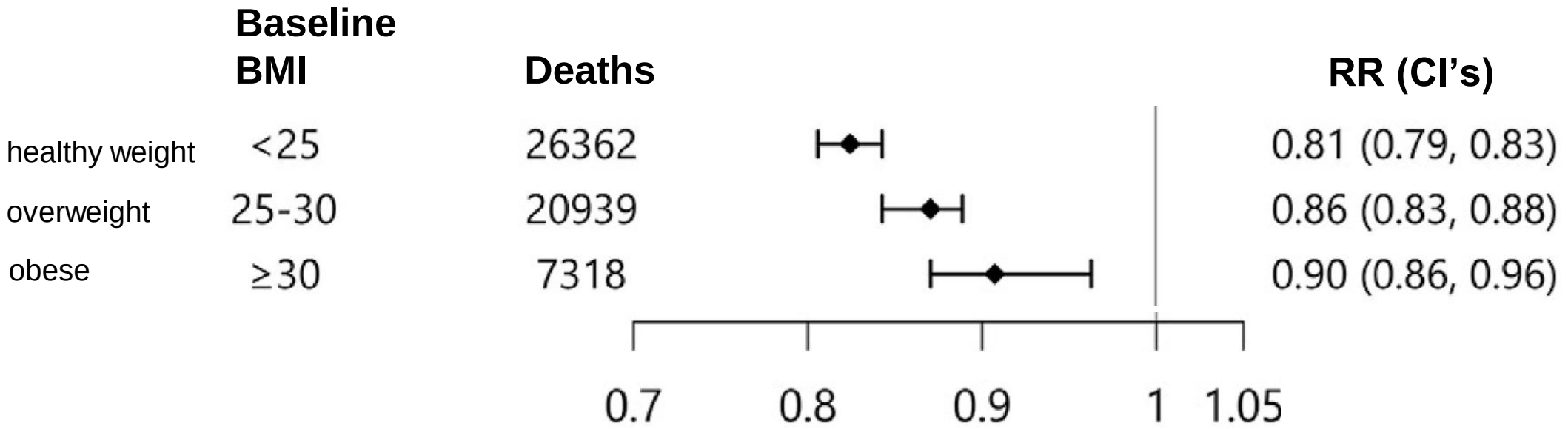
Reiss, A. B., Gulkarov, S., Lau, R., Klek, S. P., Srivastava, A., Renna, H. A., & De Leon, J. (2025). Weight Reduction with GLP-1 Agonists and Paths for Discontinuation While Maintaining Weight Loss. *Biomolecules*, *15*(3), 408. https://doi.org/10.3390/biom15030408

Nurses Health Study: Relative Risk of Death for 20-point Increment in Planetary Health Diet Score

(206,000 Men and Women, 54,000 Deaths)



29,855

Bui L et al., Am J Clin Nutr 2024

Healthy Eating Index – Failing Grade

[a] HEI total scores are out of 100 possible points. A score of 100 indicates that recommended intakes from food groups were met and limits for refined grains, sodium, added sugars, and saturated fat were not exceeded. A higher total score indicates a higher-quality diet.

Adherence of the U.S. Population to the Dietary Guidelines Across Life Stages, as Measured by Average Total Healthy Eating Index-2015 Scores, from the 2020-2025 Dietary Guidelines for Americans.

Healthy Eating Index – Food Component Breakdown

Average Healthy Eating Index-2020 Scores for the U.S. Population - Total Ages 2 and Older and by Age Groups, WWEIA, NHANES 2017-2018a

Components	Maximum Points	Ages 2+Years	Ages 2-18 Years	Ages 19-59 Years	Ages 60+ Years
		Mean Score			
Total HEI-2020 Score	100	58	54	57	61
Adequacy					
Total Fruits	5	2.8	3.7	2.4	3.1
Whole Fruits	5	4.2	4.9	3.6	4.7
Total Vegetables	5	3.2	2.2	3.4	3.7
Greens and Beans	5	2.9	1.6	3.4	3.1
Whole Grains	10	2.7	3.0	2.3	3.3
Dairy	10	5.6	7.4	5.2	5.1
Total Protein Foods	5	5.0	4.7	5.0	5.0
Seafood and Plant Protein	5	5.0	3.1	5.0	5.0
Fatty Acids	10	4.2	3.2	4.4	4.5
Moderation					
Refined Grains	10	6.1	4.6	6.2	7.3
Sodium	10	4.2	5.1	3.9	4.2
Added Sugars	10	6.7	6.2	6.7	7.2
Saturated Fats	10	4.9	4.7	5.2	4.6

a Calculated using the population ratio method.

UNDER CONSUMPTION

OVER CONSUMPTION

Due to rounding, HEI component scores in each age group may not add up precisely to the total HEI score.

U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion. 2023. Average Healthy Eating Index-2020 Scores for the U.S. Population - Total Ages 2 and Older and by Age Groups, WWEIA, NHANES 2017-2018

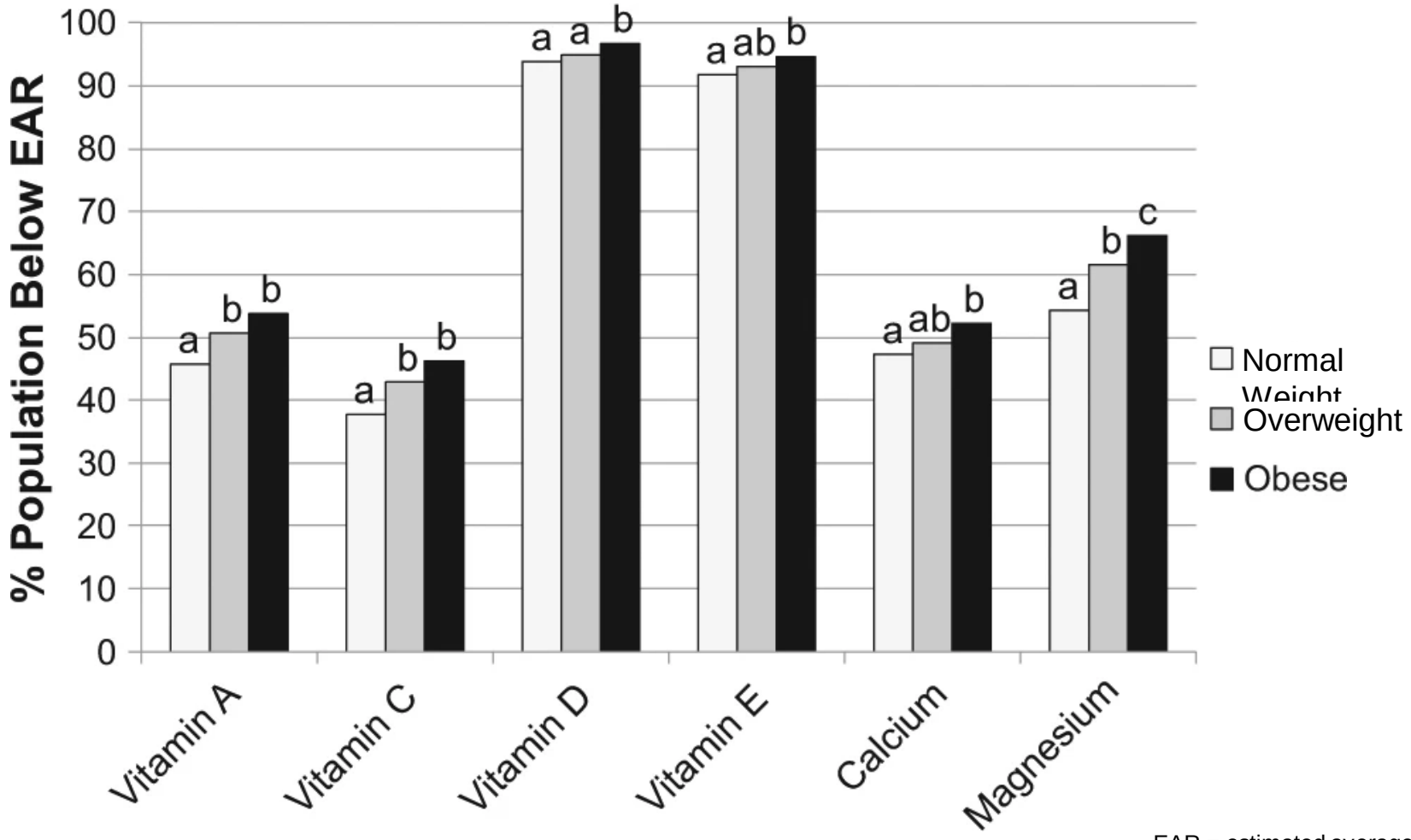
Main-Stream Food Environment

Hyper-palatable Ultra Processed Foods brought to us by Big Tobacco Marketing and Media Make Knowing What to Eat Complicated

