

What's Fat ALL About?

Learner Objectives

Participants will be able to:

- understand and be able to define solid fats;
- identify foods that contain solid fats; and
- identify one goal or action to reduce solid fat intake.

Materials

- Dry erase board or chalkboard to write on
- Pencils for participants

Discussion

1. What is fat?

- Fat is a nutrient. Your body needs fat for energy and daily bodily functions. Fat helps other nutrients do their jobs. Most foods contain several kinds of fat, and some are better for your health than others.
- Fats can occur naturally in plant and animal sources, while other fats are man-made. Fats can be in a solid or liquid form.
- Solid fats, also called *saturated fats*, are fats that are solid at room temperature, such as beef fat, butter, and shortening. Solid fats primarily come from animal foods (exceptions include coconut and palm oil — see below), but can also be man-made by adding hydrogen atoms to plant-based fats such as vegetable oil. This process can make what is called *trans fats*.
- In contrast to solid fats, oils are fats that are liquid at room temperature. These types of fats are called unsaturated fats and are primarily plant-based oils, such as canola oil, soybean oil, corn oil, and olive oil. There are two types of unsaturated fats: monounsaturated fat and polyunsaturated fat.

2. Types of solid fats include:

- butter;
- stick margarine;
- milk fat, cream;
- meat fat — in beef, chicken, and pork (lard);
- shortening;
- hydrogenated and partially hydrogenated oils;
- coconut oil; and
- palm and palm kernel oils.

3. What foods contain solid fats?

- Some foods have naturally occurring solid fats. Most of these foods are animal products. Examples include:
 - whole and 2% milk, cream, cheeses, and other dairy products;
 - sausages, hot dogs, bacon, and ribs;
 - ground meats and meats with visible fat; and
 - chicken with skin.

This means that ice cream, other dairy desserts, and pizza all contain solid fats. Other foods have solid fats added to them. Fats can be added to food products by frying the food product or during preparation and baking. Examples include:

- desserts and baked goods, such as cakes, cookies, donuts;
- french fries or any food fried in a solid fat or hydrogenated oil; and
- fried chicken or pork chops.

4. Is solid fat bad for me?

- Most solid fats are high in saturated fats and/or trans fats. Saturated fats can increase cholesterol levels and lead to cardiovascular disease or a stroke. Trans fats are man-made fats that are not essential for human life. They are closely associated with coronary heart disease risk by elevating cholesterol level. Solid fats also contain less monounsaturated or polyunsaturated fats than most liquid fats. Monounsaturated and polyunsaturated fats have less of a negative impact on health and are better choices compared to saturated and trans fats.
- Solid fats found in animal products contain cholesterol. Extra cholesterol and saturated fat in the diet can raise the cholesterol levels in blood and increase the risk of heart disease.
- Solid fats have minimal health benefits and should only be eaten in small amounts. There are many risks associated with high solid fat consumption including obesity, heart disease, high blood pressure, diabetes, breathing problems, and trouble sleeping.



5. What are the limitations for solid fats?

Age and Gender	Total Daily Calorie Needs (depending on growth and activity level)	Daily Limit for Solid Fat Calories It should be less than 10% from total calories	Daily Limit for Total Grams of Solid Fat
Boys 9 to 13	1,600 to 2,600	160 to 260	18 to 29
Boys 14 to 18	2,000 to 3,200	200 to 320	22 to 35
Girls 9 to 13	1,400 to 2,200	140 to 220	15 to 24
Girls 14 to 18	1,800 to 2,400	180 to 240	20 to 26

- Added sugars and solid fats are considered empty calories because they provide the body with many calories and few vitamins and minerals.
- The chart above shows the total calorie needs for girls and boys based on their age. It also shows the number of empty calories and grams of solid fats that can be eaten based on your age and gender. No more than 10 percent of your daily calorie intake should come from solid fats.
- Try to decrease calorie intake related to solid fats by choosing lean meats, baked foods (instead of fried), and low-fat dairy products.



Solid Fat Comparison

Roasted Chicken Breast

One medium-sized breast
142 calories
3.07 grams of total fat



Fried Chicken

Two drumsticks
400 calories
25.4 grams of total fat



Whole Milk

1 cup
146 calories
7.81 grams of total fat



Low Fat (1%) Milk

1 cup
106 calories
2.34 grams of total fat



Fat Free (Skim) Milk

1 cup
83 calories
0.195 grams of total fat



French Fries

One medium fast-food order
356 calories
17.2 grams of total fat



Plain Baked Potato

One medium potato
164 calories
0.225 grams of total fat



How to Make Healthier Choices

- Eat lean meats, such as skinless chicken or turkey breast, instead of high-fat meats.
- Eat more seafood and fish.
- Eat less fast food.
- Select salads, vegetables, or fruit cups over French fries as side dishes when eating out, but remember to ask for low-fat salad dressing.
- Drink nonfat or low-fat milk instead of whole and 2% milk.
- Eat low-fat yogurts and cheeses.
- Eat more fruits and vegetables.
- Exercise more.



