

Cardiovascular Disease Prevention (CVD)



Roxie Price
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Tift County Extension



Today's topics

- What is CVD
- Risk factors for CVD
- CVD Prevention measures
- Activities and Resources to help teach topics on CVD



What is CVD?

- a.k.a. Heart Disease
- Leading global cause of death; 1st in US
- Results in 17.3 million deaths per year globally
- About 1 in every 3 deaths in the US



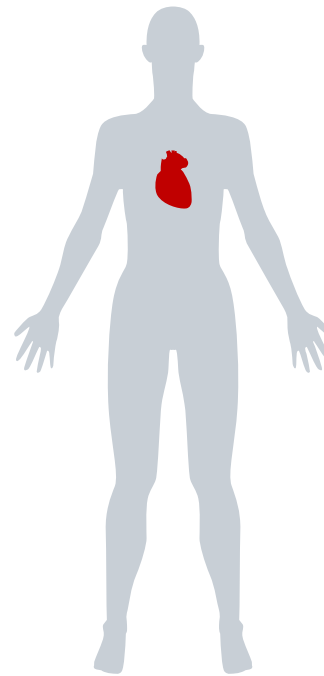
What is CVD?

- Includes a variety of conditions that affect the heart and blood vessels
 - Typically related to atherosclerosis – (hardening of the arteries caused by fatty plaque deposits)
 - Coronary Artery Disease/Ischemic heart disease
 - Heart failure
 - Arrhythmias
 - Sometimes stroke is included, sometimes not



CVD Risk factors

- Increasing age
- Male sex
- Race
- Heredity
- Smoking
- Alcohol
- Overweight/Obesity
- High blood pressure
- Physical inactivity



Role of fats in the body

- Energy source
- Temperature regulation
- Protect vital organs
- Part of cell membranes
- Helps you absorb some vitamins (A, D, E, and K)
- Involved in immune response, reproduction, and growth
- Helps us feel full



Then why worry about fat?

Too much fat..

- Cause weight gain
- Increase cholesterol
- Increase risk for heart disease



Current Fat Recommendations

- Total fat intake should be between:
 - 20% – 35% of energy
 - Reason: outside these ranges associated with too much saturated fat intake or too much carbohydrate
- Saturated fat: less than 10% of energy
 - AHA – Less than 7%, 5 – 6% for people with high cholesterol
- Trans fat: avoid
- That means that 10 – 30% of energy should be unsaturated fats



**Have you heard of
“good” and “bad” fats?**



“Bad” fats

- Trans fats - avoid
- Saturated fats – limit
- Harmful to our hearts



Trans Fats

- Really bad for our health
- Found mostly in packaged foods
 - Cakes, cookies, pies, muffins, frozen foods
 - Small amounts in ruminant animals (beef, lamb, goat, deer, elk)
- On food label as “partially hydrogenated oils”
 - Will no longer be allowed in processed foods
 - End of 2018



Saturated fats

- “Solid Fats” - Solid at room temperature
- Common in animal foods and some tropical oils
- Our bodies can make all they need, so →
 - Limit to less than 10% of calories
 - ~18 – 22 grams



Saturated fat and LDL cholesterol

- For years, the research has shown –
 - ↑ Dietary Saturated Fat → ↑ LDL Cholesterol
 - ↑ LDL cholesterol → ↑ Cardiovascular disease risk, heart attack risk, cardiovascular death risk
- Recent research has called into question whether this relationship holds true... ultimately, it does



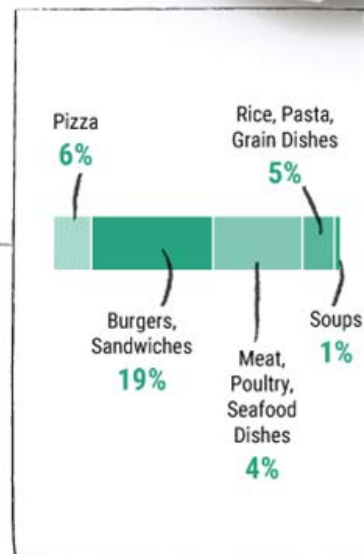
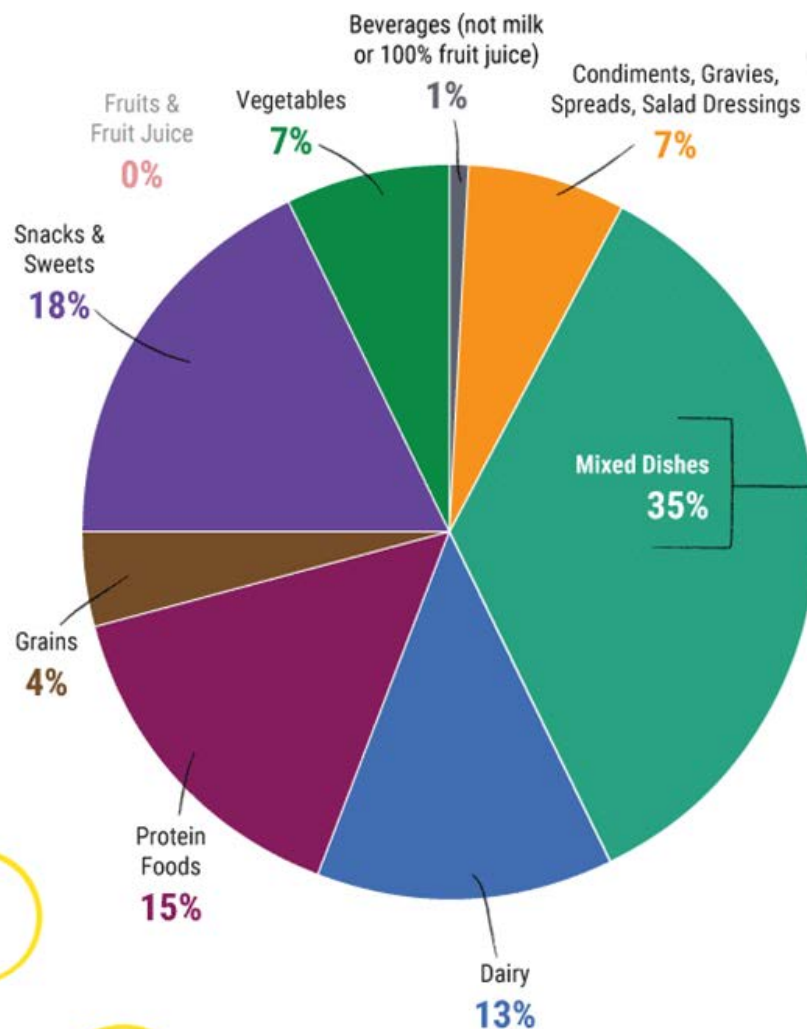
Review: Blood lipid (fats) goals

