

**Module 16:
Anti-
Inflammatory
Diet**



**The Goldring Center
for Culinary Medicine**

TULANE UNIVERSITY

What is Inflammation?

Response to to attack, injury, or distress involving white blood cells, plasma proteins, and chemical mediators

Purpose is destruction of the pathogenic insult, followed by repair of the damaged tissue

Acute vs. Chronic Inflammation

Persistent inflammation plays a role in at least 7 of the top 10 causes of mortality in the US

When acute inflammation cannot resolve the pathologic insult, chronic inflammation ensues.

Damaged cells continue to die, while the immune system's effort at repair is futile. Chronic inflammation is thus a continuous circle of simultaneous destruction and repair.

Acute inflammation places the body in relatively mild distress and is locally confined. The symptoms can be visualized as redness and felt as heat and pain.

Chronic inflammation, on the other hand, is not typically registered by the body because it remains below the pain threshold. It can thus go unnoticed by the individual for years. This is why persistent inflammation is so dangerous, playing a role in at least 7 of the top 10 causes of mortality in the US.

American Diet and Chronic Inflammation

- Fast paced, stressful lifestyle → artificial, convenient foods → increase risk for disease
- Inflammatory ingredients consumed in large amounts include:
 - Trans and saturated fats
 - Omega-6 polyunsaturated fatty acids
 - Sugar
 - Artificial preservatives and sweeteners
 - Refined grains
 - Alcohol



Anti-inflammatory Diet

- Provide proper nourishment for the body while protecting against chronic inflammation
- Similar principles as the Mediterranean diet:
 - Eat a balanced variety of macronutrients
 - Reduce saturated fats and eliminate trans fat completely
 - Eat at least one good source of omega-3 fatty acids per day
 - Eat at least one serving of whole grains at every meal
 - Consume lean sources of protein
 - Move to a predominantly plant-based diet
 - Eliminate processed and refined foods



Simple Swaps

Pro-inflammatory Foods	Anti-inflammatory Food Swap
White rice, pasta, & bread	Brown rice, whole wheat pasta & bread
Pastries and donuts	Oatmeal and nut butters
Hamburgers and French fries	Black bean burgers and sweet potatoes
Potato chips	Edamame or Roasted Chickpeas with light salt
Trans fats & Omega-6 fatty acids (hydrogenated oils & packaged/processed foods)	Salmon, tuna, trout, olive oil, walnuts, flax, chia (high in Omega-3 fatty acids & MUFAs)

By following an anti-inflammatory diet, you can reduce the amount of toxic compounds in the body lowering your risk for chronic disorders and diseases such as Alzheimer's, atherosclerosis, and rheumatoid arthritis.

Types of Fats

- Fat is not the enemy, but we need to think about the types of fats that we consume most
- Three Main Types:
 - **Unsaturated Fats** – liquid at room temp (plant oils), nuts, seeds, seafood
 - **Saturated Fats** – solid at room temp (butter, coconut & palm oils), meats, some dairy
 - **Trans Fats** – “hydrogenated oil” (shortening, margarine), baked goods, ultra-processed foods
- GOAL: consume 1.6 to 1 ratio of unsaturated to saturated
- Tips: eat more olive/canola oil, avocado, & nuts/seeds and eat less butter, meats, full-fat dairy, ultra-processed/“junk” food
- Why we encourage measuring: 1 Tbsp oil = 120 calories