https://pubmed.ncbi.nlm.nih.gov/37682074/

The American Food Paradox

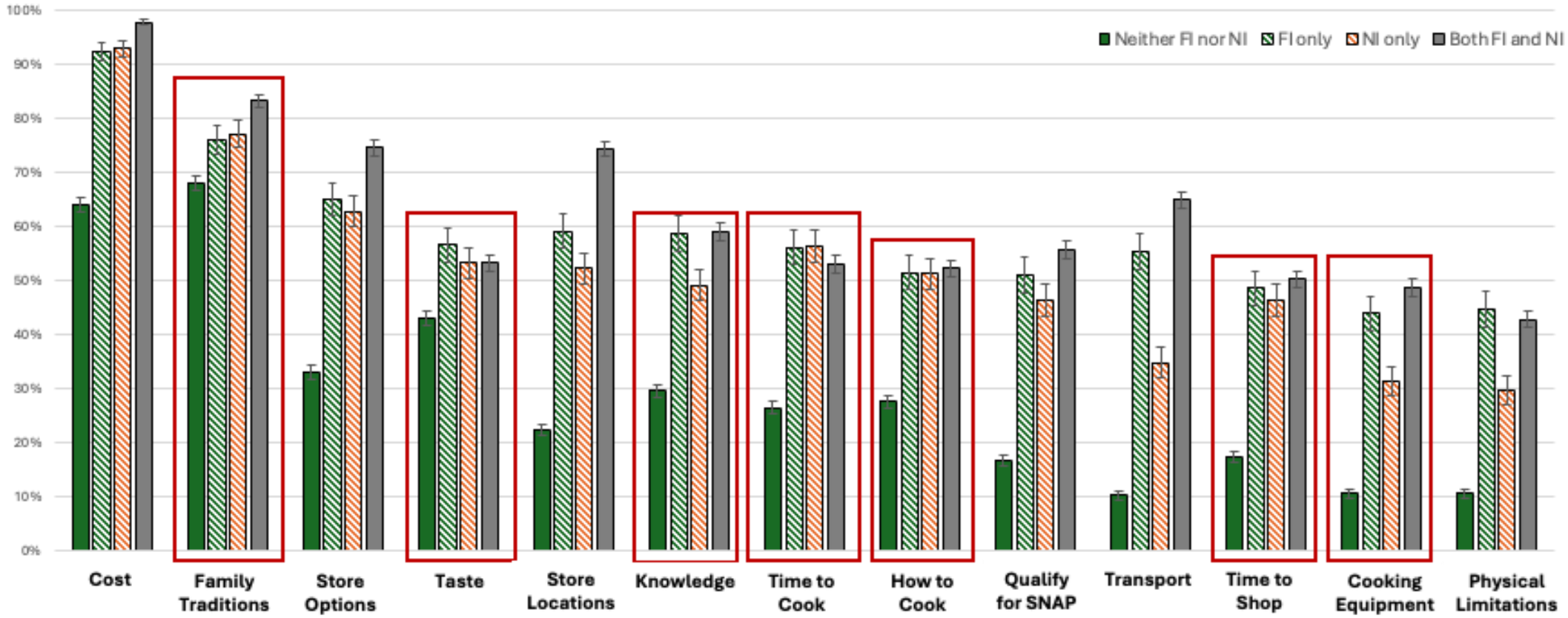
Overfed & Undernourished



EAR = estimated average requirement

Astrup A, Bügel S. Int J Obes (Lond). 2019 Feb;43(2):219-232.

Barriers to Healthy Eating: National Survey



"I don't have time to cook"

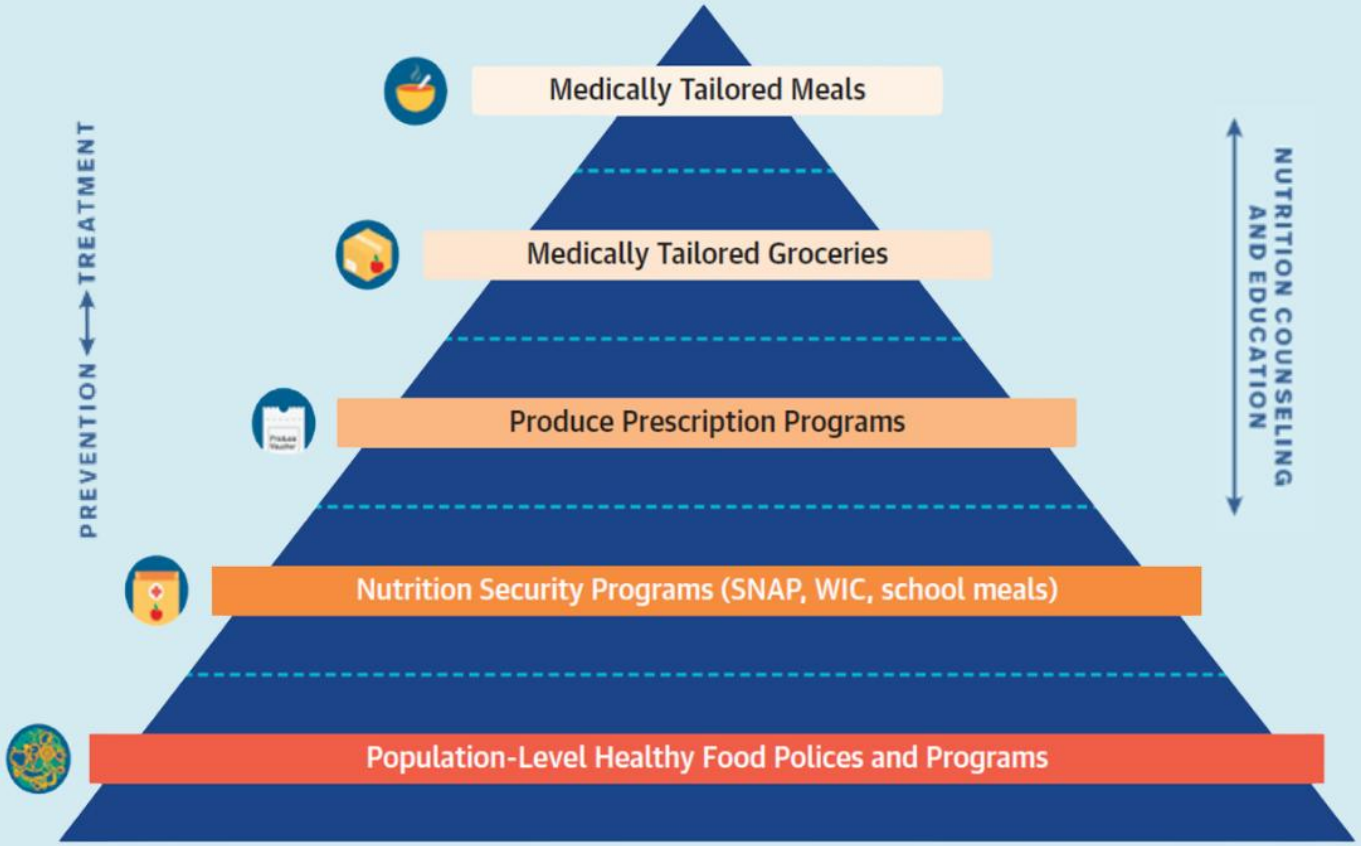
"I don't know how to cook healthy foods"