| Lipid | Goal |
|---------------------------|--------|
| Total cholesterol | Lower |
| LDL “Lousy” cholesterol | Lower |
| HDL “Healthy” cholesterol | Higher |
| Triglycerides (TG) | Lower |



Food Sources of Saturated Fats

Food Category Sources of Saturated Fats in the U.S. Population Ages 2 Years and Older (Figure 2-12)



- **Data Source:** What We Eat in America (WWEIA) Food Category analyses for the 2015 Dietary Guidelines Advisory Committee. Estimates based on day 1 dietary recalls from WWEIA, NHANES 2009-2010.



What about coconut oil?



It is a plant-derived oil, much like other oils you think of, such as olive oil and canola oil.

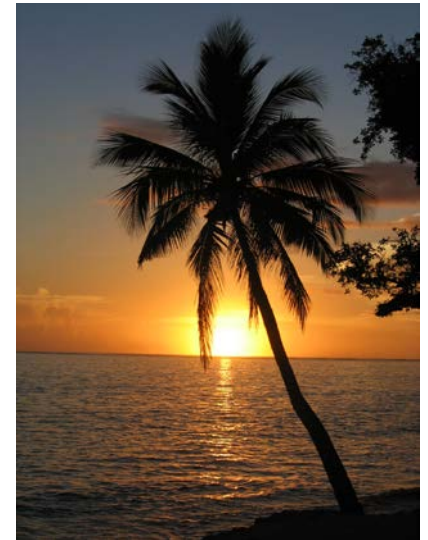
Extracted from the coconut.



Coconut oil claims???



- **87% - 93% saturated fat, depending on form**
- **Claim:** People in tropical islands consume coconut oil and they don't have as much heart disease as Americans
- **Truth:** They don't breathe the same air, drink the same water, do the same physical activity, and the rest of their diets look different too... namely more fish → heart health benefit!!
 - Example: Eskimo studies



Coconut Oil – What AHA has to say



- Coconut oil raises LDL cholesterol
- Has no known offsetting favorable effects
- If you want to try it, don't go crazy
- Make sure to reduce saturated fat elsewhere, preferably from fatty red and processed meats, sandwiches/burgers, butter, ice cream



Other uses for Coconut Oil



- Hair: conditioner
- Skin: lotion



*Pictures → www.pexels.com

How much saturated fat?



Coconut oil - around 90% saturated fat

Butter - over 50% saturated fat

Pork fat - around 50% saturated fat

Beef fat - around 40% saturated fat



Saturated fat – it adds up!



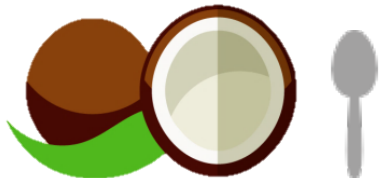
1 pat of butter = 2.5 g saturated fat



8 ounce glass whole milk = 5 g saturated fat



Bacon cheeseburger = 17 g saturated fat



1 Tablespoon of Coconut Oil = 11 g saturated fat

AHA Report Conclusions – Saturated Fat

- Limit to less than 5 - 10% of energy (calories), including coconut oil
 - Dietary Guidelines for Americans < 10%
- Rationale: relationship of saturated fats with risk for CVD
 - Strong evidence that higher saturated fat, greater risk for CVD
 - Limited evidence that saturated fat intake not associated with CVD risk, due to:
 - Endpoint assessed (total cholesterol, LDL cholesterol, TG, CVD, CVD event, CVD death, etc.) varies in research
 - What replaces the saturated fat when limited/removed: carbohydrates, unsaturated fats, monounsaturated, polyunsaturated fats.



