

# 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 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	Daily Limit for Empty Calories	Daily Limit for Solid Fat Calories	Daily Limit for Total Grams of Solid Fat
Boys 9 to 13	1,800	160	80	9
Boys 14 to 18	2,200	265	132	15
Girls 9 to 13	1,600	120	60	7
Girls 14 to 18	1,800	160	80	9

- Calories containing no nutrients are called empty calories. Added sugars and solid fats are empty calories because they provide the body with minimal to no nutrients.
- 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 5 percent to 15 percent of your daily calorie intake should come from empty calories. Therefore, about half of the empty calories in your diet can come from added sugars and the other half can come from solid fats.
- Try to decrease empty 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  
138 calories  
1.08 grams of total fat



## Fried Chicken

Two drumsticks  
478 calories  
10.84 grams of total fat



---

## Whole Milk

1 cup  
149 calories  
7.93 grams of total fat



## Low Fat (1%) Milk

1 cup  
102 calories  
2.37 grams of total fat



## Fat Free (Skim) Milk

1 cup  
83 calories  
0.44 grams of total fat



---

## French Fries

One medium fast-food order  
431 calories  
23.84 grams of total fat



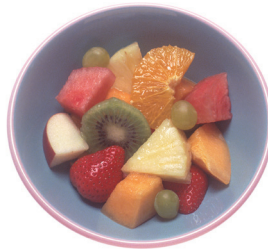
## Plain Baked Potato

One medium potato  
159 calories  
3.15 grams of total fat



## How to Make Healthier Choices

- Eat lean meats, such as a 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 be bad for 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?  
 \_\_\_\_\_  
 \_\_\_\_\_

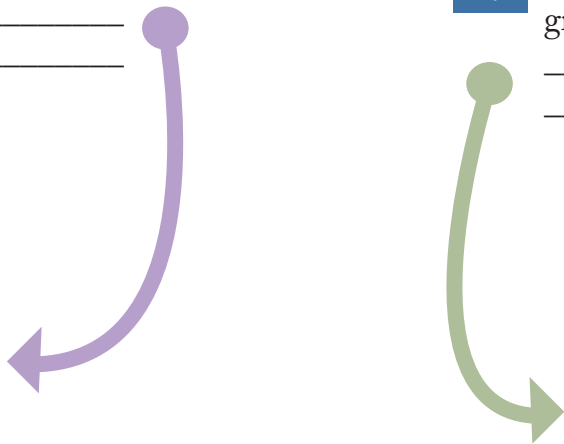
Answer questions 5 to 7 using the food labels.

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

6 Becky ate one container of strawberry orange sunrise light yogurt. How many calories and grams of fat did Becky eat?  
 \_\_\_\_\_  
 \_\_\_\_\_

Nutrition Facts	
Serving Size 1 oz (28g/About 12 chips)	
Amount Per Serving	
<b>Calories</b> 150	Calories from Fat 70
% Daily Value*	
<b>Total Fat</b> 8g	<b>12%</b>
Saturated Fat 1g	<b>5%</b>
Trans Fat 0g	
<b>Cholesterol</b> 0mg	<b>0%</b>
<b>Sodium</b> 180mg	<b>8%</b>
<b>Total Carbohydrate</b> 18g	<b>6%</b>
Dietary Fiber 2g	<b>6%</b>
Sugars less than 1g	
<b>Protein</b> 2g	
Vitamin A 0%	Vitamin C 0%
Calcium 2%	Iron 0%
Vitamin E 6%	Thiamin 4%
Riboflavin 2%	Vitamin B <sub>6</sub> 4%
Phosphorus 4%	Magnesium 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
Calories per gram:	
Fat	9 • Carbohydrate 4 • Protein 4

Nutrition Facts	
Serving Size 170 G	
Servings Per Container 1	
Amount Per Serving	
<b>Calories</b> 90	Calories from Fat 0
% Daily Value*	
<b>Total Fat</b> 0 G	<b>0</b>
Saturated Fat 0 G	<b>0</b>
Trans Fat 0 G	
<b>Cholesterol</b> <5 Mg	<b>1</b>
<b>Sodium</b> 80 Mg	<b>3</b>
<b>Total Carbohydrate</b> 16 G	<b>5</b>
Dietary Fiber 0 G	<b>0</b>
Sugars 10 G	
<b>Protein</b> 5 G	
Vitamin A	15
Vitamin C	0
Calcium	20
Vitamin D	20
Phosphorus	10



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

**Kansas School Wellness Policy Model Guideline — Nutrition Education**

**Classroom: Middle-High School**

<b>Requirements achieved in this lesson:</b>	<b>Basic</b>	<b>Advanced</b>	<b>Exemplary</b>
<b>Basic, Advanced, and Exemplary</b>	At least 25 percent of nutrition education involves hands-on activities that engage students in enjoyable, developmentally appropriate, culturally relevant, participatory activities.	At least 50 percent of nutrition education instruction involves hands-on activities that engage students in enjoyable, developmentally appropriate, culturally relevant, participatory activities.	
<b>Topic</b>	Basic information about solid fats.		

## References

Centers for Disease Control and Prevention, Food and nutrition: <http://www.cdc.gov/bam/nutrition/index.html>

DeNoon, D. J. (2011). *New U.S. dietary guidelines: What not to eat*. Retrieved from

<http://www.webmd.com/diet/news/20110131/new-us-diet-guidelines-what-not-to-eat>

Frito Lay North America Doritos Cool Ranch flavored tortilla chips: <http://www.fritolay.com/our-snacks/doritos-cool-ranch-chips.html>

General Mills: Strawberry Orange Sunrise nutrition. <http://www.generalmills.com/Home/Brands/Yogurt/Yoplait/Brand%20Product%20List%20Page.aspx>

Mayo Clinic, Dietary fats: Know which types to choose: <http://www.mayoclinic.com/health/fat/NU00262>

United State Department of Agriculture, What are solid fats?: <http://www.choosemyplate.gov/weight-management-calories/calories/solid-fats.html>

## 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.  $36 \text{ chips} \div 12 \text{ chips} = 3 \text{ servings}$   
 $1 \text{ serving} = 150 \text{ calories}, 3 \text{ servings} = 450 \text{ calories} (150 \times 3)$   
 $1 \text{ serving} = 8 \text{ grams of fat}, 3 \text{ servings} = 24 \text{ grams of fat} (8 \times 3)$   
 Tommy ate 450 calories and 24 grams of fat.
6. Becky ate 90 calories and 0 grams of fat.
7. Becky had a healthier snack than Tommy. Becky's snack had fewer calories and 0 grams of fat.

The author gratefully acknowledges the contributions of Jessica Keller (graduate student in dietetics, graduated May 2013); reviewed by Karla Shelnett, Ph.D., R.D., and Lisa Franzen-Castle, Ph.D., R.D.; additional review and editing by Erika Bono, MPH, R.D., and Yijing Li, M.S.

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: [www.ksre.ksu.edu](http://www.ksre.ksu.edu)

Publications are reviewed or revised annually by appropriate faculty to reflect current research and practice.

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 Tandalayo Kidd, Ph.D., R.D., LPN, associate professor, human nutrition, *What's Fat All About?*, Kansas State University, November 2013.