Snack Ideas Low in Solid Fats

- part-skim mozzarella cheese sticks
- apple slices or banana slices with peanut butter
- carrot sticks and cucumber slices with hummus
- fruit slices dipped in low fat yogurt
- dried fruit
- low-fat frozen yogurt
- popcorn
- fruit smoothies made with low-fat yogurt and frozen fruit

Activity

Four Corners

- Mark four corners of a room with numbers 1 to 4.
- One player is selected to be the “counter.” This player sits in the middle of the room, closes his or her eyes, and counts to 10.
- Remaining players choose any one of the corners and stand in that area as the counter counts to 10.
- When the counter has finished counting, he or she calls out one of the numbers. Players who are in the corner the counter selects are out of the game.
- The counter counts again and the remaining players move to a new corner. The process continues until there is one player left in the game. The last player becomes the new counter.

Rules

- The counter’s eyes must be closed when counting and choosing a corner or he or she is disqualified.
- Players not in a corner when the number 10 is reached are out of the game.
- When the counter calls out a corner, only the players are out of the game, not the corner. All four corners remain in play during the entire game.
- Talking is not allowed during the game; talking players are disqualified.
- Players are allowed to trick the counter by walking loudly to one corner and quietly walking to the next corner. They are not allowed to knock on walls or talk to distract the counter.

Nutrition Twist

Instead of numbering the corners 1 to 4, name the corners Hot Dog, Ice Cream, Pepperoni Pizza, and Donuts.

Worksheet

1 What are solid fats?

List three foods that contain solid fats.
 2 _____

3 Explain two reasons solid fats can impact your health.

4 Susie had two slices of bacon, three sausage links, one egg over easy, one piece of toast with butter, an apple, and one glass of whole milk for breakfast. What foods did Susie eat that contain solid fats?

Answer questions 5 to 7 using the food labels.

5 Tommy ate 36 chips after school. How many calories and grams of fat did Tommy eat?

6 Becky ate one container of Berry & Strawberry Low Fat Kids Yogurt. How many calories and grams of fat did Becky eat?

Nutrition Facts
 Serving Size about 12 chips (28 g)

Amount Per Serving		
Calories		150
	Amount/Serving	% Daily Value*
Total Fat	8 g	10%
Saturated Fat	1 g	5%
Trans Fat	0 g	
Cholesterol	0 mg	0%
Sodium	190 mg	8%
Total Carbohydrate	18 g	6%
Dietary Fiber	1 g	5%
Total Sugars	<1 g	
Includes Added Sugars	28 g	56%
Protein	2 g	
Vitamin D	0 mcg	0%
Calcium	30 mg	2%
Iron	0.3 mg	4%
Potassium	50 mg	0%

Nutrition Facts
 Serving Size 1 container

Amount Per Serving		
Calories		100
	Food component/nutrient	Amount % Daily Value*
Total Fat	1 g	1%
Saturated Fat	0 g	0%
Trans Fat	0 g	
Cholesterol	5 mg	1%
Sodium	50 mg	10%
Total Carbohydrate	20 g	7%
Dietary Fiber	0 g	0%
Total Sugars	15 g	
Includes Added Sugars	11 g	22%
Protein	3 g	
Vitamin D	2 mcg	10%
Calcium	120 mg	8%
Iron	0 mg	0%
Potassium	160 mg	4%
Vitamin A	110 mcg	10%

Not a significant source of added sugars
 *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.

*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.

7 Did Becky or Tommy eat the snack lower in solid fat? Why?

Kansas School Wellness Policy Model Guideline — Nutrition Education

Requirements achieved in this lesson:	Implementing	Transitioning	Modeling
	All students in grades K-12 will have the opportunity to participate in culturally relevant activities, as appropriate, and a variety of learning experiences that support development of healthful eating habits that are based on the most recent Dietary Guidelines for Americans and evidence-based information.	District administrators inform teachers and other school personnel about opportunities to participate in professional development on nutrition and on teaching nutrition.	The wellness committee, teachers and other school personnel participate in nutrition education-related professional development at least once a year.
Topic	Basic information about solid fats. Evaluating health claims on food labels.		