Craig et al. AJCM. 2025

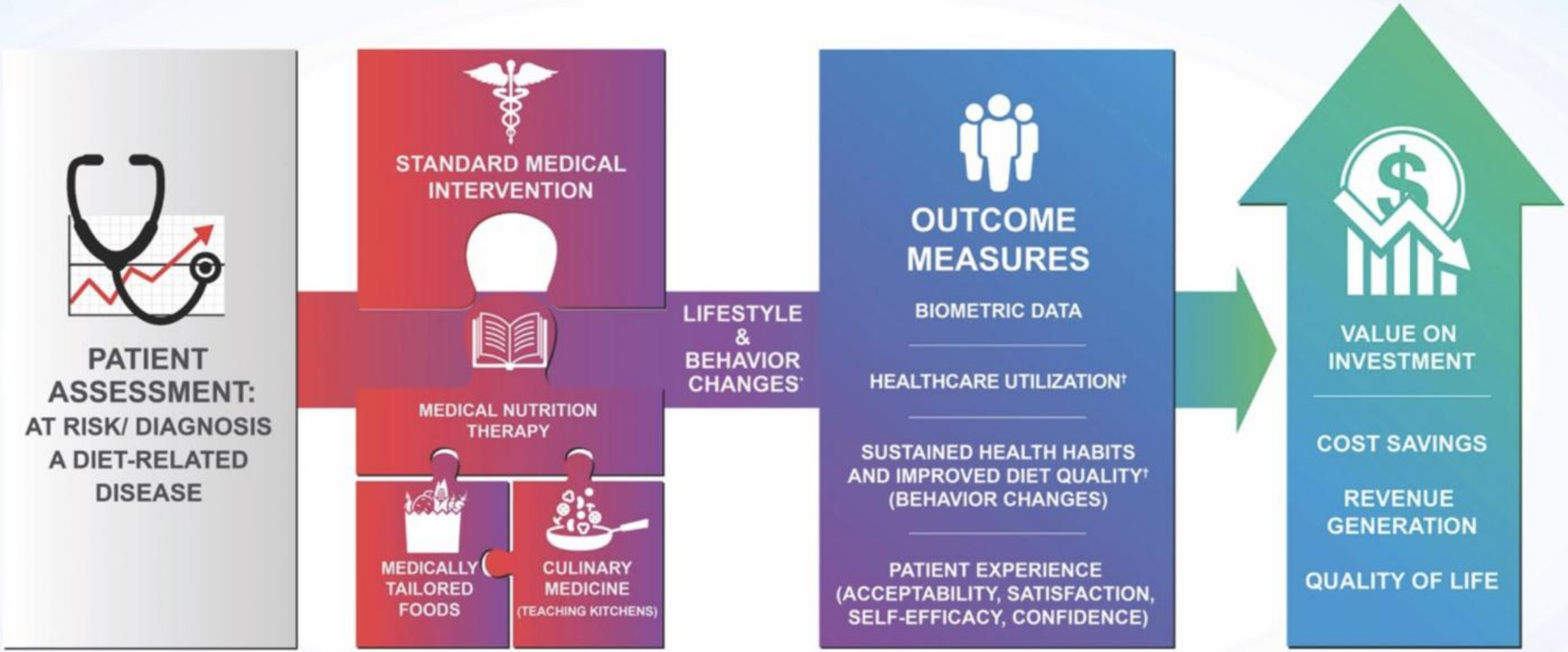
Where we live, learn, work and play impacts choices and influences habits

Social Determinants of Health

Food As Medicine Programs



FRAMEWORK FOR FOOD IS MEDICINE INTERVENTIONS



Fredericks, L., ..J., Massa, J. Will a Programmatic Framework Integrating Food Is Medicine Achieve Value on Investment?. *J GEN INTERN MED* (2024).

Food is Medicine (FIM)

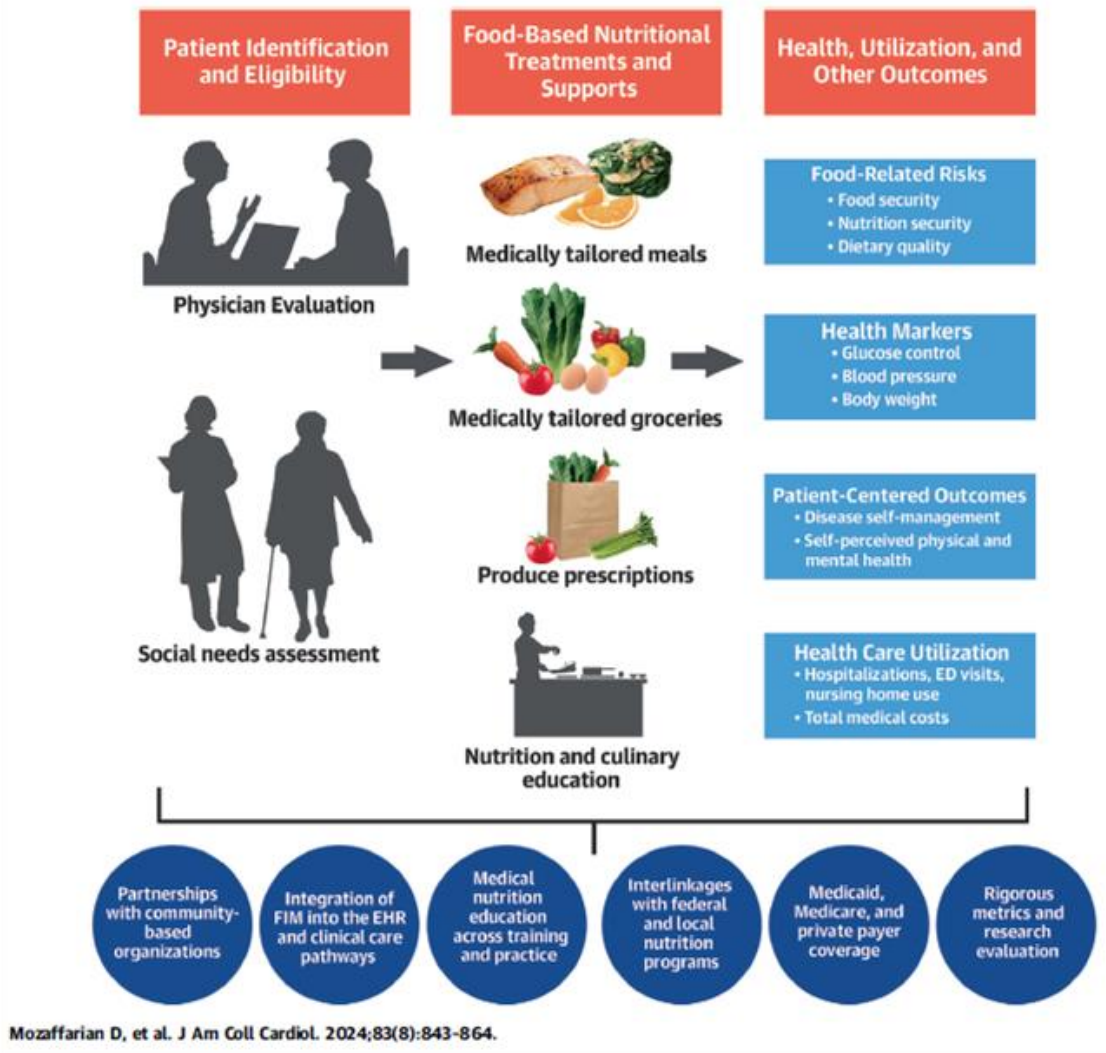
A FIM Approach to Health Care

Process

1. Screening/Evaluation
2. Food-based Treatments and Supports
3. Health, Utilization, and Other Outcomes

Supportive Infrastructure

1. Integration into EHR/clinical pathways
2. Medical nutrition education
3. Community/clinical partnerships
4. Supportive policies (e.g., insurance coverage)
5. Evaluation/research



Mozaffarian D, et al. J Am Coll Cardiol. 2024;83(8):843-864.

FIM: Medically Tailored Meals (MTM)

- Fully prepared meals, tailored to dietary medical needs of the recipient by an RDN
- Typically 10 meals/week, delivered to the home
- Generally combined with nutrition education
- Variable duration (e.g., 3-6 months with possibility of renewal)

Eligibility:

- People with **severe complex chronic conditions** that limit activities of daily living and cannot leave their home (mobility/immunocompromised) and other **high-risk conditions**
  - e.g., End-Stage Renal Disease, Cancer, HIV/AIDS, Chronic Kidney Disease, Diabetes, Heart Disease, High Risk Pregnancy

Impact:

- Meta-analysis of 5 studies:
  - Average implementation **cost $9.30/meal**
  - **19.7% lower annual health care expenditures**
  - **47% fewer annual hospitalizations**

Downer S, Berkowitz SA, Harlan TS, Olstad DL, Mozaffarian D. BMJ. 2020;369:m2482.
Hager K et al. JAMA Netw Open. 2022;5:e2236898.

FIM: Medically Tailored Groceries

- Healthy food items that are preselected, often by an RDN or other qualified professional
- Generally combined with nutrition education
- Variable duration (e.g., 3-6 months with possibility of renewal)

Eligibility:

- People with 1 or more major complex diet-related health risks or conditions but able to prepare and cook their own meals

Impact:

- Evidence suggests positive impact on **food security and diet quality**
- Benefits on health outcomes appear **promising**, but larger, longer-term trials are needed
  - Need for research on impact on disparities

Adapted from Downer S, Berkowitz SA, Harlan TS, Olstad DL, Mozaffarian D. Food Is Medicine: actions to integrate food and nutrition into healthcare. BMJ. 2020;369:m2482.

