Culinary Institute of America

Culinary Intensive Workshop Day 3

Culinary Institute of America

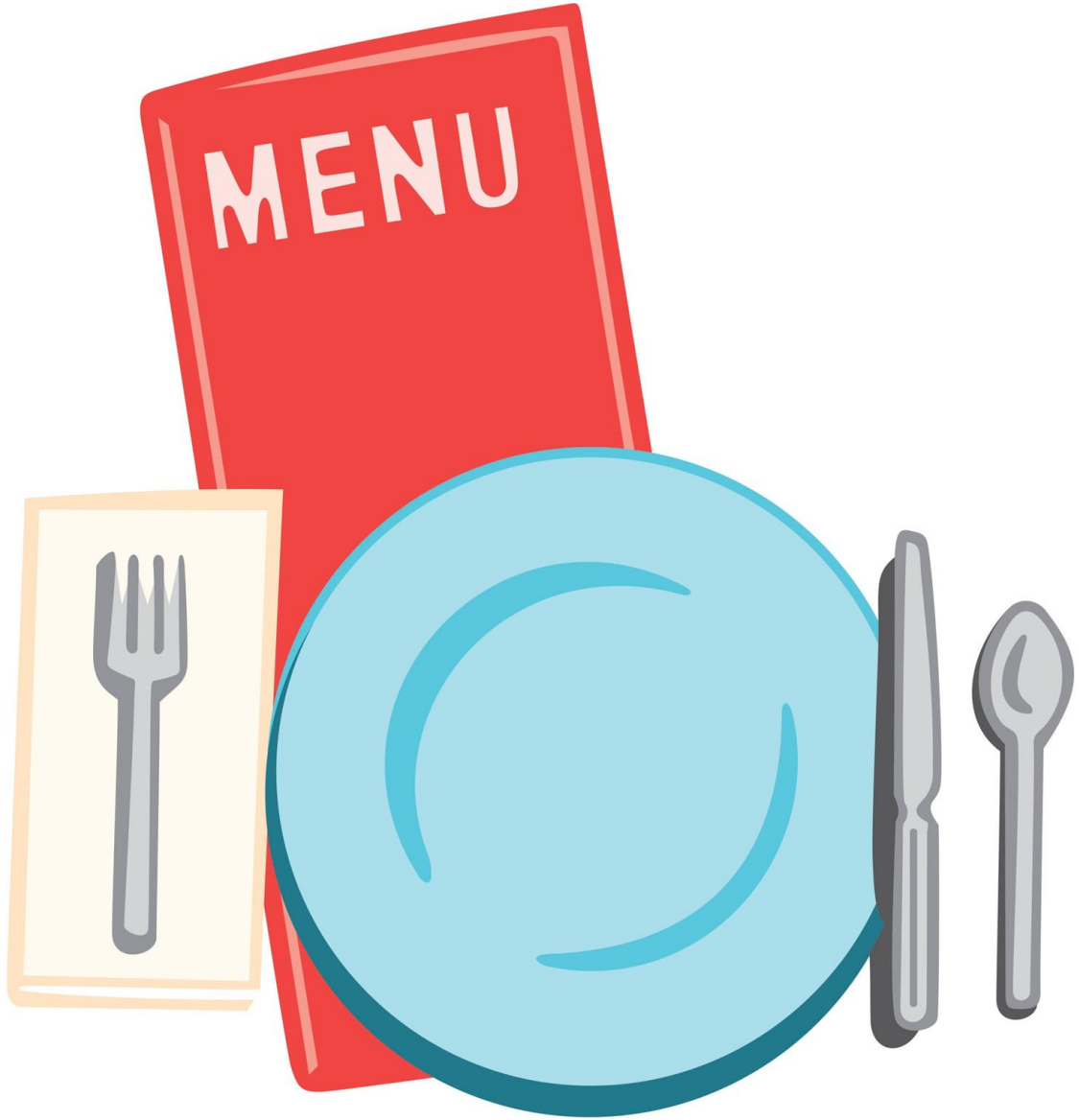
TEACHING KITCHEN COLLABORATIVE

Day 3

Learning from the Global Plant Forward Kitchen, Healthy Proteins and Fats, Fiber-Rich Foods, Nuts, Seeds, Herbs and Spices

Day Overview

9-10	Lecture in PDR
10:15-11	Demo
11-1:30	Production
1:30	Lunch From Production
2-2:15	Re-set kitchen
2:15-2:30	Wrap up



Learning Objectives

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

- Define the difference between herbs and spices.
- Learn fundamental herb and spice blends from around the world.
- Identify herbs commonly used in the kitchen and in the herbal apothecary.
- Learn how herbs and spices can be prepared for more bioavailability of their nutrients.
- Produce recipes utilizing fresh herbs and spices.
- Learn to cook with nuts and seeds.
- Identify the key flavor profiles of The Mediterranean, Latin, African and Asian Diets
- Discuss the principles of the plant-based diet.
- Identify lean sources of protein and fiber-rich foods.
- Learn basic cooking principles for various vegetables.
- Define extra virgin olive oil and know its health benefits.
- Understand how to utilize healthy fats to maximize flavor.
- How to choose heart healthy fats for a variety of dishes

Lecture Overview

Proteins
- Vegetarian diets

Environmental Impacts of Foods
- Planetary health diet
- Sustainable Agriculture

Fats
- Saturated & Unsaturated
- Omega 3
- Fish
- Coconuts
- Avocados
- Seed oils

Nuts & Seeds

Motivational Share Out

What drove you to sign up for this class?

What caused your interest in cooking and nutrition?

Proteins

New Guidelines

"Eat More Protein"

Prioritize Protein Foods at Every Meal

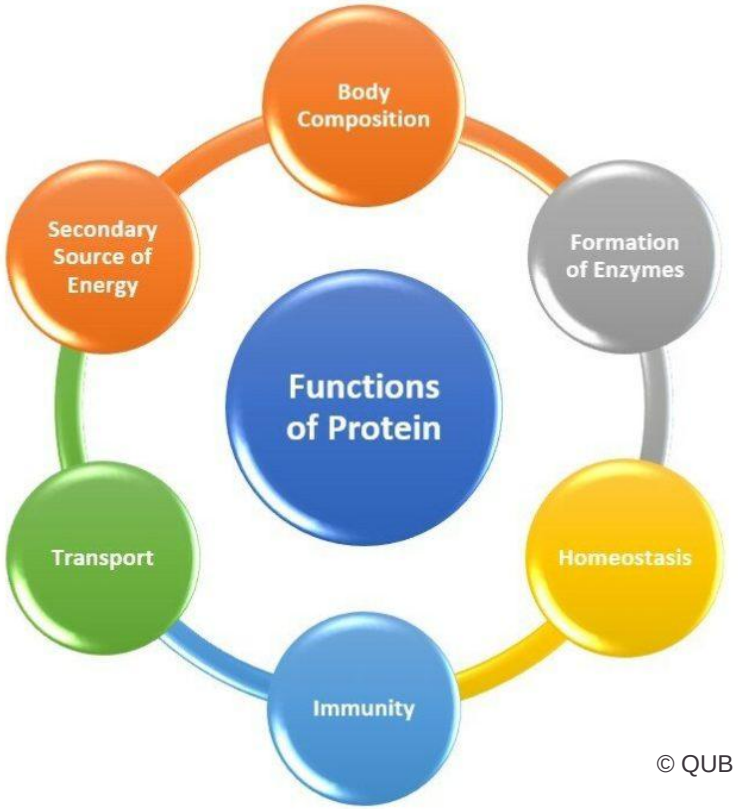
- Prioritize high-quality, nutrient-dense protein foods as part of a healthy dietary pattern.
- Consume a variety of protein foods from animal sources, including eggs, poultry, seafood, and red meat, as well as a variety of plant-sourced protein foods, including beans, peas, lentils, legumes, nuts, seeds, and soy.
- Swap deep-fried cooking methods with baked, broiled, roasted, stir-fried, or grilled cooking methods.
- Consume meat with no or limited added sugars, refined carbohydrates or starches, or chemical additives. If preferred, flavor with salt, spices, and herbs.
- Protein serving goals: 1.2–1.6 grams of protein per kilogram of body weight per day, adjusting as needed based on your individual caloric requirements.