“Good” fats

- Unsaturated fats or “Heart Healthy Fats”
 - Monounsaturated
 - Polyunsaturated
- Keep cholesterol levels normal
- Keep triglycerides normal
- Building blocks of brain and nerves



Unsaturated Fats

- Best sources come from plant foods
- Nuts and seeds
- Plant based, liquid oils – olive, canola, corn
Liquid at room temperature
- Fish
- Avocados

“Good Fats”

Unsaturated



```
graph TD; A[Unsaturated] --> B[Omega - 3]
```

The diagram consists of two yellow rounded rectangular boxes. The top box contains the word "Unsaturated". A light yellow arrow originates from the bottom of this box, moves down, then turns 90 degrees to the right, and ends at the left side of the bottom box. The bottom box contains the text "Omega - 3".

Omega - 3

Omega-3 Fats

- A type of unsaturated fat
- Important throughout life
 - *Pregnant women, infants, and children
- Best source is cold water fatty fish:
 - Salmon, tuna, mackerel, and sardines
- Some from nuts and seeds



Unsaturated fats

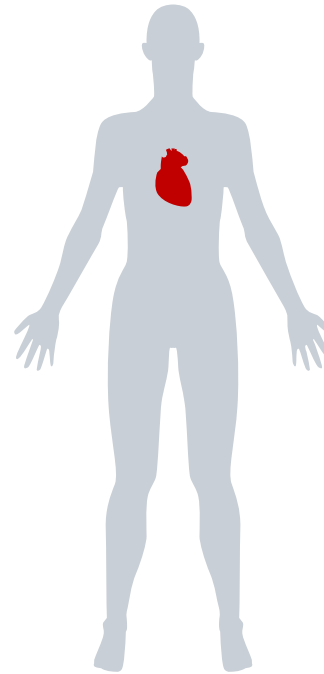
- Eat fish 2 times per week for omega-3
 - If you don't eat fish; look for plant sources and talk supplements with your doctor
- Women: 5 – 6 teaspoons oil and oil containing foods (i.e. nuts, avocados, peanut butter, olives) per day
- Men: 6 – 7 teaspoons oil and oil containing foods



Prevention: CVD Risk factors

Which ones can you control???

- Increasing age
- Male sex
- Race
- Heredity
- Smoking
- High blood pressure
- Physical inactivity
- Overweight/Obesity
- Alcohol



Prevention-Putting it into practice

- Choose fish more often
- Choices within meat:
 - When choosing red meat, choose leaner cuts like sirloin, round, 90% to 97% lean ground beef, lean pork tenderloin
 - Poultry- removing skin is key
 - When subbing ground turkey for beef, make sure to choose lean ground turkey (93 – 99% lean)
 - 3 oz, 85% lean turkey: 212 kcal, 14 g total fat, 3.5 g saturated fat
 - 3 oz, 85% lean beef: 212 kcal, 13 g total fat, 5 g saturated fat



Prevention-Putting it into practice

- Cooking methods for reducing saturated fat:
 - Cut away visible fat
 - Limit frying in high SFA products: lard, butter, coconut oil
 - Replace with liquid oils like olive and canola
 - Cook at home so you can control the amount of fat
- Try nuts, seeds, olives and avocados... but watch your calories
- Substitute whole grains for refined grains
- Try plant based proteins – cooked spinach, legumes



| Replacing SFA with | Effects on CVD endpoints | Evidence Grade | Notes |
|--|--|----------------|---|
| <p>Polyunsaturated fatty acids (PUFA: omega-3s,6s, 9s)</p> <p>Food sources:</p> <ul style="list-style-type: none"> • Plant based oils: <ul style="list-style-type: none"> • Sunflower oil • Corn oil • Soybean oil • Fatty fish • Nuts (walnuts) • Seeds (sunflower) | <p>Lower Total C Lower LDL C Lower TG Higher HDL</p> <p>Lower CVD risk Lower CVD Event risk Lower CVD mortality</p> | <p>Strong</p> | <p>For every 1% energy from SFA replaced with PUFA, CVD incidence reduced 2-3%</p> <p>If this was done for 10% of the diet, CVD risk reduced by 30% which is the same reduction achieved by statin medication</p> |

What about Sugar???

- Look for
 - No sugar added
 - High fructose corn syrup
 - Beverages?

What to Know About Added Sugars

Background

Some sugars are naturally present in certain foods, such as fruit, dairy products, and some vegetables.

Added sugars are sugars that are added to food or drinks during processing or at home.

Added sugars are empty calories because they provide little to no nutritional benefit from vitamins or minerals. Because of this, we want to limit added sugar.

The new food label will tell you how much added sugars are in a product so you can avoid getting too many calories from added sugar.

The new food label isn't required until summer 2018, so here's what you should look for until then.