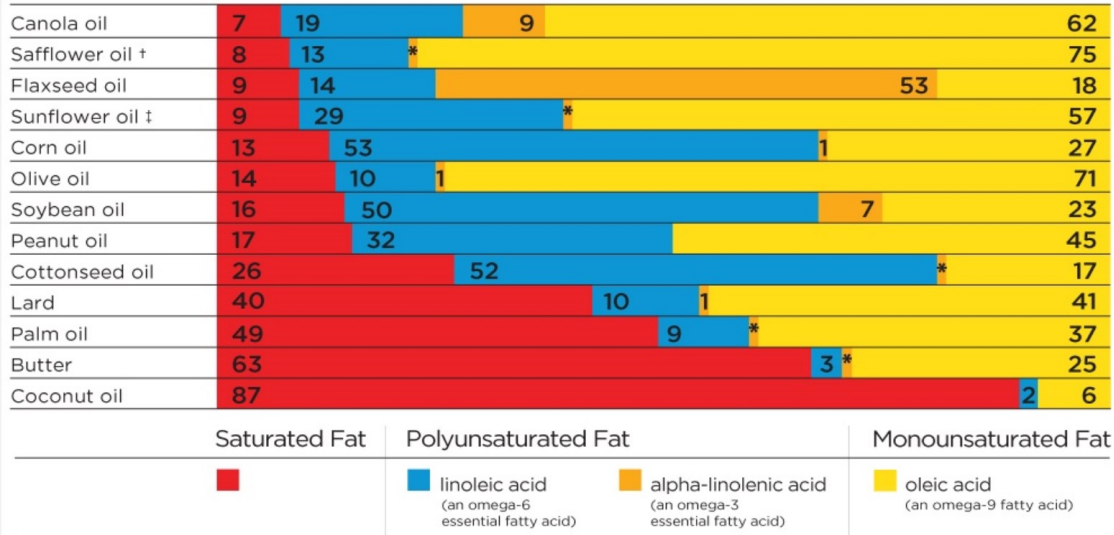
Fat provides many important functions for the health of our bodies including the following:

- Protection of organs
- Nerve function (brain, eyes)
- Absorption of vitamins (A,D, E & K)
- Support of cell growth
- Production of hormones
- Increase energy and fullness

Besides these reasons why it's important to include some fat in the diet, we also know that low-fat diets don't usually work for most people. One problem with low-fat diets (especially those that were popular in the 1980s/1990s) is that people tend to replace fat with processed carbohydrates and more sugar, which we know are not food groups we want to increase for optimal health. In addition, fat has the effect of delayed gastric emptying, meaning it stays in your stomach longer than other nutrients, aiding in the feeling of fullness between meals and snacks. Without that effect, you may be likely to eat more of other food groups. And just like other restrictive diets, it can be hard to stick with long term and we know that the only diet that truly works is the one you can make your lifestyle.

Comparison of Dietary Fats

Dietary Fat



This chart details the makeup of different types of dietary fats and shows that while all fats contain various combinations of the different types of fat, they are classified by the one they contain in the highest amount. For example, you can see that butter is higher in saturated vs. unsaturated fats and olive oil has a higher concentration of unsaturated vs. saturated fats. Choosing fats and oils that are more concentrated with polyunsaturated and monounsaturated fats is better for our health. The yellow and orange colors on this chart represent the best fats for our health which is why we recommend choosing canola oil, olive oil or a blend in most of your cooking.

Note: Vegetable oil is not on this list. The reason for this is because vegetable oil does not have to contain a specific ratio of any type of oil. It can be from corn, soy, canola, safflower, olive, or any type of combination of other plant-based oils. Because it's hard to know the true makeup of vegetable oil (despite its name sounding like a good option), we recommend choosing a plant-based oil like canola or olive for your cooking.

A Closer Look at Unsaturated Fats

- **Monounsaturated** - olives, olive oil, canola oil, nuts and seeds and their oils, avocados
- **Polyunsaturated**
 - **Essential Fatty Acids** – our bodies can't make these and it's essential to get them from the diet
 - **Omega-6:** safflower oil, sunflower oil, corn oil, soybean oil, sunflower seeds, walnuts, pumpkin seeds
 - **Omega-3:** oily fish such as salmon, herring, mackerel, and sardines; fish oil and flaxseed oil; flaxseeds, walnuts, and chia seeds
- Saturated and trans fats increase LDL (bad) cholesterol ☹️
- Unsaturated fats help raise HDL (good) cholesterol 😊



Nutrition Takeaways

- Try cooking at home whenever possible using fresh and nutritious ingredients.
- Meet your daily recommended servings of fruits, vegetables, whole grains, lean protein, and healthy fats. Think about how colorful your plate is - Eat the Rainbow!
- Swap out saturated, trans fats, and omega-6 fatty acids for monounsaturated and omega-3 polyunsaturated fats.
- Be mindful of how much you are eating and exercising! Keeping weight off will naturally decrease levels of inflammation and stress in the body.