The Functions of Protein

- Essential nutrient:
  - Growth and maintenance of body tissues
  - Hormones, enzymes, and antibody production
  - Regulation of bodily fluids
  - Helps with satiety

- Created from amino acids
  - 20 different types of amino acids, 9 essential

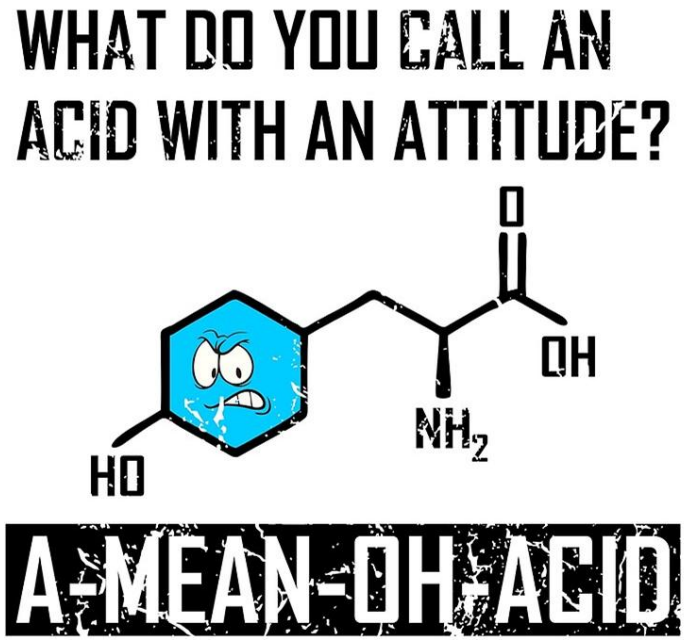
- Plant sources of protein can meet nutritional needs
- Average US adult meets protein requirements



Essential Amino Acids

Need to come from diet - cannot be formed within the body:

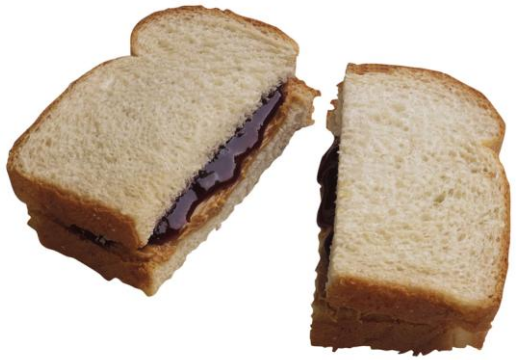
- Histidine
- Isoleucine
- Leucine
- Lysine
- Methionine
- Phenylalanine
- Threonine
- Tryptophan
- Valine



Complete & Complementary Proteins

Complete proteins are those that alone **provide all essential amino acids**

- Includes: meat, fish, poultry, cheese, eggs, milk, quinoa and isolated soy protein



Complementary proteins are those that **when combined** provide all essential amino aci

- Examples: rice + beans, peanut butter + whole grain bread,

Recommendations suggest it is better to consume a complete set of proteins at each meal

- This makes it easier for a person to ensure they get adequate amounts for the whole day
- Not actually essential for meeting daily needs

Protein and Health

- Choosing healthy protein sources can lower the risk of
  - cardiovascular disease
  - diabetes
  - cancer
  - premature death
- Protein plays a crucial role in building and maintaining vital organs and tissue (muscle, bone, skin, hair, other cells)
- Helps with satiety (feeling full)
- About ¼ of energy should come from protein
  - 60-100 grams protein per day is appropriate for most adults

http://www.hsph.harvard.edu/nutritionsource/what-should-you-eat/fats-and-cholesterol/

Know your protein “package”

It’s not just the protein, but what comes with it (fats, fiber, sodium, additives)

- 4-oz broiled sirloin steak: 33 grams protein and5 grams saturated fat.
- 4-oz ham steak: 22 grams protein, 1.6 grams saturated fat and 1,500 mg sodium
- 4 oz grilled sockeye salmon: 30 grams of protein, naturally low in sodium,
  + contains just over 1 gram saturated fat.
  Excellent source of omega-3 fats, very good for the heart
- 1 cup cooked lentils: 18 grams of protein and 15 grams of fiber,
  + virtually no saturated fat or sodium

Best choices: Fish and plant-based options (less saturated fat, more fiber)

https://www.hsph.harvard.edu/nutritionsource/what-should-you-eat/protein/

Best Protein Choices?

- Protein comes from:
  - Plants (vegetables, whole grains, legumes), meats, eggs, fish, nuts, seeds & dairy products
- Aim for more plant-based protein sources – for health, budget, planet

- Fish twice a week
- Choose lean poultry, fermented dairy and eggs in place of red or processed meat

- Think about your protein package
  - what comes with your protein: types fat, salt, fiber, processing and preservatives

http://www.hsph.harvard.edu/nutritionsource/what-should-you-eat/fats-and-cholesterol/

Why are plant proteins healthy?

- Plant proteins lack saturated fat, which increases risk of heart disease

- Research shows health benefits of a plant-based diet (low or no meat or animal products)

- Plants have fiber!

- Tofu and tempeh / edamame
- Legumes (beans, peas, soy)
- Nuts
- Seeds
- Whole grains

Healthy Protein Choices

Plant protein = Best Choices

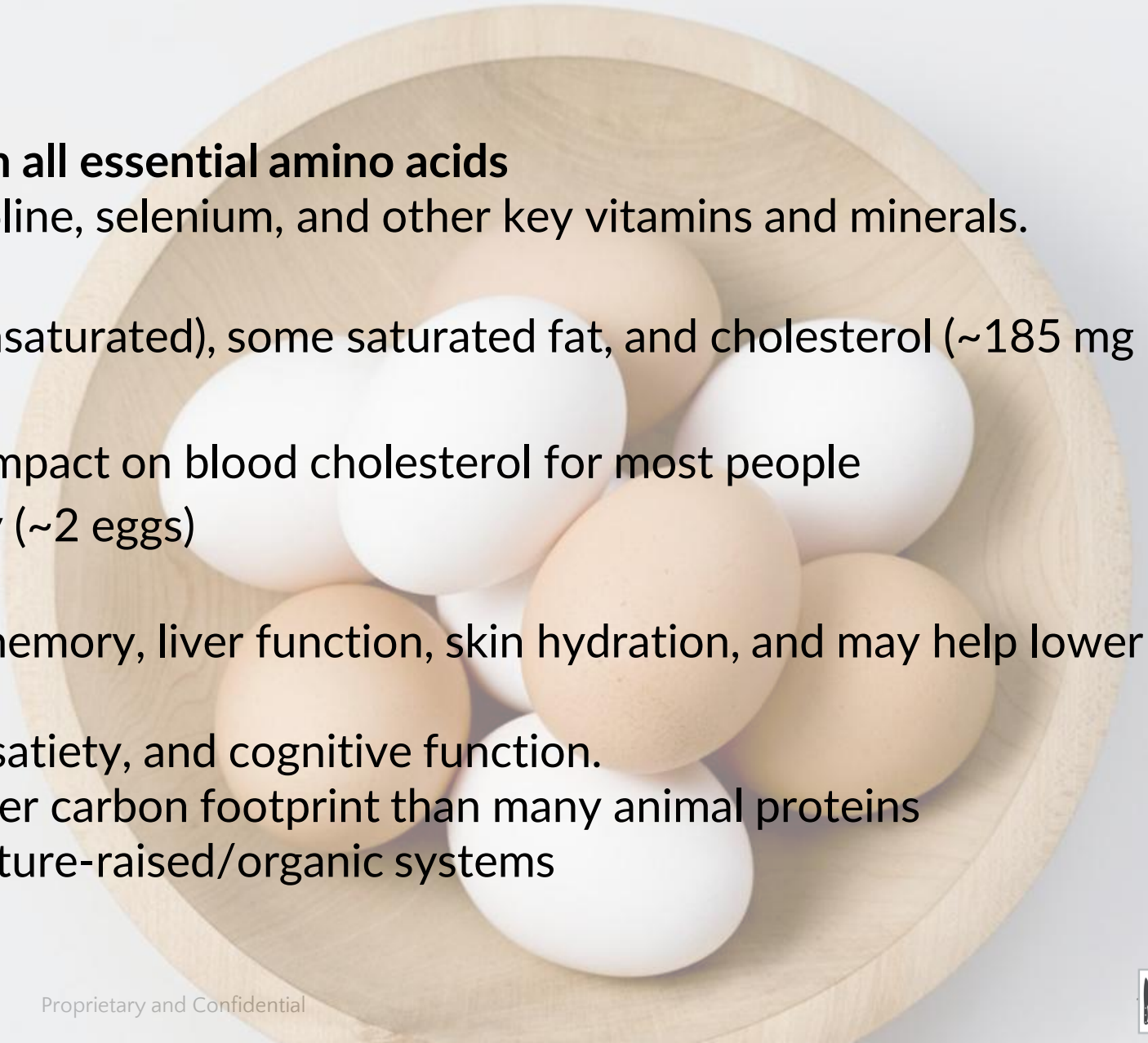
- Tofu and tempeh / edamame
- Legumes (beans, peas, soy, etc)
- Nuts
- Seeds
- Whole grains

Better animal proteins

- Fish (2 servings per week)
- Poultry (without skin)
- Dairy (especially fermented)
- Eggs
- Lean, low-sodium meat

Limit: Higher-fat cuts of meat, processed meat

Eggs



- **Nutrient-Dense Protein Source with all essential amino acids**
- Notable sources of vitamin B12, choline, selenium, and other key vitamins and minerals.
- Egg whites = pure protein, no fat
- Yolks = healthy fats (mostly monounsaturated), some saturated fat, and cholesterol (~185 mg per large egg)
  - Dietary cholesterol has limited impact on blood cholesterol for most people
  - AHA recommends <300 mg/day (~2 eggs)
- Provide omega-9 and omega-6 fats;
  - Lecithin supports brain health, memory, liver function, skin hydration, and may help lower LDL cholesterol.
- **C**ontribute to muscle maintenance, satiety, and cognitive function.
- **Environmental Considerations:** Lower carbon footprint than many animal proteins
  - Sustainability improves with pasture-raised/organic systems

Making better meat choices

People don't need to eat meat –
IF you choose to eat meat:

- Choose leaner cuts
- Remove visible fats
- Limit red meat
- Avoid processed meat
  - Deli meat, sausage, salami, jerky, bacon
- Consume 4 ounces or less along with healthy food groups
- Use meat as a condiment, for flavor

http://www.hsph.harvard.edu/nutritionsource/what-should-you-eat/fats-and-cholesterol/

Protein Powders, Bars and other Supplements

Necessary? Worth the hype?