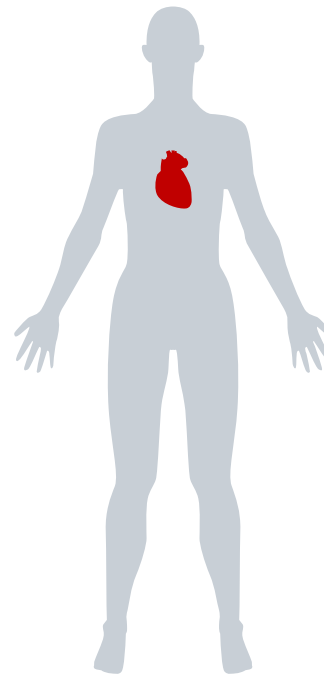
Major Sources of Added Sugars

Don't have too much of these!

*Sugar sweetened drinks include soda, energy drinks, sports drinks, and fruit drinks

CVD Risk factors

- Increasing age
- Male sex
- Race
- Heredity
- Smoking
- Alcohol
- Overweight/Obesity
- High blood pressure
- Physical inactivity



What about Salt / Sodium???

- Lower high sodium foods
 - Low sodium
 - No sodium
 - No salt added



DID YOU KNOW?



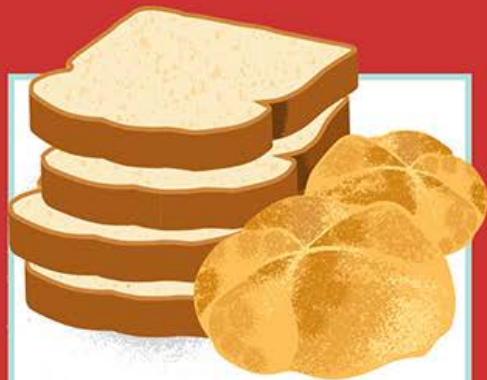
American Heart Association®
life is why®

THESE SIX POPULAR FOODS CAN ADD HIGH LEVELS OF SODIUM TO YOUR DIET¹

The American Heart Association recommends that you aim to eat less than 1,500 mg of sodium per day.



When you see the Heart-Check mark on a product, you know the food has been certified to meet nutritional criteria for heart-healthy foods, including sodium.



BREADS & ROLLS

Some foods that you eat several times a day, such as bread, add up to a lot of sodium even though each serving may not seem high in sodium. Check the labels to find lower-sodium varieties.

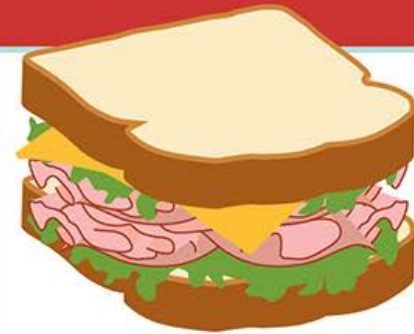
1



COLD CUTS & CURED MEATS

One 2 oz. serving, or 6 thin slices, of deli meat can contain as much as half of your daily recommended dietary sodium. Look for lower-sodium varieties of your favorite lunch meats.

2



SANDWICHES

A sandwich or burger from a fast food restaurant can contain more than 100 percent of your daily suggested dietary sodium. Try half a sandwich with a side salad instead.

3



PIZZA

A slice of pizza with several toppings can contain more than half of your daily recommended dietary sodium. Limit the cheese and add more veggies to your next slice.

4



SOUP

Sodium in one cup of canned soup can range from 100 to as much as 940 milligrams—more than half of your daily recommended intake. Check the labels to find lower sodium varieties.

5



CHICKEN

Sodium levels in poultry can vary based on preparation methods. You will find a wide range of sodium in poultry products, so it is important to choose wisely.

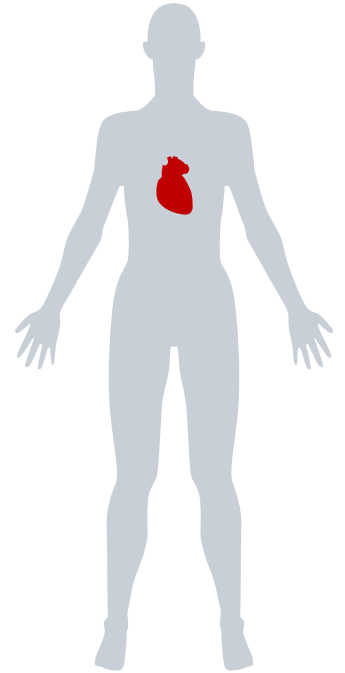
6

¹Quader ZS, Zhao L, Gillespie C, et al. Sodium Intake Among Persons Aged ≥2 Years — United States, 2013–2014. *MMWR Morb Mortal Wkly Rep* 2017;66:324–238. DOI: <http://dx.doi.org/10.15585/mmwr.mm6612a3>.

CVD Risk factors

- Increasing age
- Male sex
- Race
- Heredity
- Smoking
- Alcohol
- Overweight/Obesity
- High blood pressure
- Physical inactivity

Get Moving!



Review

- Limit saturated fats
 - Eat less red meat, make better choices when you do
 - Beef – choose leaner cuts like sirloin, round, 90-97% lean ground beef
 - Pork – choose pork tenderloin, center cut chops
 - Remove skin from chicken and turkey
 - Cut away visible fat
- Avoid trans fats
 - Look for “Partially hydrogenated oils” on the label
- Get enough unsaturated fats
- Reduce sodium and sugar intake
- Get moving!



