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Oils and Empty Calories

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OILS AND EMPTY CALORIES

Lesson Goals

After this lesson, participants will:
- Know what empty calories are and how they fit into the Dietary Guidelines eating plan.
- Tell how many empty calories their eating plan provides.
- Understand that empty calories can come from any food group.
- Estimate limits for sodium and calories from solid fats and sugars.
- List sources of sodium.
- List sources of calories from solid fats and sugars.
- Explain why it is necessary to limit sodium and calories from solid fats and sugars.
- Use labels to identify products high in sodium.
- Use labels to identify products high in calories from solid fat and sugar.
- Explain the difference between saturated and unsaturated fat.
- Know how many teaspoons of oil are recommended for their eating plan.
- List the best choices for dietary oils.
- Determine whether calories from added sugar and saturated fat in their diet are within the recommendations of their MyPlate eating plan.
- Identify how much of the family grocery bill is spent on fats, oils, and sweets.
- Improve the quality of family meals and snacks by making changes in food buying and preparation practices that limit the use of foods high in sodium, solid fat, and sugar.

Before Teaching the Lesson

1. Read carefully:
   - Know the Limits on Fats, Sugars, and Salt (Sodium) (NEP-207)
   - Oils (NEP-207A)
   - Solid Fats and Added Sugars (SoFAS) (NEP207B)
   - Know the Limits on Salt (Sodium) (NEP-207C)
2. Review the USDA’s Dietary Guidelines.
3. Check the homemaker’s “24-Hour Food Recall Record” and checklist/behavior survey.
   - Does she include too many calories from fats, saturated and trans fats, and sugar?
   - Does she consume too much sodium?
   - Does her caloric intake exceed her energy expenditure?
   - Are there other members of the family who are not in energy balance?
4. Collect food models, nutrient comparison cards, and food labels of foods high in sodium and calories from solid fats and added sugar. Be prepared to discuss the cost of these foods in comparison to nutrient value.
5. Plan how you will teach the lesson and gather teaching tools.
**Teaching Tools**

**For homemakers:**
- *Know the Limits on Fats, Sugars and Salt* (Sodium) (NEP-207)
- *Oils* (NEP-207A)
- *Solid Fats and Added Sugars* (SoFAS) (NEP-207B)
- *Know the Limits on Salt* (Sodium) (NEP-207C)
- MyPlate handout
- *MyPlate Worksheet* (NEP-201C)
- *Empty Calories* handout (NEP-201D)
- Food models
- Nutrient comparison cards
- Food labels and packages
- Cookbooks
- Empty Calories recipe cards
- “A Healthy Mouth for your Baby” (<http://www.nih.gov>)
- “Seal Out Tooth Decay,” a booklet for parents (<http://www.nih.gov>)
- Food and nutrition calendar
- “Empty Calories” PowerPoint® presentation or flip chart

**For youth:**
- The Organwise Guys:
  - “How to Be Smart from the Inside Out” (3rd-5th grades)
  - “Basic Training for Better Health” (3rd-5th grades)
  - “The Healthy Heart Challenge” (3rd-5th grades)
  - “Pepto’s Party Portions” (3rd-5th grades)
- Fantastic Foods 4-H Curriculum:
  - “Six Easy Bites” (3rd-4th grades)
  - “Tasty Tidbits” (5th-6th grades)
  - “You’re the Chef” (6th-9th grades)
  - “Foodworks” (10th-12th grades)

**Lesson Points to Stress**

1. The USDA Dietary Guidelines for Americans recommend a certain amount of healthy oils from vegetables, fish and nuts for every calorie level. Participants can find out how many teaspoons of oils they need daily by visiting www.choosemyplate.gov, or by using the *MyPlate Worksheet*, NEP-201C.

2. Most Americans eat too many calories from solid fat and added sugar. Most Americans also eat diets that are too high in salt (sodium). This contributes to high incidence of obesity and chronic diseases such as diabetes, heart disease, cancer, and arthritis. The USDA Dietary Guidelines recommend limiting calories from SoFAS to 5 to 15 percent of total calories.