FIM: Produce Prescriptions

- Discounted or free produce
- Benefits often provided by electronic debit cards or vouchers
- Redeemable at grocery stores or farmers markets
  - Funded through GusNIP grants (Farm Bill)
- Generally combined with nutrition education
- Variable duration (e.g., 3-6 months with possibility of renewal)

Nutrition Incentive Hub
CREATED BY GUSNIP NTAE CENTER

Eligibility

- People with at least 1 diet-sensitive health risk or chronic condition who can still shop, prepare, and cook their own meals, pregnant and early life (first 1,000 days)
  - (e.g., diabetes, prediabetes, hypertension)

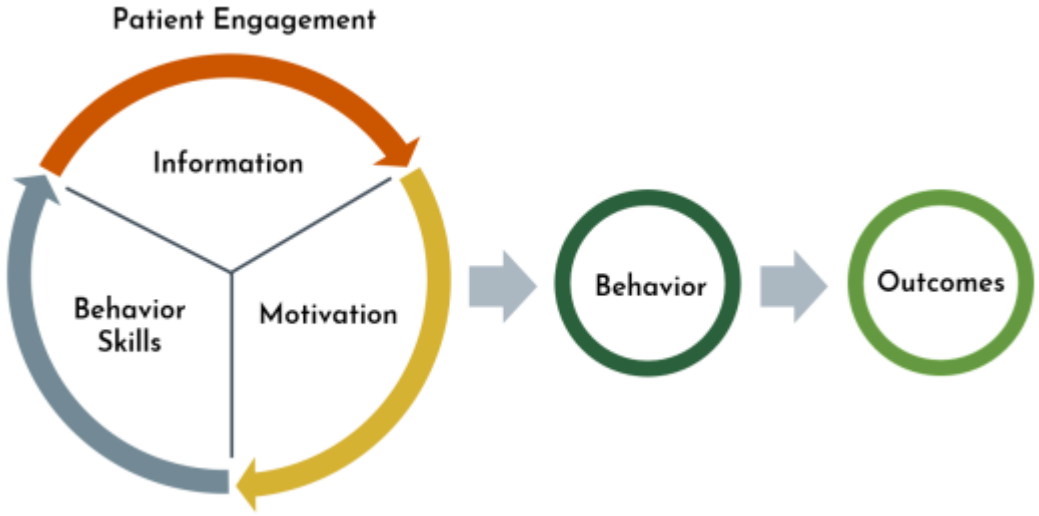
Impact:

- Analysis of 11 PRx interventions (average length 6 mo) found decreases in HbA1c (0.3%), BMI (0.4 kg/m2), and systolic and diastolic blood pressure (8 mm Hg and 5 mm Hg)[2]
- Systematic review 21 PRx studies identified improvements in fruit and vegetable intake
- PRx in more general patients with diet-related conditions may be cost-effective

Adapted from Downer S, Berkowitz SA, Harlan TS, Olstad DL, Mozaffarian D. Food Is Medicine: actions to integrate food and nutrition into healthcare. BMJ. 2020;369:m2482.
Veldheer S, Scartozzi C, Knehans A, et al. A systematic scoping review of how healthcare organizations are facilitating access to fruits and vegetables in their patient populations. J Nutr. 2020;150:2859–2873.
Hager K, Du M, Li Z, et al. Impact of produce prescriptions on diet, food security, and cardiometabolic health outcomes: a multisite evaluation of 9 produce prescription programs in the United States. Circ Cardiovasc Qual Outcomes. 2023;16:e009520.

Making Dietary Changes

- Goal: find a healthy eating pattern that works for you
- Pick starting points that you can see yourself continuing long-term
- A small change that you can keep forever is more beneficial than a big change that doesn't last long
- Change is hard
- Change doesn't always happen overnight
- Includes habit breaking AND habit forming

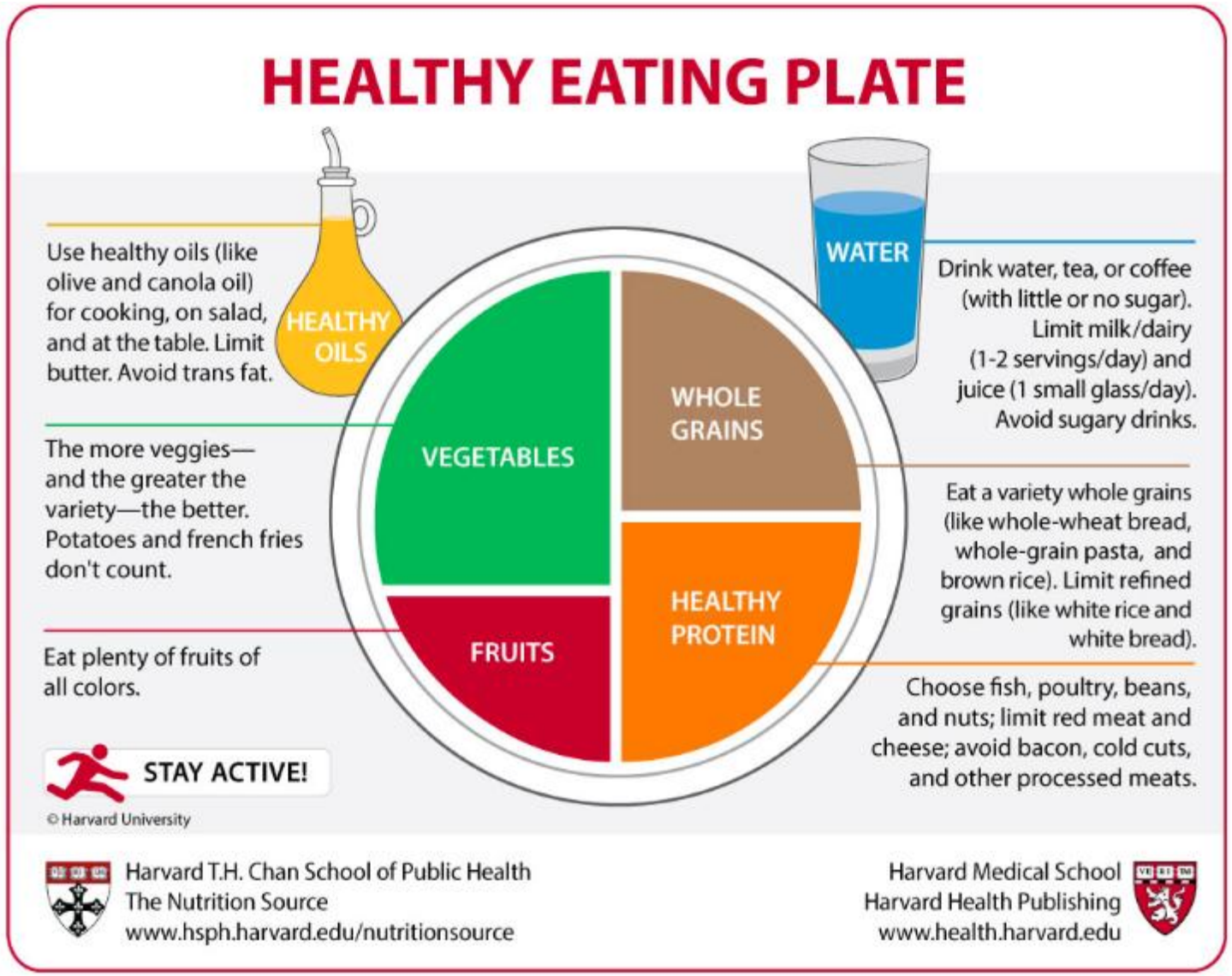


Activity:
What do you eat during a typical day?