Free Resources

<https://www.accessdata.fda.gov/scripts/InteractiveNutritionFactsLabel/#downloadables>

Nutrition Facts
Serving Size 1 package (272g)
Servings Per Container 1

| Amount Per Serving | % Daily Value* |
|-------------------------------|----------------------|
| Calories 300 | Calories from Fat 45 |
| % Daily Value* | |
| Total Fat 5g | 8% |
| Saturated Fat 1.5g | 8% |
| Trans Fat 0g | |
| Polyunsaturated Fat 1.5g | |
| Monounsaturated Fat 1g | |
| Cholesterol 30mg | 10% |
| Sodium 430mg | 18% |
| Total Carbohydrate 55g | 18% |
| Dietary Fiber 6g | 24% |
| Sugars 23g | |
| Protein 14g | |
| Vitamin A | 80% |
| Vitamin C | 35% |
| Calcium | 6% |
| Iron | 15% |

Monounsaturated and Polyunsaturated Fat

What They Are

Monounsaturated and polyunsaturated fats are found in higher proportions in **plants** and **seafood** and are usually **liquid at room temperature**. The exceptions are certain tropical plant oils, such as coconut oil, palm oil, and palm kernel oil (which are high in saturated fat) and partially hydrogenated oils (which contain *trans* fat).

Where They Are Found

Monounsaturated fats are found in a variety of foods, including:

- Avocados
- Mayonnaise and oil-based salad dressings
- Nuts (such as almonds, hazelnuts, pecans, and peanuts)
- Seeds (such as pumpkin and sesame seeds)
- Soft margarine (liquid, spray, and tub)
- Vegetable oils (such as canola)

Nutrition Facts
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| Trans Fat 0g | |
| Cholesterol 30mg | 10% |
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| Total Carbohydrate 55g | 18% |
| Dietary Fiber 6g | 24% |
| Sugars 23g | |
| Protein 14g | |
| Vitamin A | 80% |
| Vitamin C | 35% |
| Calcium | 6% |
| Iron | 15% |

Saturated Fat

What It Is

Saturated fat is found in higher proportions in **animal products** and is usually **solid at room temperature**. The exceptions are seafood (which is low in saturated fat) and certain tropical plant oils, such as coconut oil, palm oil, and palm kernel oil (which are high in saturated fat).

The human body *makes* more saturated fat than it needs — so it is not necessary to get saturated fat from food.

Where It Is Found

Saturated fat is found in a variety of foods, including:

- Beef fat (tallow and suet), chicken fat, and pork fat (lard)
- Cream and milk (whole and 2% milk)
- Dairy products (such as butter and regular/full-fat cheese, cream cheese, and ice cream)
- Dairy desserts (such as ice cream, other frozen desserts, and puddings)
- Grain-based desserts (such as brownies, cakes, cookies, doughnuts, pastries, pies, and sweet rolls)
- Fast food
- Meats and poultry
- Nuts
- Processed meat and poultry products (such as bacon, hot dogs, jerky, luncheon meats, and sausages)
- Tropical plant oils (such as coconut, palm, and palm kernel oils)

Saturated fat can increase the risk of developing cardiovascular disease.

Nutrition Facts
Serving Size 1 package (272g)
Servings Per Container 1

| Amount Per Serving | % Daily Value* |
|-------------------------------|----------------------|
| Calories 300 | Calories from Fat 45 |
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Trans Fat

What It Is

Trans fat is an unsaturated fat, but it is structurally **different** than unsaturated fat that occurs naturally in plant foods. *Trans* fat has **detrimental health effects** and is not essential in the diet.

There are **two sources** of *trans* fat:

- **Trans fat formed naturally** – this type of *trans* fat is produced in the gut of some grazing animals (such as cattle and sheep).
- **Trans fat formed artificially during food processing** – this type of *trans* fat is created during a process called “partial hydrogenation” in which hydrogen is added to liquid vegetable oil to make it more solid, and therefore more resistant to becoming spoiled or rancid. The process generally does not make the oil completely solid, resulting in “partially” hydrogenated oils.

Where It Is Found

Trans fat formed naturally is found in small amounts in some animal products, such as meats and dairy products.

Trans fat formed artificially during food processing is found in partially hydrogenated oils used in a variety of foods, including:

Understanding and Using the Nutrition Facts Label

The Nutrition Facts Label found on packaged foods and beverages is your daily tool for making informed food choices that contribute to healthy lifelong eating habits. Explore it today and discover the wealth of information it contains!

Serving Size

Serving Size is based on the **amount of food that is customarily eaten** at one time. All of the nutrition information listed on the Nutrition Facts Label is based on **one serving** of the food.

- When comparing calories and nutrients in different foods, check the serving size in order to make an accurate comparison.