3. Fat, saturated fat, and sugar can be found in almost every food group:
   - Pies, cakes, and pastries are sources of added sugar and often are sources of fat.
   - Rich sauces can turn vegetable servings and casseroles into sources of fat and salt (sodium).
   - High-fat meats such as sausages, lunch meats, and bacon are sources of saturated fat, cholesterol, and sodium. All cured meats are high in sodium.
   - Cream, whole milk, 2% milk, and 1% milk are also sources of fat. Dairy products made from milk with fat in it are high in fat. This includes ice cream, pudding, butter, cream, sour cream, yogurt, and cheeses. Flavored yogurt may also have sugar added to it.
   - Most condiments are sources of sodium, fat, or sugar.

**Condiments high in SUGAR:**
- Catsup
- Barbecue sauce
- Maple syrup
- Jams
- Jellies
- Honey

**Condiments high in SALT (sodium):**
- Catsup
- Mustard
- Barbecue sauce
- Steak sauce
- Soy sauce
- Worcestershire sauce
- Pickles and pickle relish

**Condiments high in FAT:**
- Butter
- Margarine
- Mayonnaise
- Gravy
- Cream sauces
- Sour cream
4. Sugar is a source of calories that provides no vitamins, minerals, or other nutrients. For this reason, it is often referred to as an “empty calorie” food. Sugar also contributes to tooth decay. Eating sugar frequently or eating a sticky source of sugar causes acid to erode the enamel protecting the teeth, allowing decay.

5. Children develop a taste for sweets early in life. They will be more likely to develop good eating habits if:
   - Sweetened beverages are not given when they are young.
   - Sweet desserts and snacks are limited.
   - Sweets are not used to reward them for good behavior.
   - Sugar, honey, soft drinks, or other sweetened drinks are not given in their baby bottles.

6. Much of the sugar in Americans’ diets comes from foods that are noticeably sweet, including soft drinks, desserts, candy, and condiments such as jelly. However, the amount of sugar being added at the table has decreased in recent years, while the amount of sugar being added during processing has increased. Some of the foods that contain sugar are surprising. An example is store-bought Italian salad dressing.

7. To find added sugar in a product, look at the ingredient list. All ingredients are listed in order of weight. The ingredient present in the greatest weight is listed first. These are all types of sugars that you may see on an ingredient list. They all provide 4 calories per gram and provide no nutrients.
   - Brown sugar
   - Corn syrup
   - High fructose corn syrup
   - Honey
   - Molasses
   - Dextrose
   - Fructose
   - Galactose
   - Glucose
   - Lactose
   - Maltose
   - Sucrose
   - Corn sweetener
   - Nutritive sweeteners
   - Sugar alcohols

   Almost any word ending in “ose” is a sugar.

8. The Nutrition Facts label will include grams of sugar listed under “Total Carbohydrate.”

9. Alcohol is another source of calories that provides few nutrients. Alcohol provides 7 kcal/g of energy but no nutrients. Heavy drinkers often suffer from vitamin and mineral deficiencies. Drinking alcohol during pregnancy can cause birth defects, including mental retardation. Often, the damage from drinking alcohol occurs before the mother knows she is pregnant.

10. A great percentage of the sugar in the diets of most Americans comes from soft drinks. One 20-ounce regular soft drink contains 17 to 19 teaspoons of sugar. That’s 272 to 304 “empty” calories! (Empty calories are calories from foods that provide no nutrients.) Most soft drinks are also high in sodium.

11. Fat contributes 9 calories per gram, more than twice as much as carbohydrate or protein. Often, foods that are high in fat contribute few other nutrients. Diets high in certain fats are linked to obesity and chronic diseases such as heart disease, stroke, and some cancers.