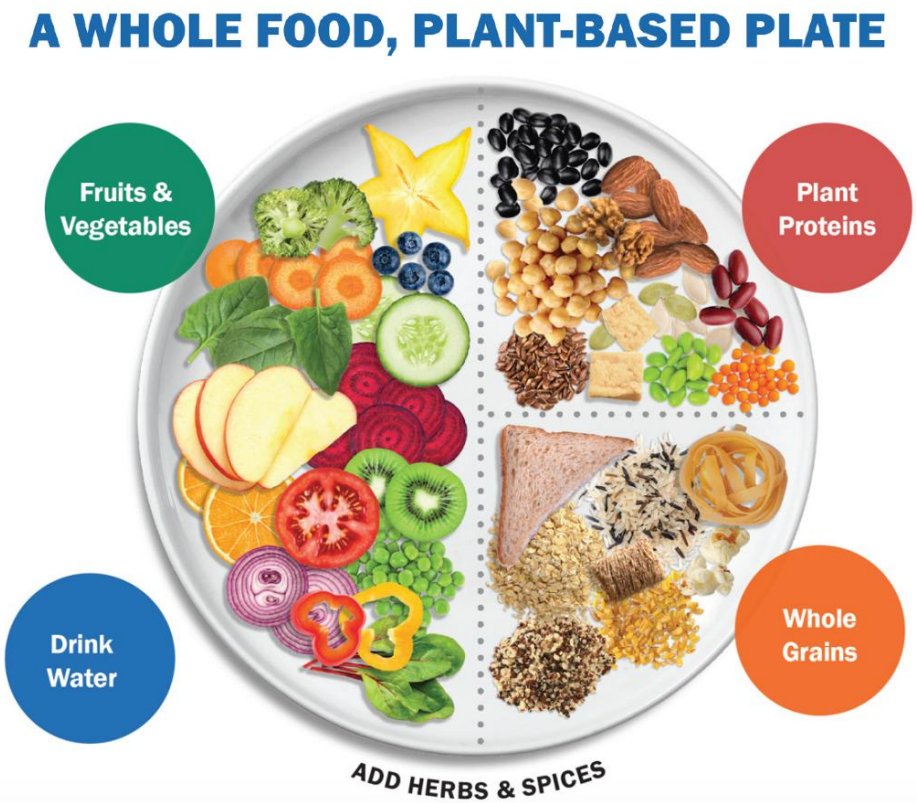
- Flip to end of booklet
- Write down what you eat during a typical day
- Break apart into meals/times
- If a typical day has a this or that feel free to note the options

We will revisit this throughout the week
Feel free to reflect on your own time after class

Nutrition Basics: Healthy Dietary Patterns

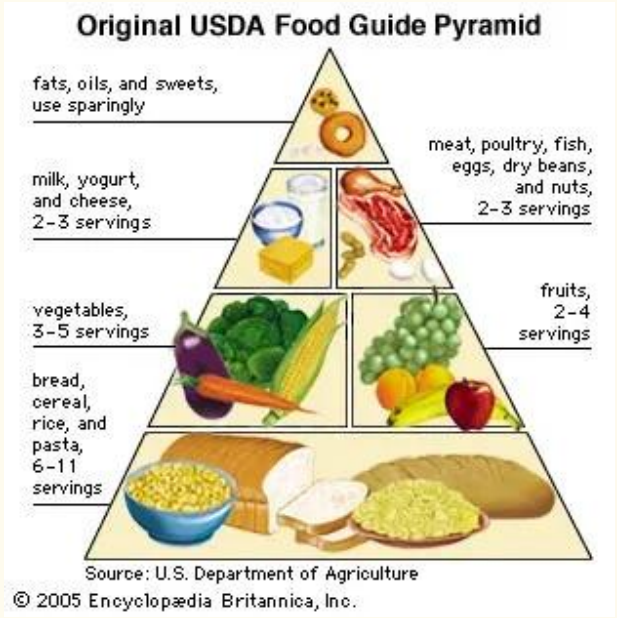


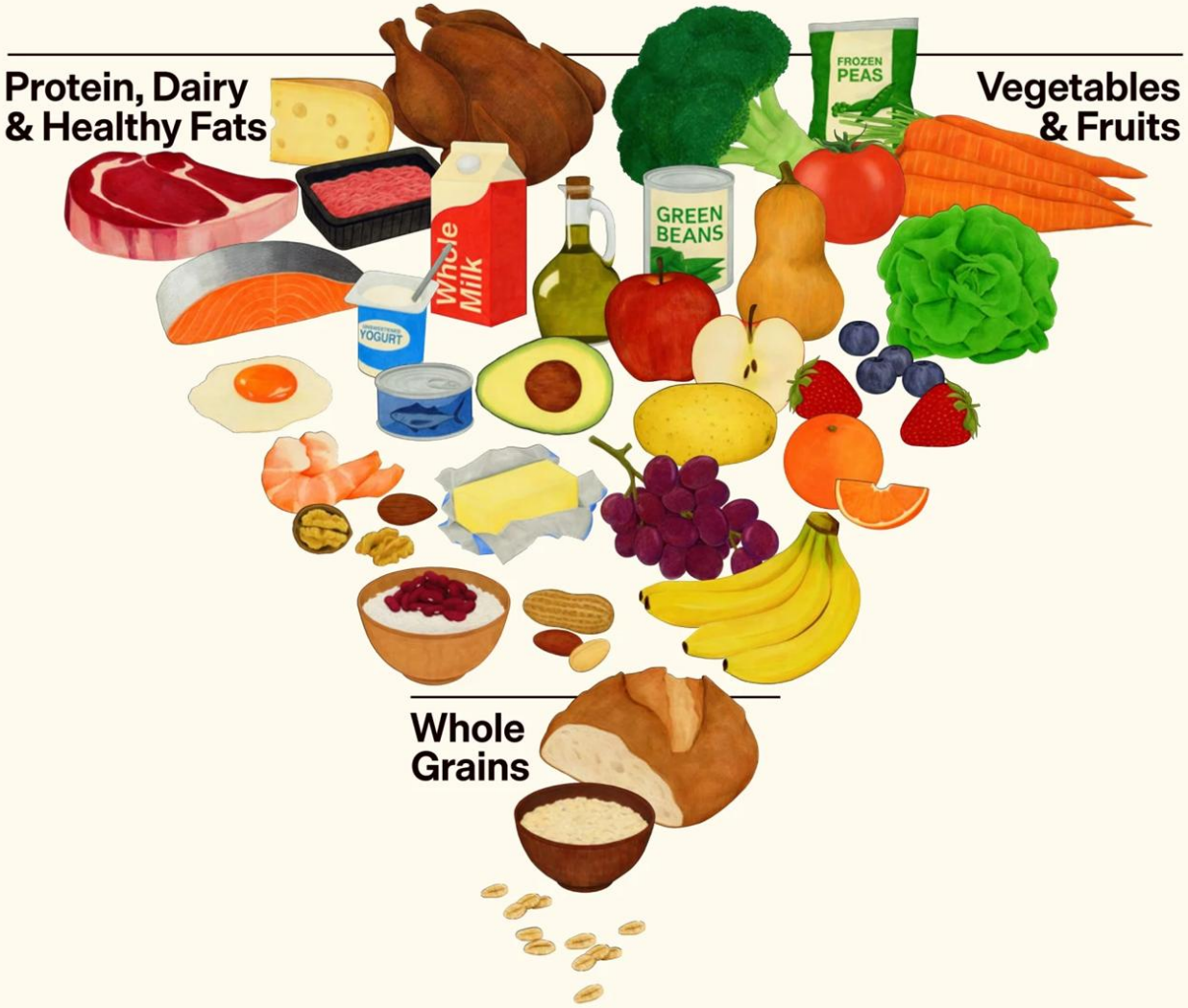
AMERICAN COLLEGE OF Lifestyle Medicine



2026 USDA Food Pyramid

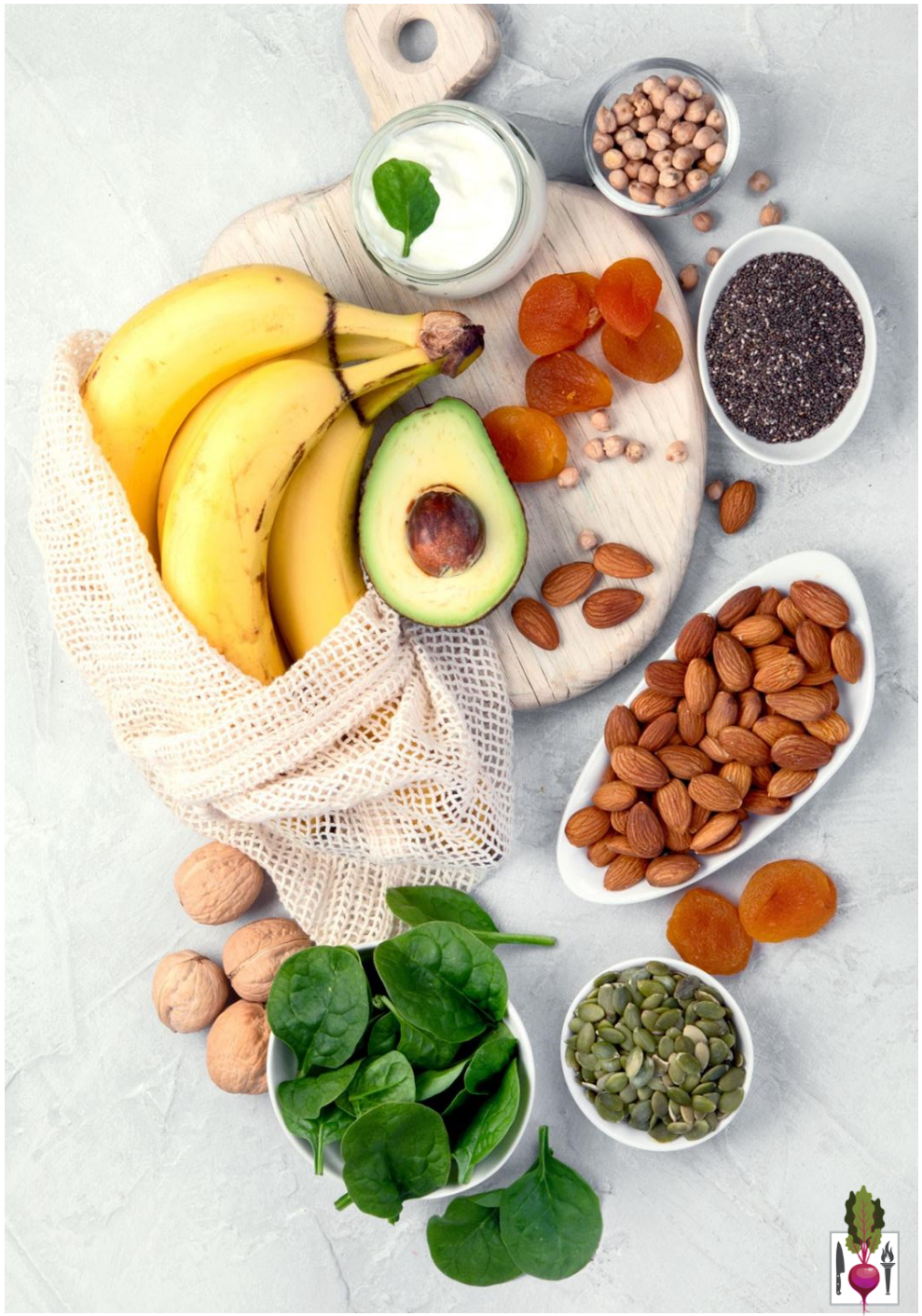
Released January 2026 - https://realfood.gov