Servings Per Container

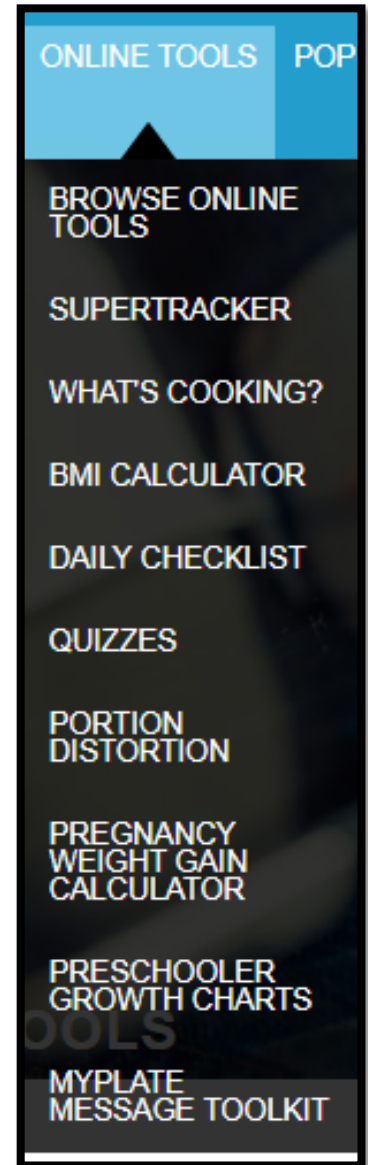
Servings Per Container shows the **total number of servings** in the entire food package or container. One package of food may contain more than one serving.

Nutrition Facts
Serving Size 1 package (272g)
Servings Per Container 1

| Amount Per Serving | % Daily Value* |
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| Saturated Fat 1.5g | 8% |
| Trans Fat 0g | |

Web Resources

- <https://www.choosemyplate.gov/>
Dietary recall / diary
- Physical activity trackers
- Understanding what our bodies need to be healthy, not necessarily lose weight.
- [10 Tips for Teen Girls: Eat Smart and Be Active as You Grow](#)
- [10 Tips for Teen Guys: Choose the Foods You Need to Grow](#)
- [Take Charge of Your Health: A Guide for Teenagers](#)
- [Fuel Up To Play 60](#)
- [BAM! Body and Mind, Food and Nutrition Information](#)





United States Department of Agriculture

SuperTracker Nutrition Lesson Plans for High School Students

USDA Center for Nutrition Policy and Promotion

<https://www.SuperTracker.usda.gov>



Food

[Home](#) > [Food](#) > [Science & Research \(Food\)](#) > [Tools & Science Education Materials](#) > [Science and Our Food Supply](#)

Science and Our Food Supply

Science and Our Food Supply - Free Supplementary Curriculum for Middle Level and High School Classrooms



SHARE



TWEET



LINKEDIN



PIN IT



EMAIL



PRINT

What captures the interest of students? FOOD! Yes, food can be used to engage students in inquiry-based science — *really!*

The Science and Our Food Supply Teacher Guides are challenging hands-on, minds-on activities that link food safety and nutrition to students' everyday lives. They are crafted in a teacher-friendly modular format that easily fit into science, health, and other classes.

Choose from these topics:

- [Food Safety](#)
- [Nutrition](#)



Hands on Activities

- Replica food models – Nasco catalog
- Food cards – Dairy Council – limited supply
- Food containers and packages – collect as needed or keep on hand

Nasco

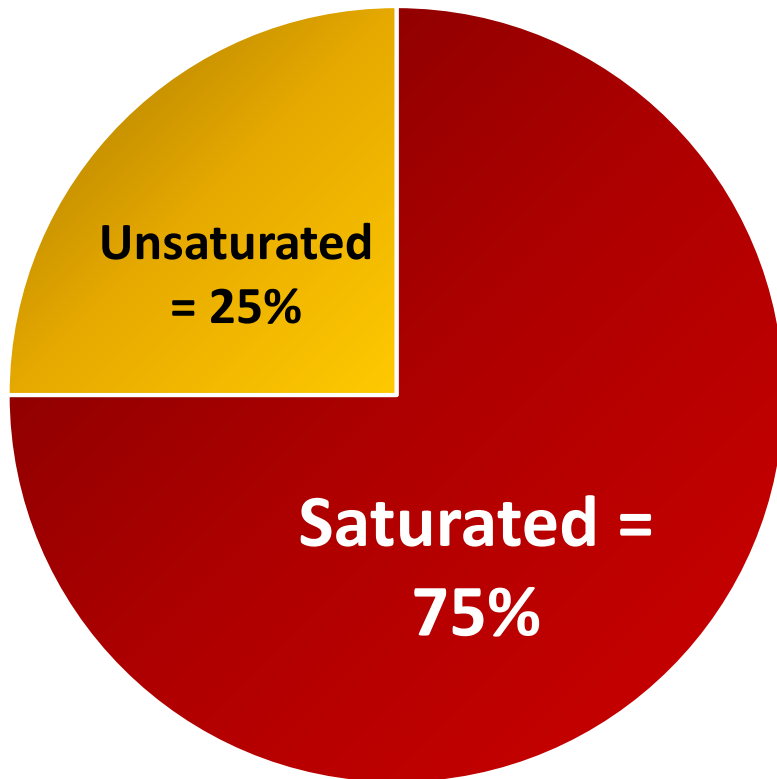
The screenshot shows the Dairy Council website interface. At the top, there is a navigation bar with links for 'Home / Food Models', 'FOOD MODELS', and a star rating of five stars. The product information includes 'ITEM #: 0012N' and a price of '\$ 25.00'. A quantity selector is set to '1', and there is an 'ADD TO CART' button. Below the product image, there are tabs for 'Description', 'eResources', and 'Reviews', with 'All Ages' listed at the bottom.