   Ways to reduce fat in the diet:
   - Avoid fried foods.
   - Bake, broil, or grill instead of frying.
   - Trim excess fat from meat before cooking.
   - Remove skin from chicken before cooking.
   - Limit use of high-fat salad dressings, mayonnaise, sauces, gravies, butter, and margarine.
   - Use low-fat or fat-free milk

12. The USDA’s Dietary Guidelines recommend that most of our dietary fat come from fish, nuts, and vegetable oil. Examples of oils include the following:

   **Polyunsaturated oils**
   - Safflower oil
   - Corn oil
   - Soybean oil
   - Sunflower oil
   - Sesame oil

   **Monounsaturated oils**
   - Canola oil
   - Olive oil
   - Peanut oil

13. Saturated fat increases cholesterol in the blood, which is a risk factor for heart disease. A diet high in saturated fat is linked to obesity, heart disease, and some cancers. Saturated fat is usually solid at room temperature. The more solid, the more saturated. Soft margarines are the healthiest to use.
14. Saturated fat is usually from an animal source, which contains cholesterol as well:
   • Meat
   • Butter
   • Lard
   • Egg yolk
   • Whole milk
   • Cream
Tropical oils also contain saturated fat:
   • Palm oil
   • Coconut oil
   • Palm kernel oil
   • Cocoa butter
These oils are often found in bakery products.

15. Trans-fatty acids or trans fats:
   • Are found in vegetable shortening and some margarines.
   • Are found in “hydrogenated” oils.
   • Increase blood cholesterol.
Flaky pastries made with vegetable shortening are sources of trans-fatty acids or trans fat.

16. The Nutrition Facts label will identify if a food is a source of saturated fat, trans fats, or cholesterol.

17. Some fat is necessary in our diet. We need it:
   • For energy.
   • To improve the taste of food.
   • To provide a feeling of fullness and satisfaction of appetite.
   • To aid in the absorption of vitamins A, D, E, and K.
   • To make hormones, which regulate many body processes.
Unsaturated vegetable oils are healthier than saturated oils.

18. Our bodies need only about 200 milligrams of sodium a day – about ⅛ teaspoon salt! Salt is a common additive to foods, and most have developed a taste for it. American diets are high in salt (sodium). In some people, excess sodium causes high blood pressure (hypertension). High blood pressure can lead to heart attack, stroke, and kidney failure.

19. Sodium is found in processed foods such as:
   • Canned soups
   • Prepared sauces and gravies
   • Condiments
   • Seasoning mixtures
   • Cured meats
   • Luncheon meats
   • Sausages
   • Pickles and relishes
   • Olives
Other high sodium foods include:
   • Cheeses
   • Salty snacks (chips, salted nuts)
   • Soft drinks

20. The Nutrition Facts label reveals how much sodium is in a food item. The USDA Dietary Guidelines advise that people consume no more than 2,300 milligrams of sodium daily. Adults ages 51+, African Americans ages 2+, people ages 2+ with high blood pressure, diabetes, or chronic kidney disease should consume no more than 1500 milligrams sodium per day. When purchasing salt, make sure to purchase iodized salt. Iodine has been added to this salt to reduce the chance of developing goiter.

21. Maintaining a healthy weight really is all about the calories. As long as the number of calories eaten equals the number of calories used for body function (heartbeat, breathing, digestion) and activity, weight stays constant.

22. If more calories are eaten than used, the excess is stored as fat.
The human body is very efficient at preserving stored energy. To burn stored fat, one may need to be physically active for 60 to 90 minutes each day. It is much easier to prevent weight gain than to lose weight.

**Ideas for Teaching the Lesson**

1. Prior to visiting the homemaker:
   • Collect prices from local stores for foods that are high in solid fat, added sugar, and salt (sodium).
   • Review her “24-Hour Food Recall Record” and checklist/behavior survey. Does she include too many foods that are high in solid fat, added sugar, and sodium? Does she get adequate physical activity?
   • Collect food models, comparison cards, and food labels.
• Before beginning this lesson, review what you taught the homemaker on your last visit. What information has she used? What new things has she tried?