New Protein Guidelines: Misdirection and "Health Halo"

- New guidelines encourage more **protein from nutrients-dense foods**
- Food companies use "protein" as "healthy" marketing for UPFs, added sugars and refined starches
  - People think they are making healthy choices
  - Leads to: overconsumption
    → worse metabolic outcomes
    ++ increased diet-related chronic disease
- This is the **"Health halo" effect:**
  Cognitive bias where a single positive trait, makes people perceive entire food product healthier than it actually is ultimately ending with unintentional poor food choices
  - "organic," "low-fat," "gluten-free," and now "protein"
- Remember: **Quality matters**

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

ADEQUATE 5/5

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

How much protein do I actually need?

Average healthy adult = **0.8 g pro / kg body weight** (1kg = 2.2lb)

150# = 68kg * .8g = **54.4grams protein**

How do I get that much protein?

Single serving nonfat greek yogurt = 19g

4 oz grilled skinless chicken = 25g

7 oz (½ pack) extra firm tofu, sauteed = 21g

2 tbsp natural peanut butter = 8g

½ cup chickpeas = 8g

1 large egg, boiled = 6g

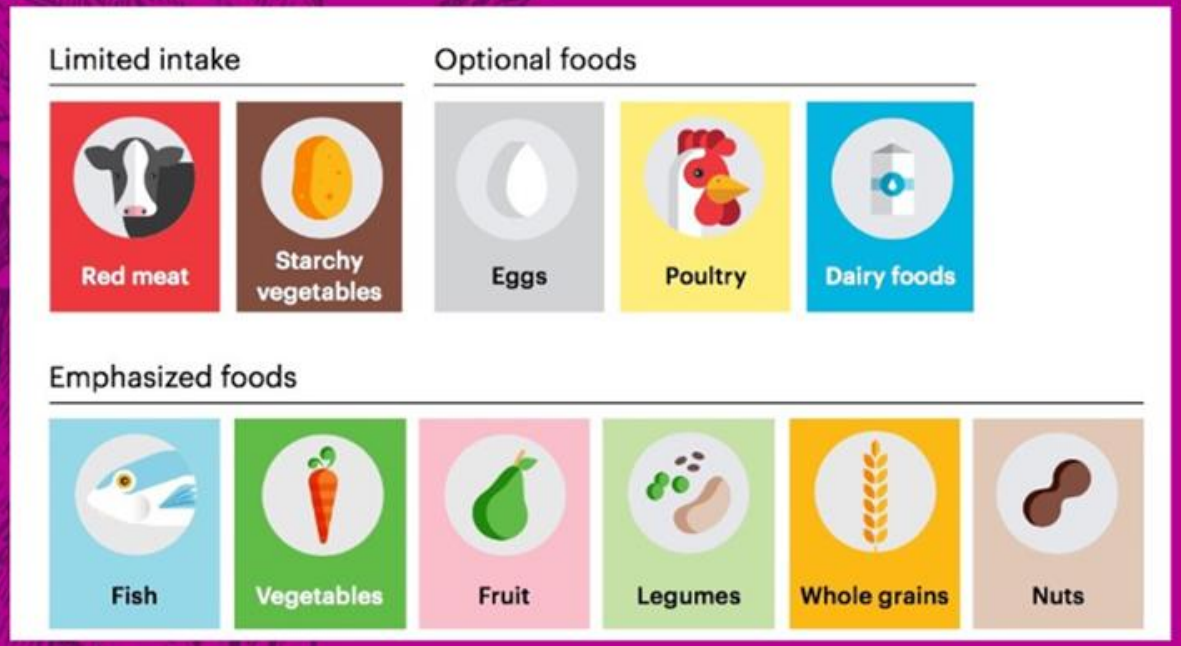
½ cup brown rice = 3g

5 oz (1 can) tuna, solid white albacore, in water = 26g

ACTIVITY

1. flip to your avg daily intake
2. identify sources of protein
3. how much pro are you eating?
4. how much do you need?

Review of Proteins for Health

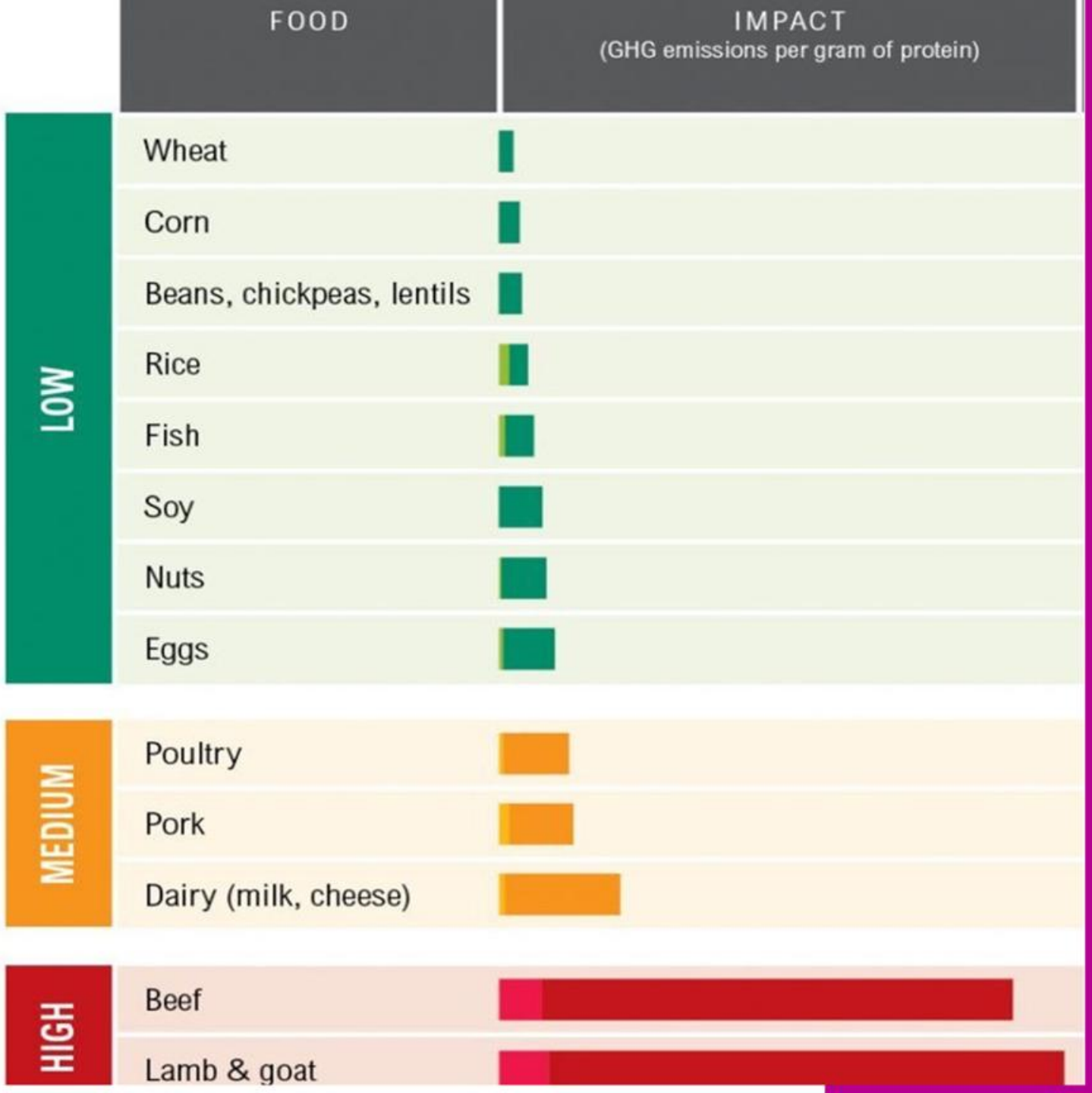


- **Aim for more plant-based proteins**
  - Tofu/tempeh, Beans/lentils, whole grains, nuts/seeds
- **Aim for fish twice a week**

- **Choose lean poultry in place of red or processed meat**
  - **Remove visible fats**
- **These choices can lower the risk of several diseases and premature death – and help the planet**