Home / Food Models
FOOD MODELS
★★★★★
ITEM #: 0012N
\$ 25.00
Quantity: 1
ADD TO CART
Description | eResources | Reviews
All Ages



Activity – Ranking the fats

- Know before:

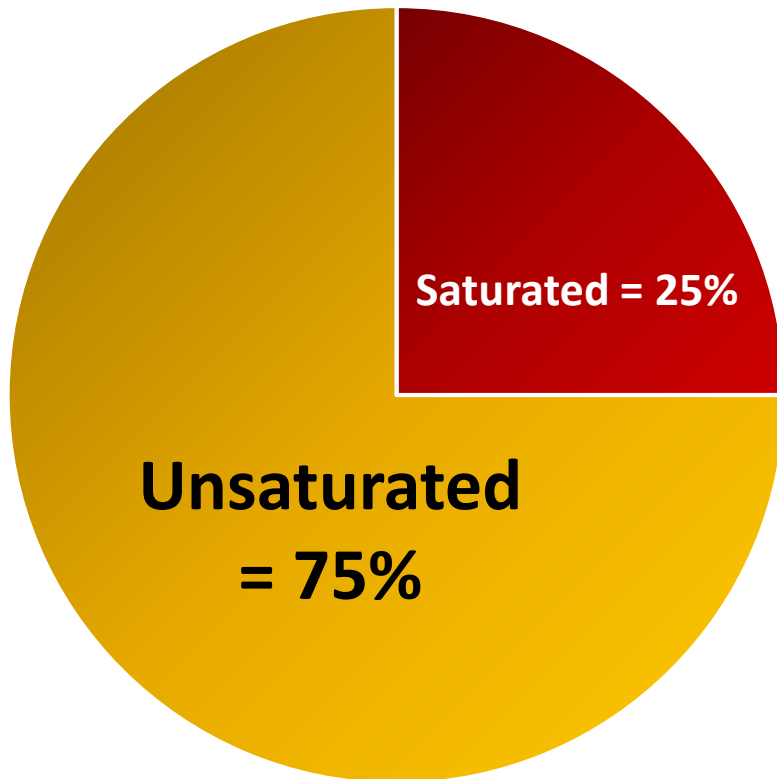


Saturated Fat



Activity – Ranking the fats

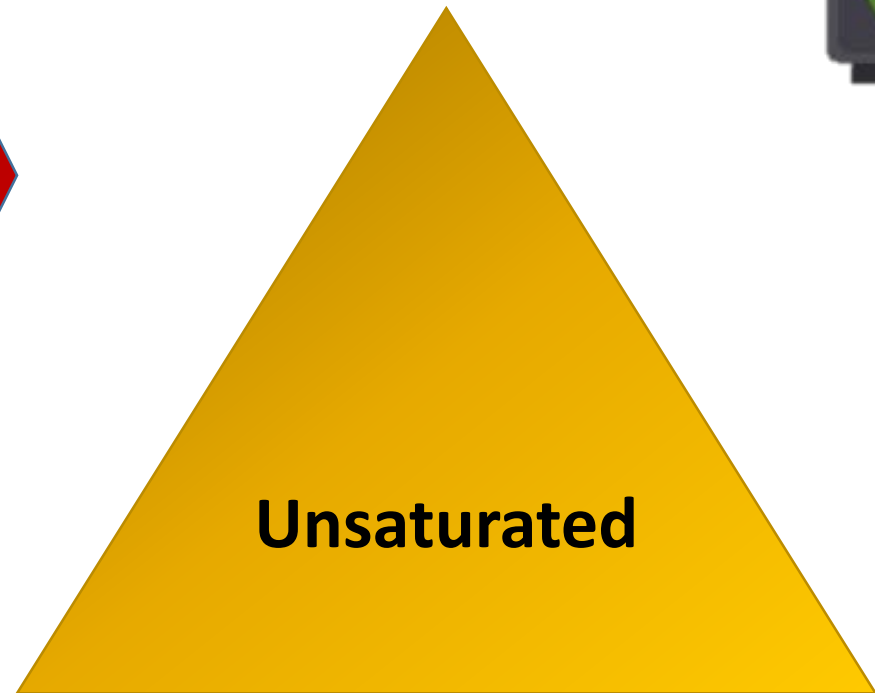
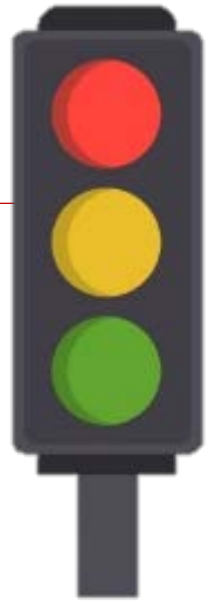
- Know before:



Unsaturated Fat



Activity – wrap up



Acitivity - Find it on the label

- 0.5 grams trans fat or less per serving will read 0 grams trans fat on the label. Check serving size.
- Heart Healthy?
- Fat Free?
- Gluten Free?