References

- Bliss, R. M. (2015). *Solid Fats and Added Sugars in Foods*: USDA ARS. U.S. DEPARTMENT OF AGRICULTURE. <https://www.ars.usda.gov/news-events/news/research-news/2015/solid-fats-and-added-sugars-in-foods/>
- CDC. (2023). *Unit 2: Nutrition | Healthy Schools | CDC*. CDC Healthy Schools. <https://www.cdc.gov/healthyschools/bam/nutrition.htm>
- DORITOS® COOL RANCH® Flavored Tortilla Chips | Doritos. (2024). <http://www.doritos.com/products/doritos-cool-ranch-flavored-tortilla-chips>
- Duyff, R. L. (2017). *Academy Of Nutrition And Dietetics Complete Food And Nutrition Guide* (5th ed.). Houghton Mifflin Harcourt.
- FoodData Central. (n.d.). Retrieved June 4, 2024, from <https://fdc.nal.usda.gov/index.html>
- Kansas Department of Education. (2021). *Chapter 21: Local School Wellness Policies*. <https://cnw.ksde.org/snp/food-service-facts/chapters/chapter-21-local-school-wellness-policies>
- Manetti, S. (2022). *Dietary fats explained: MedlinePlus Medical Encyclopedia*. National Library of Medicine. <https://medlineplus.gov/ency/patientinstructions/000104.htm>
- Rethink Fats | MyPlate*. (2022). MyPlate U.S. DEPARTMENT OF AGRICULTURE. <https://www.myplate.gov/tip-sheet/rethink-fats>
- Smart Label. (2024). Yoplait Low Fat Kids Yogurt. <https://smartlabel.generalmills.com/00070470461182>
- Top 10 Things You Need to Know About the Dietary Guidelines for Americans, 2020-2025 | Dietary Guidelines for Americans*. Current Dietary Guidelines. <https://www.dietaryguidelines.gov/2020-2025-dietary-guidelines-online-materials/top-10-things-you-need-know>
- USDA MyPlate Healthy Eating More Key Topics: Oils, Added Sugars, Saturated Fats, Sodium, and Alcohol*. More Key Topics. <https://www.myplate.gov/eat-healthy/more-key-topics>
- What nutrients does your child need now?* (2022). Mayo Clinic. <https://www.mayoclinic.org/healthy-lifestyle/childrens-health/in-depth/nutrition-for-kids/art-20049335>

Answer Key

1. Solid fats are fats that are solid at room temperature, like beef fat, butter, and shortening. Solid fats come from animal foods and can also be made from vegetable oils through a process called hydrogenation.
2. Dairy products, meat, poultry, ground meats, poultry skin, butter, lard, shortening, hydrogenated oils, baked goods, desserts, fried chicken, fried foods, margarine, sausages, bacon, ribs, palm oils, and coconut oils are all acceptable answers. Specific answers like cookies and chocolate cake are OK too.
3. Solid fats are high in saturated fats, trans fat, and cholesterol. Solid fats contain less monounsaturated fat and polyunsaturated fat. Solid fat can increase the risk of heart disease and a stroke. Solid fats contribute to overweight or obesity. All answers are acceptable.
4. Bacon, sausage, butter, and whole milk.
5. $36 \text{ chips} \div 12 \text{ chips} = 3 \text{ servings}$
1 serving = 150 calories, 3 servings = 450 calories (150×3)
1 serving = 8 grams of fat, 3 servings = 24 grams of fat (8×3)
Tommy ate 450 calories and 24 grams of fat.
6. Becky ate 100 calories and 1 gram of fat.
7. Becky had a healthier snack than Tommy. Becky's snack had fewer calories and 1 gram of fat.

Revised by Priscilla Brenes, MPH, Ph.D., Extension Assistant Professor/State Extension Specialist, Department of Food, Nutrition, Dietetics, and Health, Kansas State University
Malak Alsaati, Graduate Research Assistant in Food, Nutrition, Dietetics, and Health, Kansas State University
The authors gratefully acknowledge the work of the original author, Tandalayo Kidd, Ph.D., and her team.

Brand names appearing in this publication are for product identification purposes only.
No endorsement is intended, nor is criticism implied of similar products not mentioned.

Publications from Kansas State University are available at: bookstore.ksre.ksu.edu

Date shown is that of publication or last revision.

Contents of this publication may be freely reproduced for educational purposes. All other rights reserved.

In each case, credit Priscilla Brenes, MPH, Ph.D., and Malak Alsaati, *What's Fat All About?*,
Kansas State University, December 2024.