Ref: EAT-Lancet Commission Summary Report

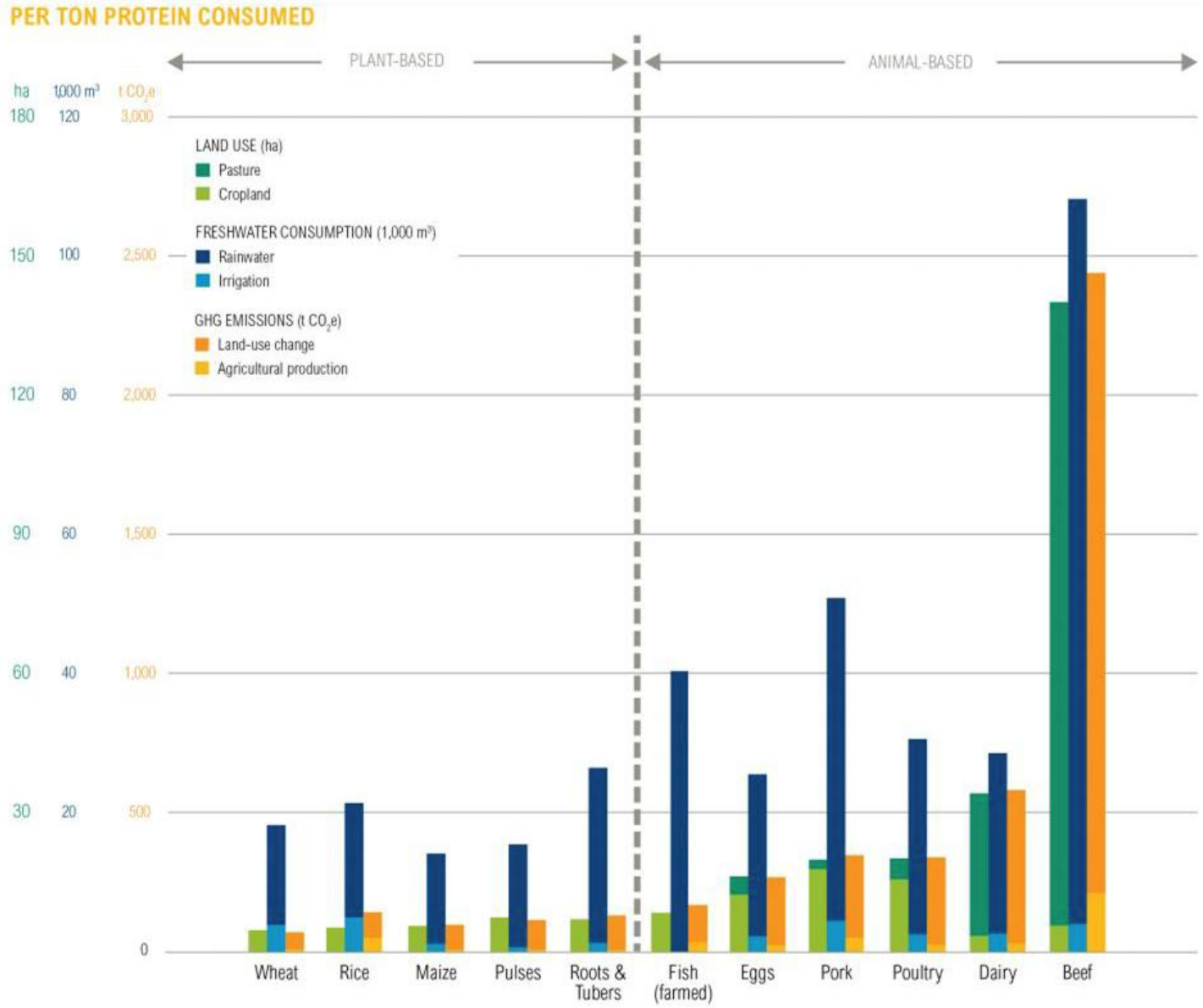
This report was prepared by EAT and is an adapted summary of the Commission Food in The Anthropocene: the EAT-Lancet Commission on Healthy Diets From Sustainable Food Systems.



Protein and the Planet

- Animals require feed that must be grown with fertilizer and water
- Methane from cows contribute to global carbon emissions

Animal-Based Foods are More Resource Intensive than Plant-based Foods



- Production of animal foods (meat and dairy) tends to have higher greenhouse gas emissions
- Agriculture contributes to deforestation, species extinction, freshwater depletion and contamination
- Transportation of food contributes to carbon emissions
- Packaging contributes to food waste and emissions

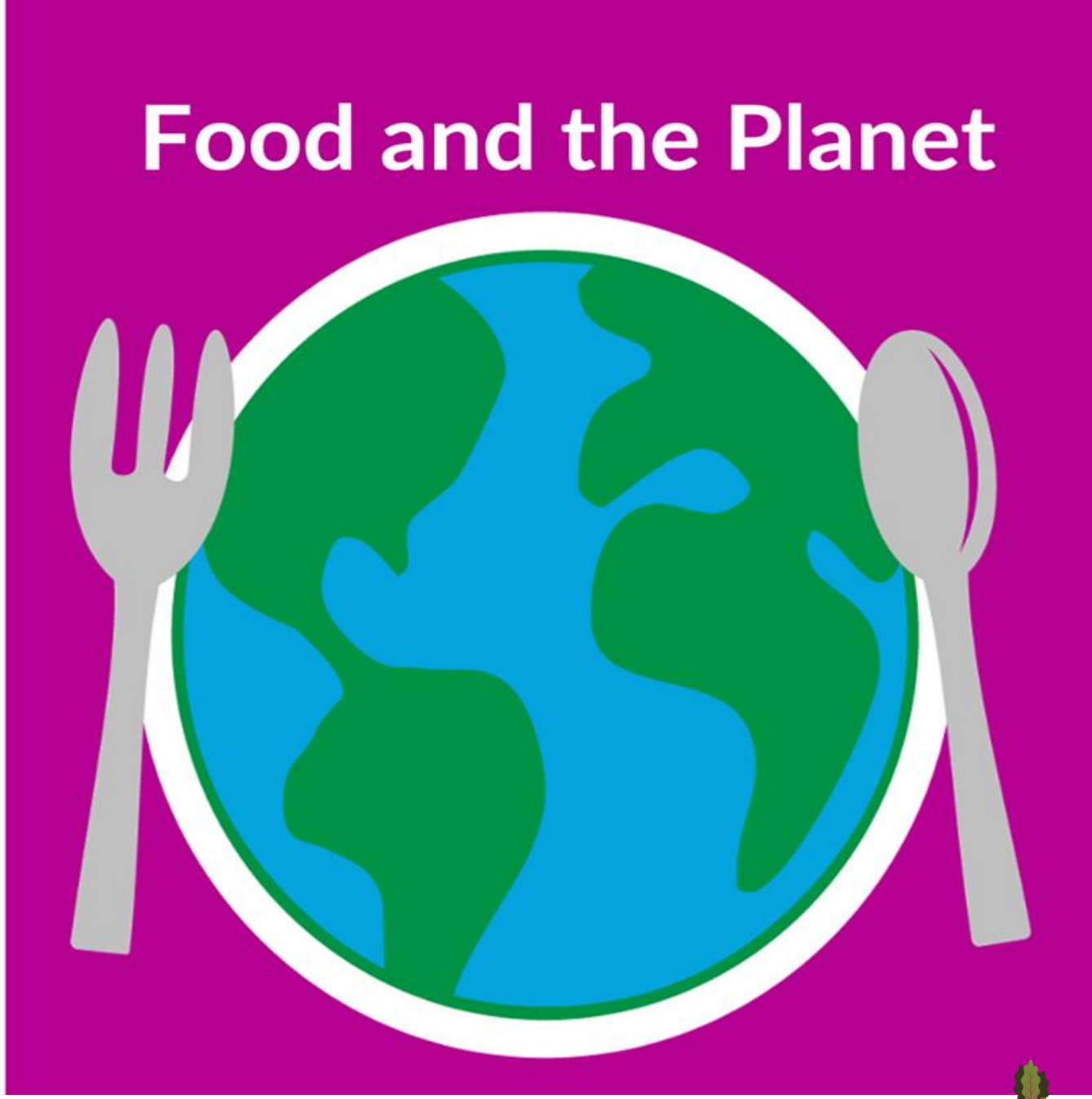
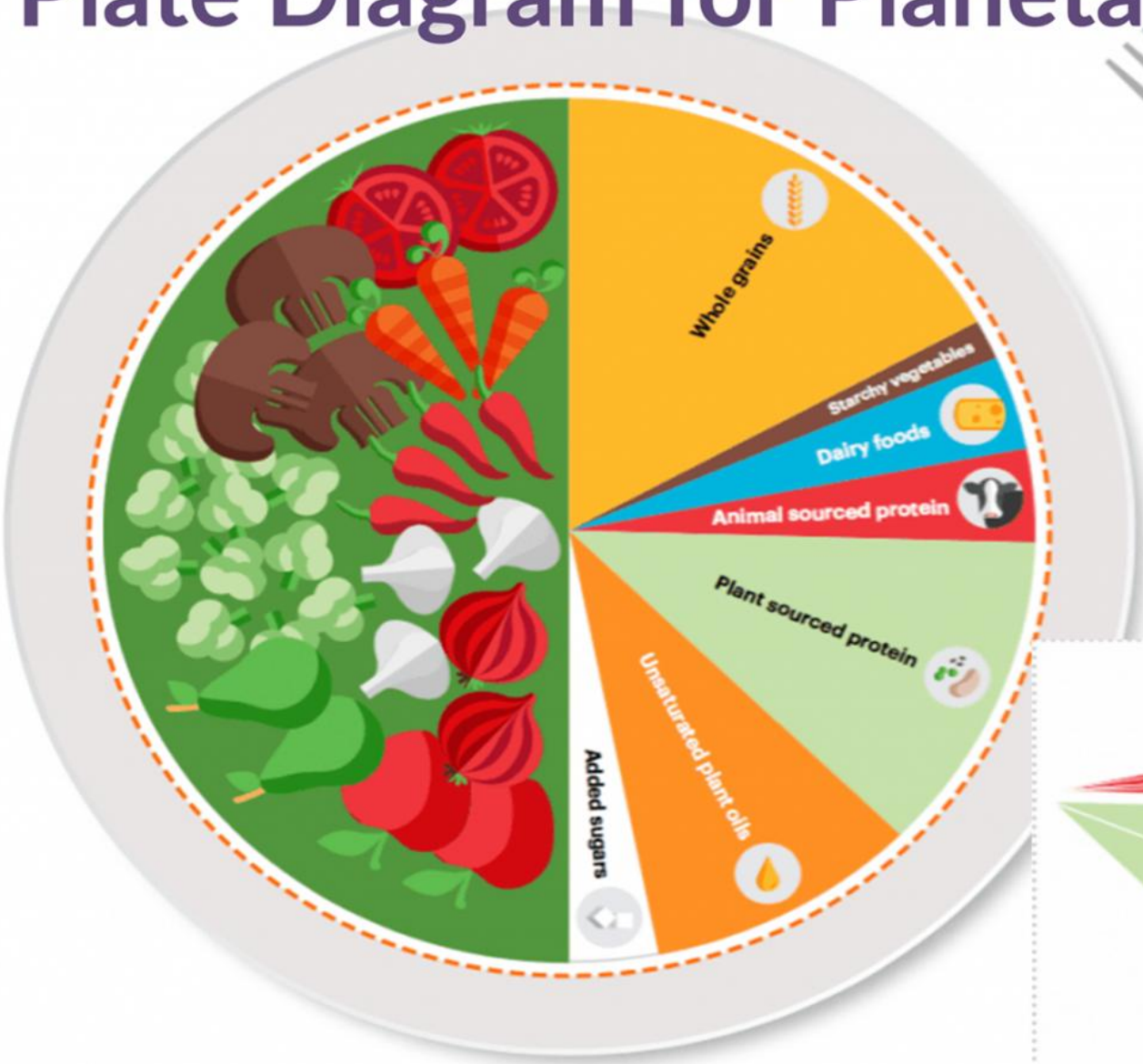
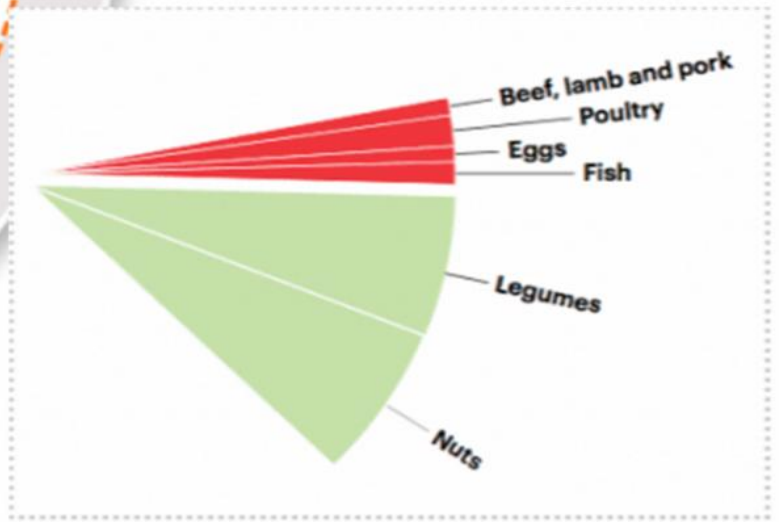
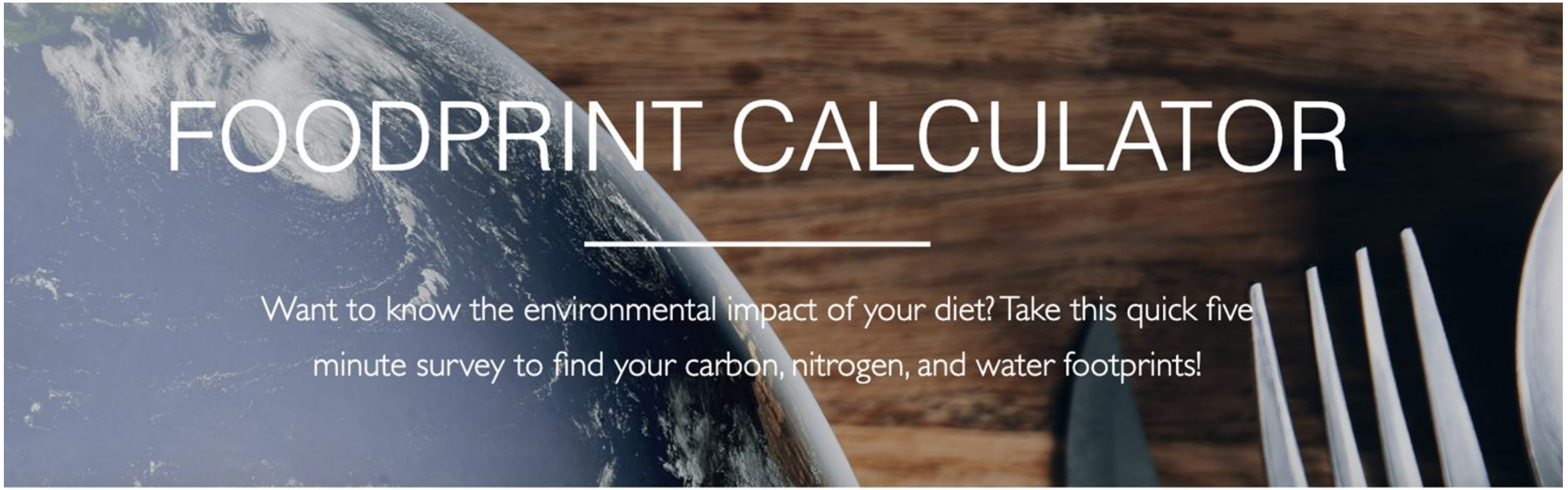