| Nutrition Facts | | | |
|---|-----------|-----------------------|--------------|
| Serving Size 1 cup (228 g) | | | |
| Servings Per Container 2 | | | |
| Amount Per Serving | | | |
| Calories 250 | | Calories from Fat 110 | |
| % Daily Value | | | |
| Total Fat | 12g | | 18% |
| ↘ Saturated Fat | 3g | | 15% |
| ↘ Trans Fat | 2g | | |
| Cholesterol | 30mg | | 10% |
| Sodium | 470mg | | 20% |
| Total Carbohydrate | 31g | | 10% |
| Dietary Fiber | 0g | | 0% |
| Sugars 5g | | | |
| Protein 5g | | | |
| Vitamin A | 4% | • | Vitamin C 2% |
| Calcium | 20% | • | Iron 4% |
| Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs: | | | |
| | Calories | 2,000 | 2,500 |
| Total Fat | Less than | 65g | 80g |
| Sat Fat | Less than | 20g | 25g |
| Cholesterol | Less than | 300mg | 300mg |
| Sodium | Less than | 2,400mg | 2,400mg |
| Total Carbohydrate | | 300g | 375g |
| Dietary Fiber | | 25g | 30g |

Activity



Match the product to the correct nutrition label



| Nutrition Facts | |
|----------------------------|---------------------|
| Serving Size 1 cup (228 g) | |
| Servings Per Container 2 | |
| Amount Per Serving | |
| Calories 250 | Calories from Fat 1 |
| % Daily Val | |
| Total Fat 12g | 1 |
| Saturated Fat 3g | 1 |
| Trans Fat 2g | |
| Cholesterol 30mg | 1 |
| Sodium 470mg | 2 |
| Total Carbohydrate 31g | 1 |
| Dietary Fiber 0g | |
| Sugars 5g | |
| Protein 5g | |
| Vitamin A 10% | Vitamin C 20% |



Activity

- **Milk, skim**
- **Canola oil**
- **Butter**
- **Olive Oil**
- **Cheese Mexican (anejo)**
- **Oil Spread, (Like I can't believe its not Butter)**
- **Coconut oil**
- **Ground beef patty cooked broiled, 70% lean**
- **Lard**
- **Light butter (oil and butter spread, like Land o lakes light butter)**
- **Milk, whole**

Another Free Resource



**UGA Extension Family and Consumer Sciences
Agents**

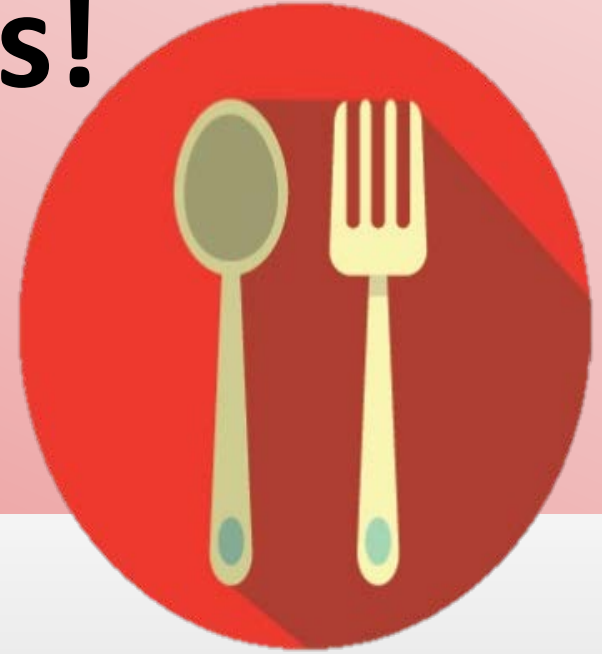
Locate one near you.



Evaluation Tool



Be heart smart! Choose the right fats! Prevent CVD!



Roxie Price

Family and Consumer Sciences Agent

Tift County Extension – 229-391-7980



Acknowledgments

- ***Images and templates used in this presentation are designed by Freepik.com and Pexel.com.***
- ***Hannah Winston, Graduate Student and Dietetic Intern***
- ***Alison (Ali) C. Berg, PhD, RDN, LD, Assistant Professor and Extension Nutrition and Health Specialist, The University of Georgia, College of Family and Consumer Sciences, Department of Foods and Nutrition***

References

- ***Mumme, Karen and Welma Stonehouse. "Effects of Medium-Chain Triglycerides on Weight Loss and Body Composition: A Meta-Analysis of Randomized Controlled Trials." Journal of the Academy of Nutrition and Dietetics, vol. 115, no. 2, 2015, pp. 249-263, doi:<https://doi.org/10.1016/j.jand.2014.10.022>.***
- ***"Position of the Academy of Nutrition and Dietetics: Dietary Fatty Acids for Healthy Adults." Journal of the Academy of Nutrition and Dietetics, vol. 114, no. 1, 2014.***
- ***Sacks, Frank M. et al. "Dietary Fats and Cardiovascular Disease: A Presidential Advisory from the American Heart Association." Circulation, 2017, doi:10.1161/cir.0000000000000510.***