Major Nutrient Groups

(overview)



Macronutrients

nutrients that provide calories or energy

“Macro” = large, macronutrients needed in large amounts

1. **Carbohydrates: (Day 2)**
    a. Simple carbohydrates (honey, sugar, refined flour)
    b. complex carbohydrates (starches and dietary fibers)
2. **Proteins:** Amino acids (animal and plant based) **(Day 3)**
3. **Fats:** Lipids **(Day 3)**
    a. saturated
    b. unsaturated
4. **Water:**
    a. Non-caloric but needed in large quantities
    b. Body is 60% water

Micronutrients

- Essential substances needed for proper growth and metabolism
- Consuming a variety of fruits, vegetables and whole grains helps ensure adequate micronutrient intake

1. **Vitamins:**
    a. Fat soluble (A, D, E, & K)
    b. Water soluble (C and B [thiamin, riboflavin, niacin, B6, B12, folate, biotin, pantothenic acid])

2. **Minerals:**
    a. Major minerals (calcium, magnesium, phosphorus, sodium, potassium, chloride, sulfur)
    b. Trace minerals (iron, zinc, selenium, iodine, copper, fluoride, chromium, molybdenum, manganese, cobalt)

Sodium

Essential mineral (electrolyte)

Regulates and maintain the body's fluid balance, nerve and muscle functions

Salt is the most common form of sodium found in our food system:

- Table salt
- Iodized salt
- Kosher salt
- Sea salt and bay salt
- Canning and pickling salts
- Rock salt (ie Himalayan pink salt)
- Salt substitutes

Sodium

+ Sodium and electrolytes are essential for hydration. The general population, ages 14 and above, should consume less than 2,300 mg per day of sodium. Highly active individuals may benefit from increased sodium intake to offset sweat losses.
+ For children, the recommendations vary by age:
  - Ages 1–3: less than 1,200 mg per day
  - Ages 4–8: less than 1,500 mg per day
  - Ages 9–13: less than 1,800 mg per day
+ Highly processed foods that are high in sodium should be avoided.

Hidden Sources of Sodium

FDA estimates around 70% of the sodium in the average American's diet comes from processed foods

Many processed foods use other forms of sodium

Types of Sodium	Role of Sodium
Monosodium Glutamate (MSG)*	Flavor enhancer
Sodium Benzoate	Preservative
Sodium caseinate	Thickener and binder
Sodium citrate	Buffer, used to control acidity in soft drinks
Sodium nitrate	Curing agent in meat
Sodium phosphate	Emulsifier, stabilizer
Sodium propionate	Mold inhibitor
Sodium saccharin	Non-caloric sweetener

Read labels before using processed products, opt for lower-sodium versions whenever available

Phytonutrients

Non-essential substances found in plants (especially herbs, spices and richly colored fruits)

Plant sterols, polyphenols, antioxidants, carotenoids, etc.

- repair cells and promote healthy body

No current dietary recommendation

People who consume higher amounts of these tend to have better health overall

Whole Foods & Balance

- Eating foods in their wholest form provides most benefits
- Whole foods means foods in their natural forms
- Minimally processed (can be cooked; ground, etc.)
- Do not include additives
- Do not include artificial substances
- Home cooking helps to include more whole foods in a person's diet

Diets high in whole, plant foods associated with numerous health benefits:

- Decreases in all-cause mortality
- Weight loss and favorable changes in lipid profile
- Decreased risk, and even reversal, of cardiovascular disease
- Decreased risk of some cancers
- Reduced markers of early stage, biopsy proven, prostate cancer
- Decreased risk of diabetes and improved glycemic control or normalized blood glucose levels for those with diabetes
- Improved migraine symptoms

Ultra Processed Foods

- Undergone extensive processing
- Significantly altered original state
- Reduced nutrient qualities
- Combined with additives
  - Artificial colors and flavors or stabilizers
- Often high in calories, unhealthy fats, and added sugars
- Often low in fiber and nutrients
- Made mostly from substances extracted from foods:
  - Fats, starches, added sugars, and hydrogenated fats

- Examples of these foods are frozen meals, soft drinks, hot dogs and cold cuts, fast food, packaged cookies, cakes, and salty snacks.

Food Processing

Minimally processed	Processed	Ultra-processed
Corn	Canned corn	Corn chips
Apple	Apple juice	Apple pie
Potato	Baked potato	French fries
Carrot	Carrot juice	Carrot cake
Wheat	Flour	Cookies

Consumption of Ultra-Processed Foods:

Results from NutriNet-Santé prospective cohort

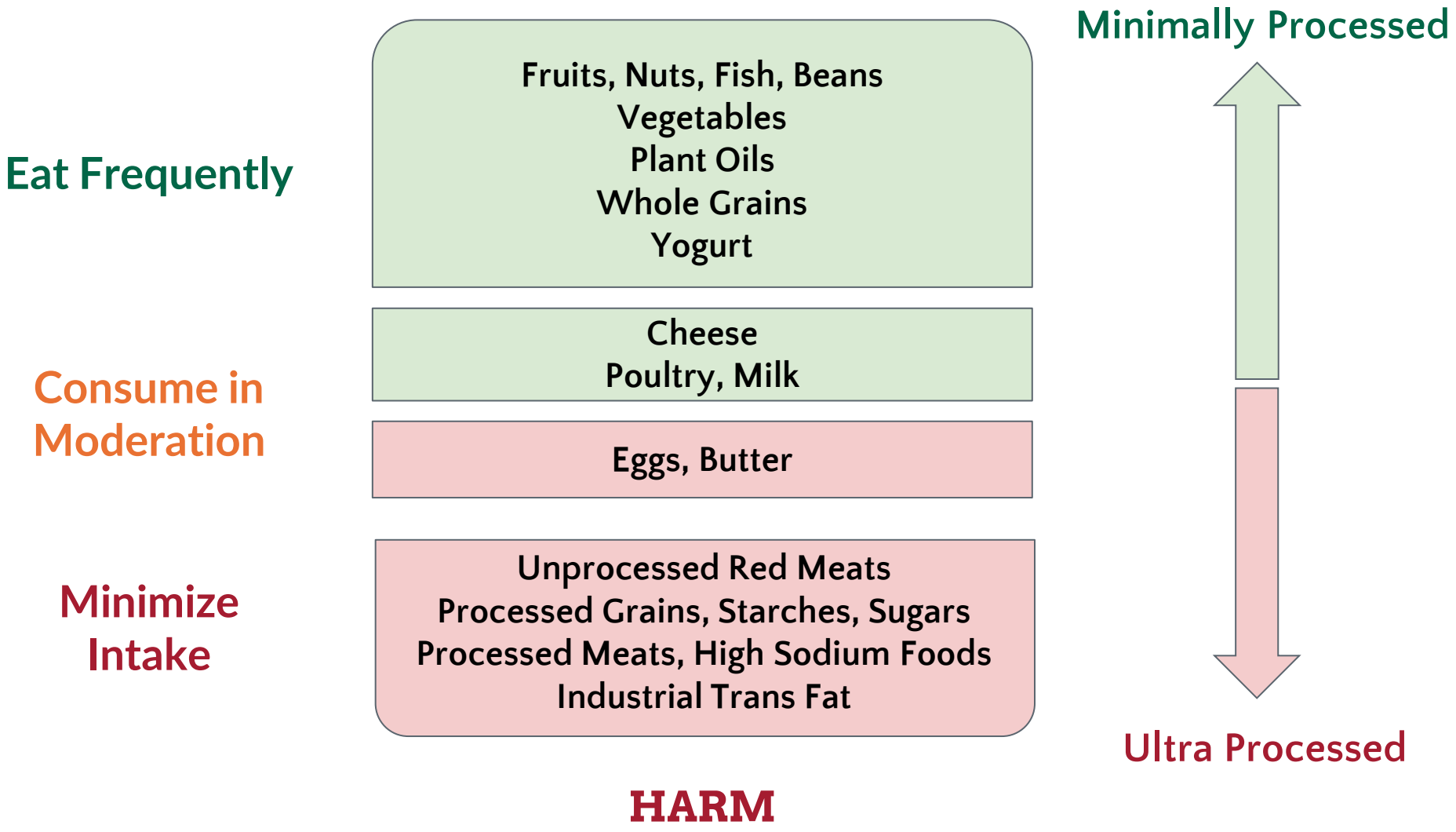
- Observational study, 100,000+ French adults, over a five-year period