Plate Diagram for Planetary Health







Course guide (page 81)

https://harvard-foodprint-calculator.github.io

Fats

New Guidelines

Incorporate Healthy Fats

- Healthy fats are plentiful in many whole foods, such as meats, poultry, eggs, omega-3–rich seafood, nuts, seeds, full-fat dairy, olives, and avocados.
- When cooking with or adding fats to meals, prioritize oils with essential fatty acids, such as olive oil. Other options can include butter or beef tallow.
- In general, saturated fat consumption should not exceed 10% of total daily calories. Significantly limiting highly processed foods will help meet this goal. More high-quality research is needed to determine which types of dietary fats best support long-term health.

WHY DO WE NEED FATS?

help **brain development** and function - **60%** of brain is fat

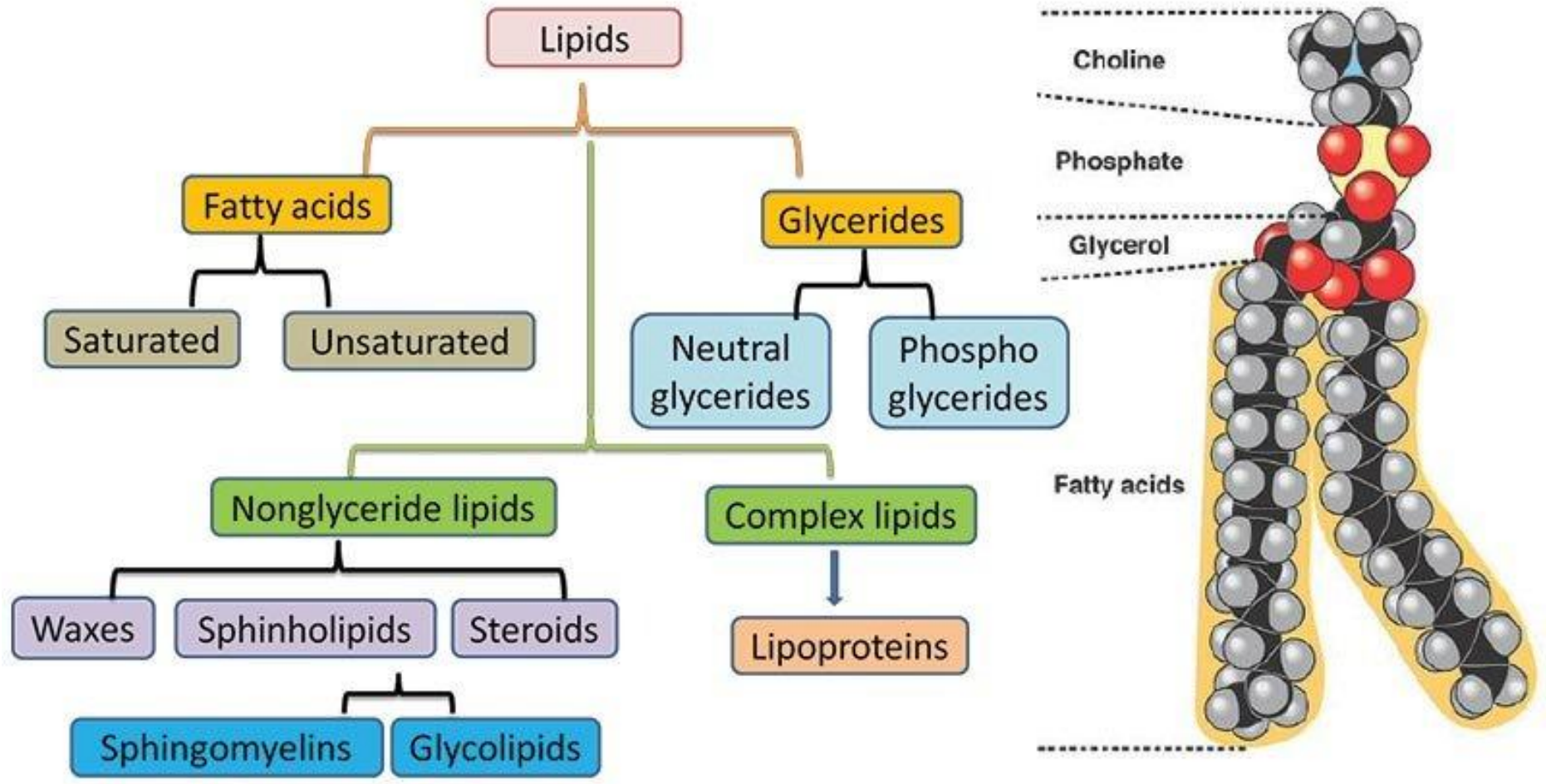
as a structural component of **cells**

support the **absorption** of vitamins

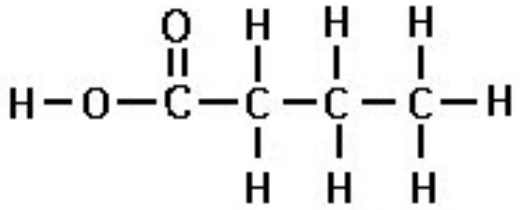
certain types help to keep a **healthy heart** and blood vessels