Nutrition and Culinary Considerations

GCCM targets (per meal)	
Calories	< 500 kcal
Saturated Fat	< 5 g
Sodium	< 550 mg
Fiber	5-10 g

Cooking Techniques:

- Increasing vegetables
- Incorporating legumes and whole grains
- Reducing meat portions
- Using flavor building methods & ingredients to make tasty food that is low in calories, fat, and sodium

Let's take a look at the results on visual appeal, texture and overall taste of the dishes we made!

Spinach & Feta Frittata Cups

Blueberry & Almond Baked Oatmeal

Green Wave Smoothie

Groups 1 & 5

Nutrition Facts	
6 servings per container	
Serving Size	2 frittata cups (122 g)
Amount per serving	
Calories	110
% Daily Value *	
Total Fat 7g	9%
Saturated Fat 2g	11%
Trans Fat 0g	
Cholesterol 190mg	63%
Sodium 125mg	6%
Total Carbohydrate 4g	0%
Dietary Fiber less than 1g	3%
Total Sugars 2g	
Includes 0g Added Sugars	0%
Protein 8g	15%
Vitamin D 1mcg	5%
Calcium 60mg	5%
Iron 1mg	7%
Potassium 200mg	4%

*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Nutrition Facts	
12 servings per container	
Serving Size	1 muffin (81 g)
Amount per serving	
Calories	130
% Daily Value *	
Total Fat 3.5g	5%
Saturated Fat 0.5g	4%
Trans Fat 0g	
Cholesterol 30mg	11%
Sodium 100mg	4%
Total Carbohydrate 21g	8%
Dietary Fiber 3g	10%
Total Sugars 8g	
Includes 3g Added Sugars	6%
Protein 4g	9%
Vitamin D 0.41mcg	2%
Calcium 50mg	4%
Iron 0.88mg	5%
Potassium 200mg	4%

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Nutrition Facts	
2 servings per container	
Serving Size	16 oz. (417 g)
Amount per serving	
Calories	270
% Daily Value *	
Total Fat 11g	14%
Saturated Fat 1.5g	8%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 35mg	0%
Total Carbohydrate 45g	16%
Dietary Fiber 10g	34%
Total Sugars 23g	
Includes 0g Added Sugars	0%
Protein 4g	8%
Vitamin D 0mcg	0%
Calcium 60mg	5%
Iron 2mg	10%
Potassium 1000mg	22%

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One Pot Bean Chili

Loaded Baked Sweet Potatoes

Groups 2 & 6

Nutrition Facts

8 servings per container	
Serving Size 1 cup without toppings (246 g)	
Amount per serving	
Calories	150
<small>% Daily Value *</small>	
Total Fat 3g	4%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 340mg	15%
Total Carbohydrate 26g	10%
Dietary Fiber 8g	30%
Total Sugars 7g	
Includes 0g Added Sugars	0%
Protein 7g	15%
Vitamin D 0mcg	0%
Calcium 60mg	5%
Iron 2mg	12%
Potassium 600mg	12%

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Nutrition Facts

4 servings per container	
Serving 1/2 sweet potato with about 3/4	
Size cup chili (286 g)	
Amount per serving	
Calories	200
<small>% Daily Value *</small>	
Total Fat 2.5g	3%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol less than 5mg	0%
Sodium 370mg	16%
Total Carbohydrate 34g	13%
Dietary Fiber 8g	30%
Total Sugars 9g	
Includes 0g Added Sugars	0%
Protein 12g	23%
Vitamin D 0.01mcg	0%
Calcium 160mg	12%
Iron 2mg	12%
Potassium 700mg	15%