Results:

- Those who consumed more ultra-processed foods had higher risks of:
  cardiovascular disease, coronary heart disease, and cerebrovascular disease
- Results remained statistically significant after adjusting for the nutritional quality of the diet
- considering factors like amount saturated fat, sodium, sugar, and dietary fiber

- Observational studies do not prove cause and effect, but the research does suggest an association between ultra-processed diets and heart disease.

BENEFIT



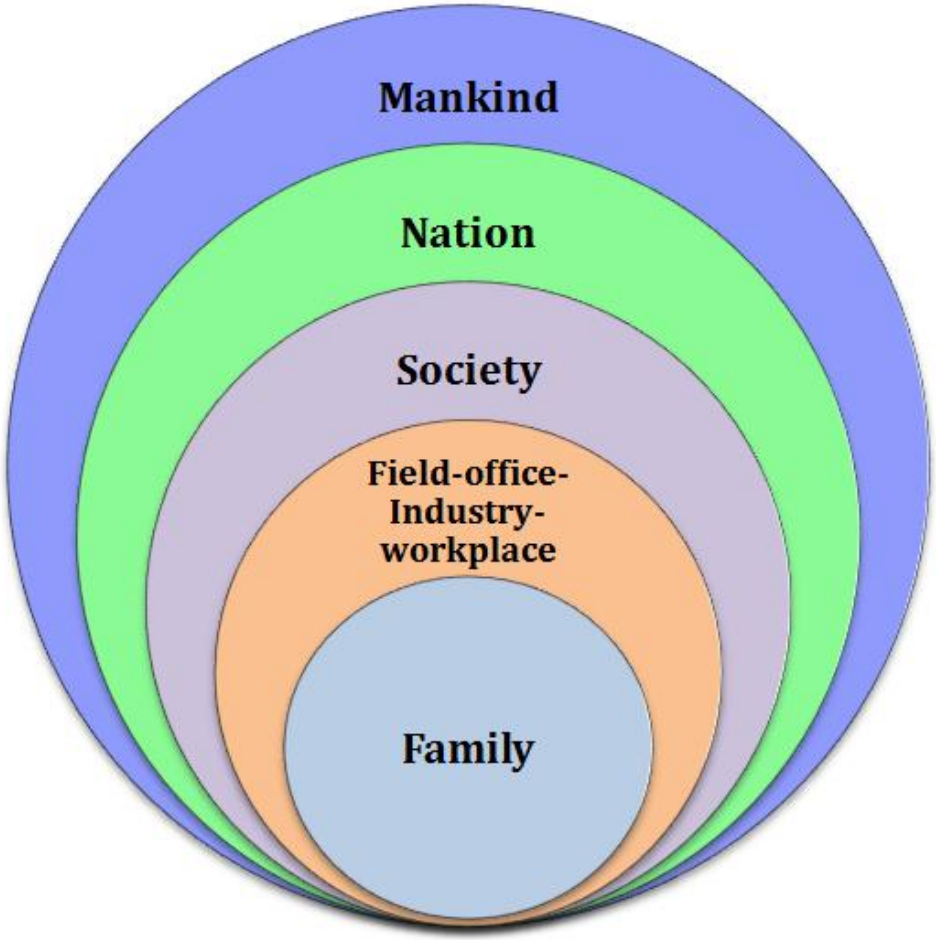
HARM

Mozaffarian D. Implications of the New Recommendation on Behavioral Counseling Interventions to Promote Healthy Eating and Physical Activity. *JAMA.* 2022;328(4):334–335. doi:10.1001/jama.2022.10801

Food Environment

Society influences how we eat

- Friends and family
- Neighborhoods and communities
- Schools
- Workplaces
- Marketing
- Federal and state policies around food and food cost



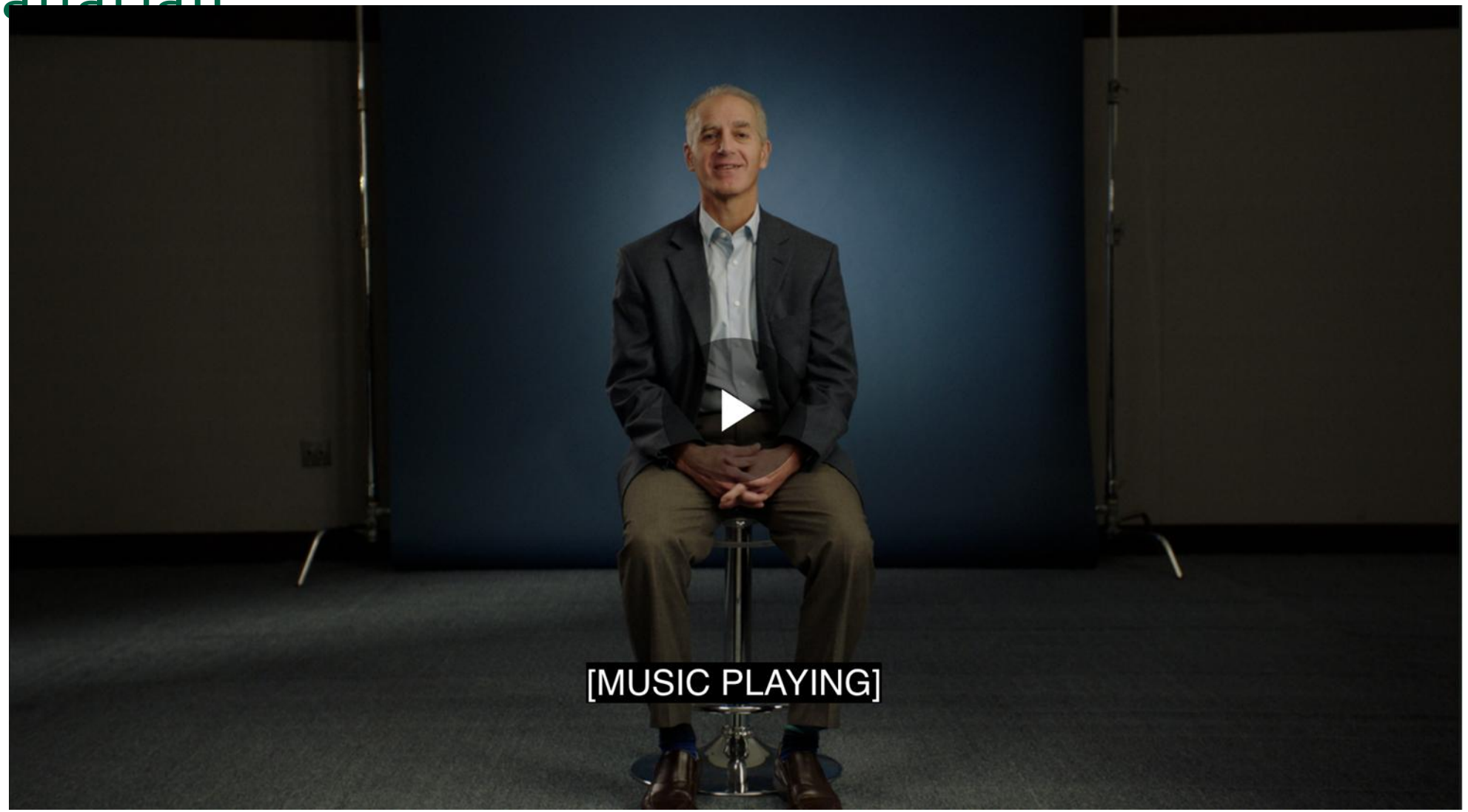
Cooking Trends Overtime

- Pre-COVID – Significant decrease in home cooking
- Pre-COVID - declining cooking skills and confidence
- Decreased fruit, vegetable, whole foods
- Increase in consumption of “foods away from home”
  - Could be from restaurant, on the go, fast food, bars, etc.
- Increase in oils, trans-fats, salt, processed/shelf stable products, preservatives, dyes, etc.