source of **energy**

Fats = Fatty Acid, Type of Lipid

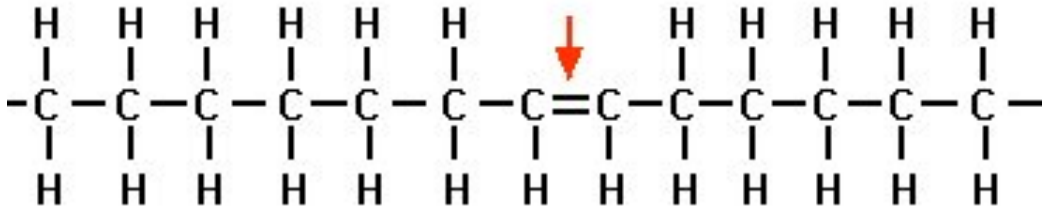


Saturated v Unsaturated



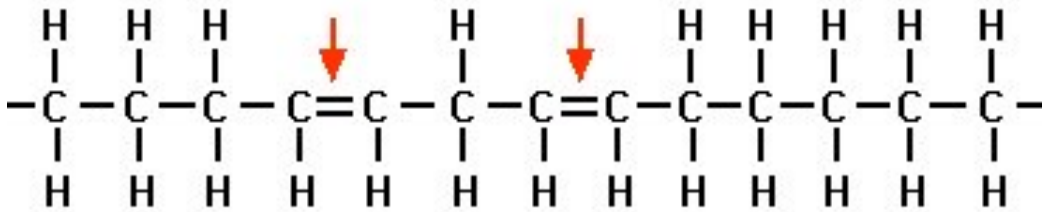
Saturated Fatty Acid

No double bonds



Monounsaturated Fatty Acid

1 double bond



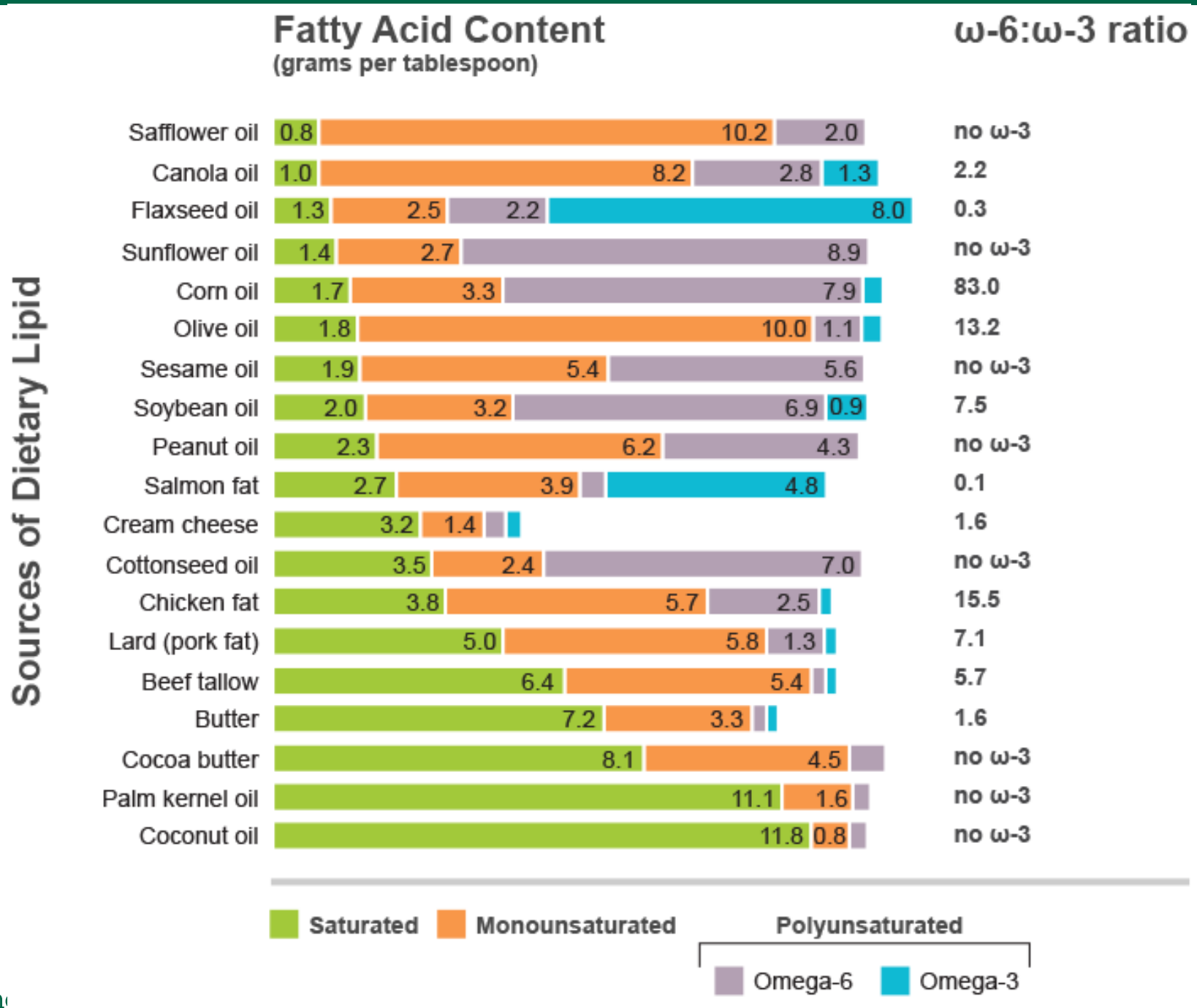
Polyunsaturated Fatty Ac

2+ double bonds

Fat Type Effect on Cholesterol and Triglycerides

Type of Fat	Dietary Sources	Effect on LDL-cholesterol	Effect on HDL-cholesterol	Effect on Triglycerides
Trans Fats	Commercially fried foods, snacks and baked goods	↑ Increases	↓ Slight decrease	No effect
Saturated Fat	Red meat, cheese, butter, fried foods and baked goods, palm oil and some other vegetable oils	↑ Increases	No effect	No effect
Monounsaturated Fats	Nuts, olives, avocados, olive and canola oils	↓ Decreases	No effect	No effect
Polyunsaturated Fat: **Omega-6**	Corn, soybean and safflower margarine & oils	↓ Decreases	↓ May decrease	? Unknown
Polyunsaturated Fat: **Omega-3**	Salmon, mackerel, herring, flaxseed, walnuts, walnut oil, soybean and soybean oil	≈ Variable	No effect	↓ Decreases

- Diets high in saturated fats, added sugars, refined carbohydrates, alcohol can elevate triglycerides by increasing liver fat production and impairing fat metabolism
- Saturated fats may reduce liver's ability to clear triglyceride-rich lipoproteins from the blood, contributing to higher circulating triglyceride levels
- Diets rich in omega-3 fatty acids, fiber, and unsaturated fats can suppress hepatic triglyceride synthesis and promote fat oxidation, helping to maintain healthy lipid balance


Fatty Acid Content
(grams per tablespoon)
ω-6:ω-3 ratio
Sources of Dietary Lipid
Safflower oil 0.8 10.2 2.0 no ω-3
Canola oil 1.0 8.2 2.8 1.3 2.2
Flaxseed oil 1.3 2.5 2.2 8.0 0.3
Sunflower oil 1.4 2.7 8.9 no ω-3
Corn oil 1.7 3.3 7.9 83.0
Olive oil 1.8 10.0 1.1 13.2
Sesame oil 1.9 5.4 5.6 no ω-3
Soybean oil 2.0 3.2 6.9 0.9 7.5
Peanut oil 2.3 6.2 4.3 no ω-3
Salmon fat 2.7 3.9 4.8 0.1
Cream cheese 3.2 1.4 1.6
Cottonseed oil 3.5 2.4 7.0 no ω-3
Chicken fat 3.8 5.7 2.5 15.5
Lard (pork fat) 5.0 5.8 1.3 7.1
Beef tallow 6.4 5.4 5.7
Butter 7.2 3.3 1.6
Cocoa butter 8.1 4.5 no ω-3
Palm kernel oil 11.1 1.6 no ω-3
Coconut oil 11.8 0.8 no ω-3
Saturated
Monounsaturated
Polyunsaturated
Omega-6
Omega-3