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Buffalo Broccoli Bites

Hidden Black Bean Brownies

Apricot Almond Bites

Groups 3 & 7

Nutrition Facts

4 servings per container
 Serving about 1/2 cup broccoli with 1 1/2
 Size tsp buffalo sauce (92 g)

Amount per serving	
Calories	140
<small>% Daily Value *</small>	
Total Fat 4g	5%
Saturated Fat 1.5g	7%
Trans Fat 0g	
Cholesterol 95mg	32%
Sodium 310mg	13%
Total Carbohydrate 18g	7%
Dietary Fiber 3g	11%
Total Sugars less than 1g	
Includes 0g Added Sugars	0%
Protein 6g	13%
Vitamin D 0.51mcg	3%
Calcium 30mg	2%
Iron 0.75mg	4%
Potassium 200mg	5%

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Nutrition Facts

12 servings per container
 Serving Size 2 brownies (66 g)

Amount per serving	
Calories	190
<small>% Daily Value *</small>	
Total Fat 9g	11%
Saturated Fat 2.5g	14%
Trans Fat 0g	
Cholesterol 10mg	3%
Sodium 85mg	4%
Total Carbohydrate 28g	10%
Dietary Fiber 4g	15%
Total Sugars 15g	
Includes 8g Added Sugars	16%
Protein 4g	8%
Vitamin D 0mcg	0%
Calcium 40mg	3%
Iron 1mg	8%
Potassium 200mg	4%

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Nutrition Facts

9 servings per container
 Serving Size 2 bites (48 g)

Amount per serving	
Calories	200
<small>% Daily Value *</small>	
Total Fat 13g	16%
Saturated Fat 2.5g	13%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 10mg	0%
Total Carbohydrate 19g	7%
Dietary Fiber 5g	19%
Total Sugars 13g	
Includes 0g Added Sugars	0%
Protein 5g	10%
Vitamin D 0mcg	0%
Calcium 0mg	0%
Iron 0mg	0%
Potassium 300mg	5%

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Simple Oven Roasted Salmon

Chimichurri Sauce

Quinoa Salad with Dried Fruit & Nuts

Groups 4 & 8

Nutrition Facts	
4 servings per container	
Serving Size	4 oz. fillet (116 g)
Amount per serving	
Calories	260
	% Daily Value *
Total Fat 18g	23%
Saturated Fat 3.5g	18%
Trans Fat 0g	
Cholesterol 60mg	21%
Sodium 190mg	8%
Total Carbohydrate 0g	0%
Dietary Fiber 0g	0%
Total Sugars 0g	
Includes 0g Added Sugars	0%
Protein 23g	46%
Vitamin D 13mcg	63%
Calcium 10mg	0%
Iron 0.39mg	2%
Potassium 400mg	9%

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Nutrition Facts	
16 servings per container	
Serving Size	2 Tbsp (24 g)
Amount per serving	
Calories	90
	% Daily Value *
Total Fat 11g	14%
Saturated Fat 1.5g	8%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 125mg	5%
Total Carbohydrate 3g	0%
Dietary Fiber 0g	0%
Total Sugars 1g	
Includes 0g Added Sugars	0%
Protein 0g	0%
Vitamin D 0mcg	0%
Calcium 10mg	0%
Iron 0.98mg	5%
Potassium 29mg	0%

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Nutrition Facts	
4 servings per container	
Serving Size	1 cup (87 g)
Amount per serving	
Calories	230
	% Daily Value *
Total Fat 9g	11%
Saturated Fat 0.5g	4%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 135mg	6%
Total Carbohydrate 33g	12%
Dietary Fiber 5g	18%
Total Sugars 9g	
Includes 0g Added Sugars	0%
Protein 7g	15%
Vitamin D 0mcg	0%
Calcium 60mg	5%
Iron 2mg	13%
Potassium 400mg	8%

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Thank you for joining us!

For More Recipes and Resources, visit: <https://goldringcenter.tulane.edu/>