Smith LP, Ng SW, Popkin BM. Nutrition Journal 2013; 12: 45.
Lang T, Caraher M. Journal of the Home Economics Institute of Australia 2001; 8(2): 2-14.
Engler-Stringer R. Canadian Journal of Dietetic Practice and Research 2010; 71(3): 141-5.
McGowan L, Caraher M, Raats M, et al. Critical Reviews in Food Science and Nutrition 2015: 0.

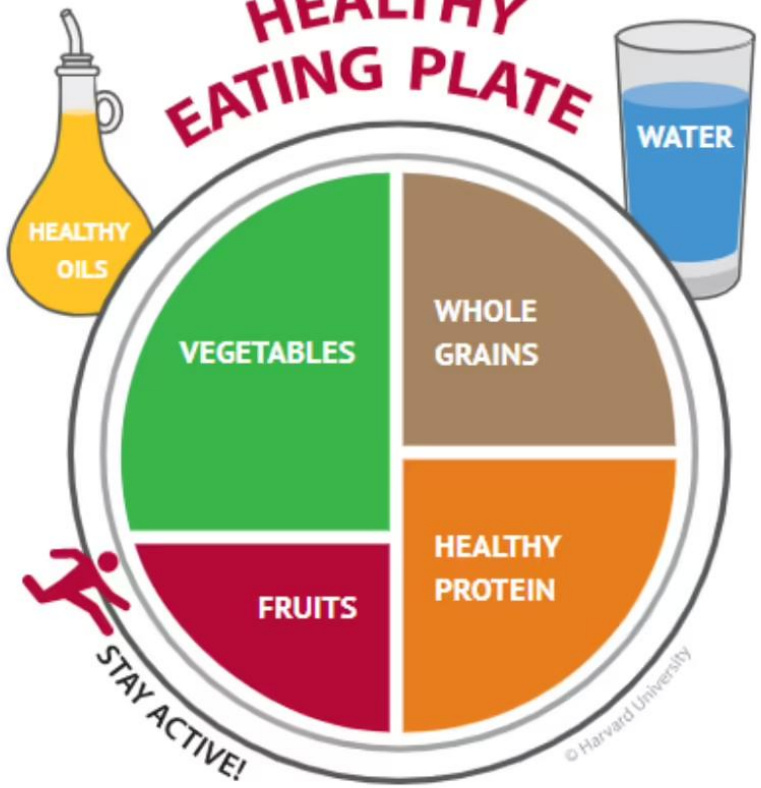
US Food Systems Contribute to UPF Consumption

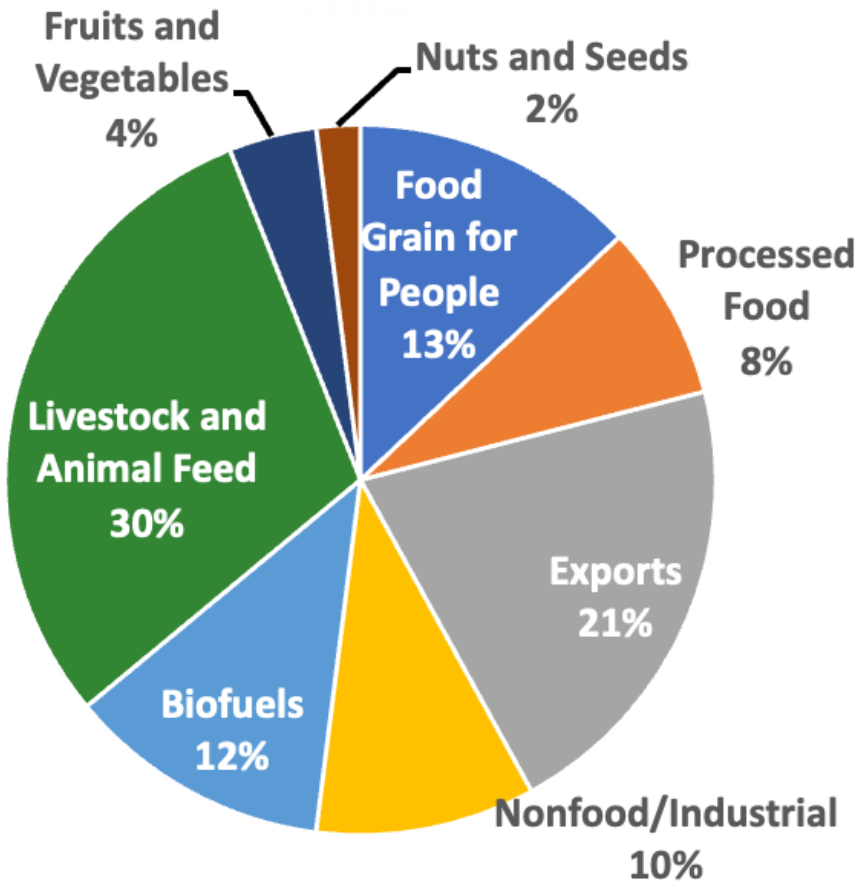
Food Systems: Fixing Food with Dr. Dariush Mozaffarian



https://www.johnhancock.com/ideas-insights/longer-healthier-better-insights/docuseries/the-food-compass.html

Dietary Guidelines Don't Align with Commodity Subsidies





Adapted from: "References: Federal Farm Subsidies." Farm Action. Accessed September 10, 2023. https://farmaction.us/subsidies-sources/.

Food Production and the Farm Bill

https://pubmed.ncbi.nlm.nih.gov/37682074/

Key Components of the Farm Bill

- **Nutrition Assistance:** Funds programs like the Supplemental Nutrition Assistance Program (SNAP), that provide funds for food for low income populations (below 130% poverty line)
- **Commodity Support:** Provides risk management tools and safety nets for agricultural producers, including price support and crop insurance programs.
- **Conservation:** Supports farmers in implementing practices that improve soil health, water quality, and wildlife habitat.
- **Rural Development**: Provides funding for infrastructure, housing, and economic development in rural communities.
- **Research & Extension:** Funds initiatives that support new farming practices, innovations, and the next generation of farmers.

How The US Farm Bill Spends a Dollar

Farm Bill Titles

I. Commodities
II. Conservation
III. Trade
IV. Nutrition
V. Credit
VI. Rural Development
VII. Research
VIII. Forestry
IX. Energy
X. Horticulture
XI. Crop Insurance
XII. Miscellaneous

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Commodity Foods

Frozen ground beef, beef roast, chicken, pork chops, canned meats, poultry, and fish
Canned and frozen fruits & vegetables, beans, soups, and spaghetti sauce
Pastas, cereals, rice, and other grains
Cheese, egg mix, low-fat ultra high temperature milk, nonfat dry milk, and evaporated milk
Flour, cornmeal, bakery mix, and crackers
Dried beans and dehydrated potatoes
Juices and dried fruit
Peanuts and peanut butter

Sourcing Local and Seasonal Foods

- Sourcing local helps farmers in your area and supports local economies
- Food is fresher:
  - Picked riper = more flavor
- Seasonal produce can be found for better prices
- Less environmental impact by eating local and seasonal
- Hospitals and health centers that serve meals can include local produce with their purchases

Summary Points for Healthy Eating Habits

- Make **most of your meal vegetables and fruits: ½ of your plate**
  - Aim for **color and variety**
  - Remember that potatoes don't count as vegetables because of their negative impact on blood sugar
- Go for **whole grains: ¼ of your plate**
- **Protein** power: **¼ of your plate**
  - Fish, poultry, beans, and nuts are all healthy, versatile protein sources
  - **Limit red meat** and **avoid processed meats** such as bacon and sausage
- **Healthy plant oils in moderation**
  - Choose healthy vegetable oils like olive, canola, soy, corn, sunflower, peanut, and avoid partially hydrogenated oils, which contain unhealthy trans fats
  - Remember that low-fat does not mean "healthy."
- **Drink water, coffee, or tea**
  - Skip sugary drinks, limit milk and dairy products 1-2 servings/day, and limit juice to 4oz /day

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Questions?