Foods high in Saturated Fats

- Butter, lard, beef tallow and palm oil
- Cakes, biscuits, pastries, pies, quiches, croissants
- Fatty cuts of meat (lean meats have less)
- Sausages and cured meats
  - Ex: Salami, chorizo, pancetta
- Bacon
- Cheese
- Cream, crème fraîche and sour cream
- Ice cream, milkshakes, whole milk
- Coconut oil, milk and coconut cream
- Chocolate and chocolate spreads

Foods High in Unsaturated Fatty Acids

- Olives & Olive oil
- Nuts (almonds, cashews, walnuts, pecans ,etc.
- Safflower & Canola oil
- Avocados
- Peanuts
- Fish

Omega 3 & 6

- **Polyunsaturated fats** found in:
  - **Fish** (salmon, sardines, tuna)
  - **Plant sources**: chia, flax, walnuts, soybeans, leafy greens

Types of Omega-3s

- **EPA** – marine omega-3 (fish)
- **DHA** – marine omega-3 (fish)
- **ALA** – plant omega-3
  must be converted to EPA/DHA for body to use; inefficient process
- Essential for good health, especially heart and blood vessels
  - Must come from diet
- Linked with a lower risk of heart disease and stroke.
- Omega-3s help reduce inflammation, lower blood triglycerides, support heart rhythm and blood vessel function
- Omega-6s, can support heart health by helping lower LDL cholesterol
- Eating the right balance of these fats, from whole food sources, is key

Omega 3

ALA (alpha-linolenic acid)

Can be converted (in small amounts) to EPA and DHA

Plant foods like flaxseeds, chia seeds, walnuts, canola and soybean oil

EPA (alpha-linolenic acid)

Supports heart rhythm and reduces blood triglycerides

DHA (docosahexaenoic acid)

Supports brain and eye health, and heart function

Fatty fish like salmon, sardines, mackerel, herring, tuna

Omega 6

Helps lower LDL (bad) cholesterol and reduce heart disease risk when replacing saturated fat; does not cause inflammation as part of a balanced diet

Sunflower, safflower, corn, and soybean oils; nuts and seeds

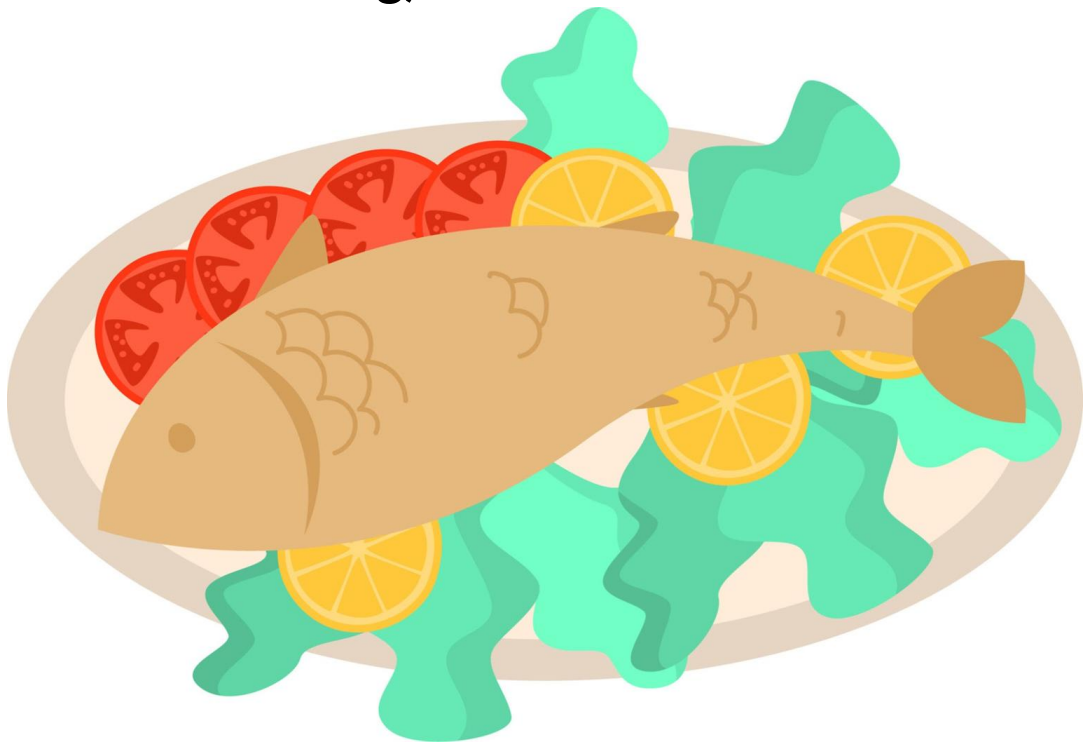
Graphics from Australian Heart Association

Fish

- Lean, high-quality source of protein
- Rich in essential nutrients:
  - Omega-3 fatty acids
  - Vitamin E
  - Other vitamins and minerals
- Supports overall health as part of a balanced diet
  - Regular fish consumption linked to:
    - Lower risk of coronary heart disease
    - Reduced risk of certain cancers

Modest intake is effective:

- **1–2 servings per week (4 oz = 1 serving)**



Fish + Mercury

LEAST MERCURY

- Anchovies
- Butterfish
- Catfish
- Clam
- Crab (Domestic)
- Crawfish/Crayfish
- Croaker (Atlantic)
- Flounder*
- Haddock (Atlantic)*
- Hake
- Herring
- Mackerel (N. Atlantic, Chub)
- Mullet
- Oyster
- Perch (Ocean)
- Plaice
- Pollock
- Salmon (Canned)**
- Salmon (Fresh)**
- Sardine
- Scallop*
- Shad (American)
- Shrimp*
- Sole (Pacific)
- Squid (Calamari)
- Tilapia
- Trout (Freshwater)
- Whitefish
- Whiting

MODERATE MERCURY

EAT SIX SERVINGS OR LESS PER MONTH:

- Bass (Striped, Black)
- Carp
- Cod (Alaskan)
- Croaker (White Pacific)
- Halibut (Atlantic)*
- Halibut (Pacific)
- Jacksmelt (Silverside)
- Lobster
- Mahi Mahi
- Monkfish*
- Perch (Freshwater)
- Sablefish
- Skate*
- Snapper*
- Tuna (Canned chunk light)
- Tuna (Skipjack)*
- Weakfish (Sea Trout)

HIGH MERCURY

EAT THREE SERVINGS OR LESS PER MONTH:

- Bluefish
- Grouper*
- Mackerel (Spanish, Gulf)
- Sea Bass (Chilean)*
- Tuna (Canned Albacore)
- Tuna (Yellowfin)*

HIGHEST MERCURY

AVOID EATING:

- Mackerel (King)
- Marlin*
- Orange Roughy*
- Shark*
- Swordfish*
- Tilefish*
- Tuna (Bigeye, Ahi)*

These should be limited, especially for:

- Pregnant individuals
- Nursing mothers
- Young children

***Fish in Trouble!** These fish are perilously low in numbers or are caught using environmentally destructive methods.

****Farmed salmon** may contain PCB's, chemicals with serious long-term health effects.

EATING CANNED TUNA SAFELY

If you weigh:	Don't eat more than 1 can every:	
	White Albacore	Chunk Light
20 lbs	10 weeks	3 weeks
30 lbs	6 weeks	2 weeks
40 lbs	5 weeks	11 days
50 lbs	4 weeks	9 days
60 lbs	3 weeks	7 days
70 lbs	3 weeks	6 days
80 lbs	2 weeks	6 days
90 lbs	2 weeks	5 days
100 lbs	2 weeks	5 days
110 lbs	12 days	4 days
120 lbs	11 days	4 days
130 lbs	10 days	4 days
140 lbs	10 days	3 days
150+ lbs	9 days	3 days

Avocados

- Also known as “alligator pears”, “custard apples”, and “butter pears”
- Botanically a fruit with large berry single center pit
- Grows on trees, from Central America
- **High in monounsaturated fats,** carotenoids, potassium, and fiber
  - 1 serving of avocado (half the fruit) has: more potassium than a banana
    - **Total Fat:** 14.7 grams
    - **Monounsaturated Fat:** 10 grams
    - **Saturated Fat:** 2 grams
    - **Polyunsaturated Fat:** 2 grams
- Versatile – can be eaten straight, added to salads or grain bowls, smoothies or even for chocolate pudding
  - Ripe avocados can be frozen to be used later
- A ripe mashed avocado can be used as a facial mask due its high content of hydrating oils and vitamin E

Coconuts

- Botanically a fruit!
- Promoted as a “superfood” (weight loss, immunity, heart & brain health)
- 72% of Americans view it as healthy; only ~⅓ of nutrition experts agree
- Health claims largely anecdotal, not strongly supported by science

- 100% fat; **80–90% saturated fat**
- 1 Tbsp = ~12 g saturated fat, ~120 calories

- No fiber; minimal vitamins/minerals
- Raises total and LDL cholesterol similar to butter or palm oil
- Benefits of MCTs **do not apply** to typical coconut oil

- American Heart Association advises against using it as a primary fat
- Best used **occasionally**, not as a health food

- Coconut water fat free with electrolytes - potassium, magnesium, calcium
- Highly sustainable food; all parts of the plant are useable and require little input

Seed Oils

- Soybean, sunflower, safflower, canola, etc
- Major sources of **polyunsaturated fats (omega-6 / linoleic acid)**
  - Strong evidence from RCTs & cohort studies:
    - ↓ **LDL cholesterol**
      ↓ **coronary heart disease risk** when replacing saturated fat
  - Linoleic acid **does not increase inflammation**
    - Often linked to *lower* inflammatory markers
- Common in ultra-processed foods
- Health risks linked more to **refined carbs, added sugars, and poor diet quality**

- Seed oils used in home cooking or reformulated foods can be **health-promoting**
- **Replacing seed oils with saturated fats worsens health**

- Focus on **overall fat quality**: choose unsaturated over saturated/trans fats

Recommended Dietary Fat Intake

- DRI and Dietary Guidelines
  - 20 to 35% of total daily energy from fat sources
  - **Less than 10% of daily intake from saturated fat**
    - As little *trans* fat as possible
  - Omega 6: 5 to 10% of daily energy
  - Omega 3: 0.6 to 1.2% of daily energy

- **Avoid getting too little fat**
  - Recommendation: one teaspoon of fat with every meal

?How Much Fat Is In It?

15 grams unsaturated = 20% daily value* | 15 grams saturated = 75% daily value*

Half Avocado

- Total Fat: 15 grams
- Unsaturated

4 oz Wild King Salmon

- Total Fat: 12-15g
- Mostly Unsaturated

2 tbsp Butter

- Total Fat: 21g
- Mostly Saturated Fat: 14g
- Unsaturated Fat: 7g

2 tbsp Natural Peanut Butter

- Total Fat: 16g
- Unsaturated

4 oz Full Fat (whole) Milk

- Total Fat: 4 g
- Saturated

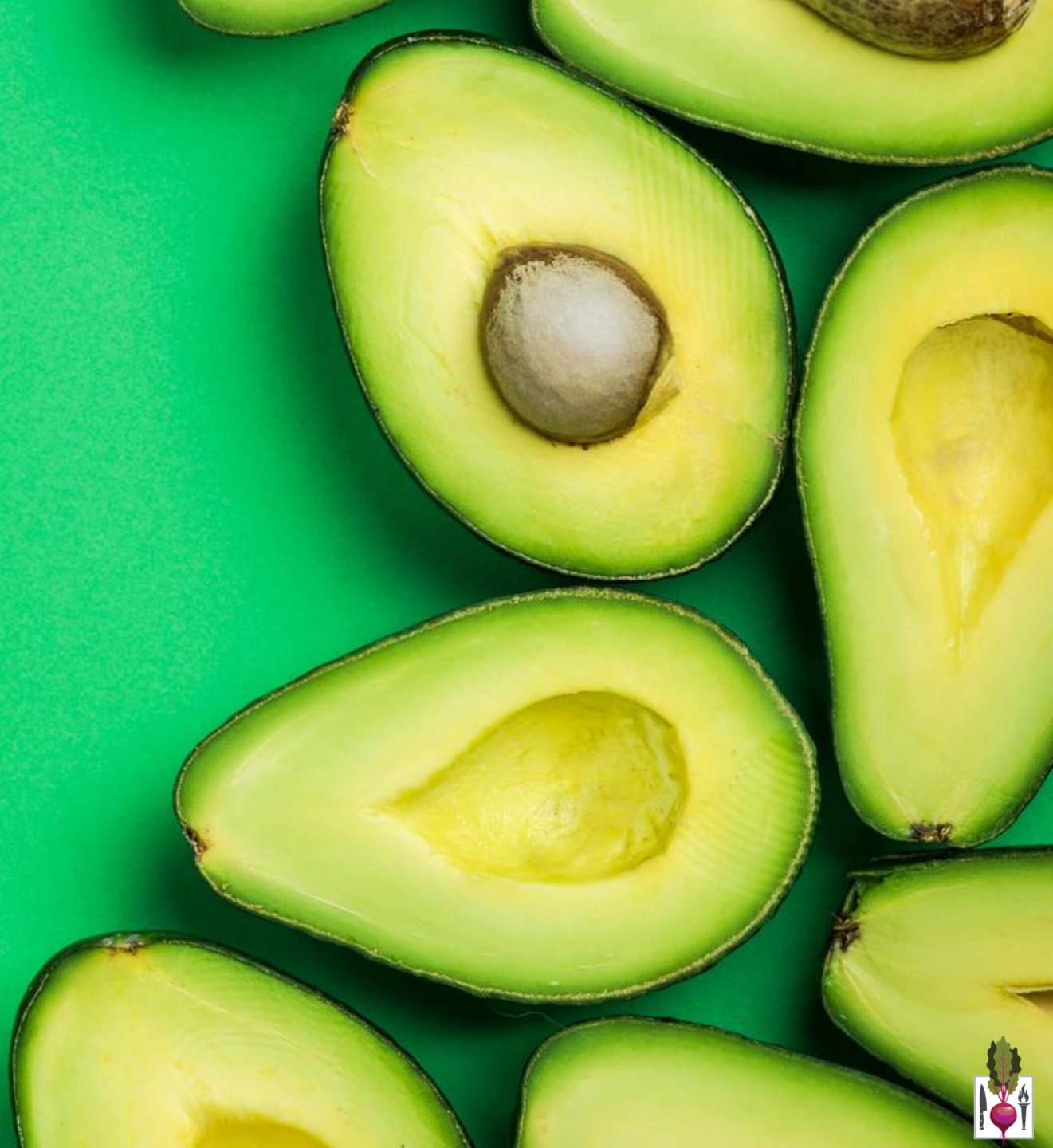
2 tbsp Beef Tallow

Total Fat: 28 g

- Saturated Fat: 12 g
- Unsaturated Fat: 11 g

*based on 2000 calorie diet

A Look Into Low Fat Diets



What qualifies as a low-fat diet?

No more than 30% of total calories from fat
Some therapeutic diets suggest 10-15%

No restrictions on type of fat, unsaturated preferred

Focuses on including low-fat foods (3 grams or less per serving)

Do Low-Fat Diets Work?

Fats often get replaced with sugars and salts in ‘low fat’ labeled foods

People choose ‘low fat’ to lose extra LBS

Diets that are too calorically restrictive will cause immediate weight loss; but **ultimately gain more weight** back

”Low fat” diets prescribed for lowering blood cholesterol levels - replace fats with carbohydrates, increases triglycerides

Rather than decreasing % calories from fat; substitute with better sources

Health Associations with Low-Fat Diets

- Nurses' Health Study and the Health Professionals Follow-up Study:
  - **No link** between overall % calories from fat and any important health outcome (including cancer, heart disease, and weight gain)

- 8-year Women's Health Initiative Dietary Modification Trial:
  - Women assigned low-fat diet did NOT lose or gain more weight than women eating usual diet

Nuts & Seeds

Healthy combination of proteins and fats

Tree Nuts

- Cashews, almonds, macadamias, pecans, etc.
- Shown to have protective roles against heart disease

Nutritional Components of Nuts

- Fiber
- Vitamin E
- Magnesium
- Zinc
- Selenium
- Copper
- Potassium
- Biotin
- Riboflavin
- Niacin
- Phytochemicals: Ellagic Acid, Flavonoids, Luteolin, Phenolic Compounds
- Monounsaturated oil and Polyunsaturated oil

Tree Nut Allergies

- Immune-mediated hypersensitivity reaction triggered by proteins found in tree nuts
  - Immune system misidentifies nut proteins as harmful
  - Repeated exposure triggers faster and stronger immune response
- These proteins are resistant to heat and digestion
  - Leads to: Strong allergenicity and persistent reactions
- Most individuals do not outgrow tree nut allergies
- Allergy to one nut does not always mean allergy to all nuts
  - Common cross-reactive pairs:
    - Walnuts ↔ Pecans
    - Cashews ↔ Pistachios
    - Almonds ↔ Hazelnuts
    - Caused by similar protein structures
- Cross-Reactivity With Other Foods due to similar proteins
  - Seeds
  - Legumes
  - Certain fruits
    - Example: Almonds & pistachios ↔ mango

Seeds

- Nutrient-dense providing healthy fats, protein, fiber, vitamins, and minerals
- Rich in unsaturated fats (omega-3 & omega-6) that support heart and brain health
- Fiber and complex carbohydrates support blood sugar control, satiety, and gut health
- Phytochemicals (polyphenols, lignans, phytosterols) offer antioxidant and anti-inflammatory benefits
- Calorie-dense, similar to nuts — be mindful of serving sizes
- Sesame is the 9th most common food allergy in the U.S.

Seeds

- **Flaxseeds** – rich in alpha-linolenic acid (ALA), a plant-based omega-3 fatty acid, and lignans with antioxidant properties
- **Chia seeds** – high in fiber, omega-3 fatty acids, calcium, and magnesium; they form a gel when hydrated, aiding digestion
- **Hemp seeds** – an excellent source of complete plant protein, omega-3 and omega-6 fats, and vitamin E
- **Pumpkin seeds (pepitas)** – provide zinc, magnesium, and iron, supporting immune and metabolic health
- **Sunflower seeds** – high in vitamin E, selenium, and healthy fats; beneficial for skin and cardiovascular health
- **Sesame seeds** – rich in lignans (sesamin, sesamolin) and calcium; commonly used in tahini and as a culinary garnish
- **Poppy seeds** – source of calcium, phosphorus, and polyunsaturated fats, often used in baking

Culinary Institute of America

Any Questions?