Approximate Limits*

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<th>Added Calories</th>
<th>Added SoFAS kcal</th>
<th>Added Na+ mg</th>
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<tr>
<td>2000</td>
<td>260 kcal</td>
<td>2,300 mg</td>
<td></td>
</tr>
<tr>
<td>2200</td>
<td>270 kcal</td>
<td>2,300 mg</td>
<td></td>
</tr>
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</table>

*Solid fat and added sugar limits, as well as sodium limits, are based on USDA Dietary Guidelines 2010.

2. If the homemaker has not already identified her USDA recommended eating plan, provide her with a copy of MyPlate Worksheet (NEP-201C) and help her determine the empty calories limit in her eating plan.

<table>
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<th>Calorie Level</th>
<th>Empty Calories</th>
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<tbody>
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<td>120</td>
</tr>
<tr>
<td>1800</td>
<td>160</td>
</tr>
<tr>
<td>2000</td>
<td>260</td>
</tr>
<tr>
<td>2200</td>
<td>270</td>
</tr>
</tbody>
</table>

3. Review the Empty Calories handout together. Note how quickly empty calories add up. Ask the homemaker how many regular soft drinks she can drink before all of her empty calories are used. What if she uses whole milk? What if she fries her chicken?

4. Consider sharing printed materials from the “Think Your Drink” display. Demonstrate how a cola beverage is made. Spoon 9 teaspoons of sugar into an empty 12-ounce bottle, then add a few drops of food coloring and fill with water. Ask the homemaker to guess how many 12-ounce cans of soft drinks she consumes in a year. (The average American drinks 400 per year!) How many empty calories is this? How much does this cost? Discuss ways to cut back. What other beverages would she be willing to substitute?

5. Consider sharing a copy of the following resources with parents:
   • “A Healthy Mouth for your Baby”
   • “Seal Out Tooth Decay,” a booklet for parents

   If there is a child present, consider sharing the coloring book, “Milk Matters with Buddy Brush.” All are available in English and Spanish from <www.nih.gov>.

6. Show the homemaker a label and ask her to find the sources of sugar in the ingredient list. Show the homemaker some examples of food labels that list some forms of sugar within the first three ingredients. Compare these with labels from reduced sugar products.

7. Provide the homemaker with a copy of Solid Fats and Added Sugars (NEP-207B) and review it with her.

8. Show the homemaker labels from some foods that are high in fat. Compare these with labels from reduced-fat products.

9. Show the homemaker how to find the USDA recommendation for daily intake of oils (teaspoons) on the MyPlate handout.

10. Provide the homemaker with a copy of Know the Limits On Salt (Sodium) (NEP-207C). Review it with her.

11. Identify some foods among the paper food models that are high in added sugar, fat, and sodium. Identify some that are “nutrient dense.” Compare the caloric and nutrient values of foods between these two groups.

12. Review the homemaker’s “24-Hour Food Recall Record” together, and identify foods in her diet that are high in solid fat, added sugars, and salt. Help her estimate whether the calories from these items exceed the empty calories provided by her Dietary Guidelines eating plan. If so, what nutrients are being replaced by these “empty calorie” foods?

13. Using prices from local stores, help the homemaker to estimate how much of the family grocery bill is spent on “empty calories.” Ask the homemaker what changes she could make in purchasing and preparation practices to improve her family’s nutrition and save money.
**Ideas for Teaching Small Groups**

1. Role play a homemaker unpacking her groceries, using food models or empty food packages. Include mostly purchases with high solid fat, sugar and sodium content. Figure cost and discuss calories, fat, sugar, and key nutrient content. Do the same thing for a homemaker who makes more nutritious choices.

2. Demonstrate ways to reduce sugar, solid fat, and sodium by modifying and preparing a recipe using less.

3. Demonstrate stir-frying as a way to cook using less fat.

4. Use some high-fat, high-sugar recipes from the newspaper or a cookbook, and discuss ways to modify the sugar and fat content.

5. Make a display of foods available in the grocery. Foods may be calorie reduced or have less fat or sugar. Examples include canned fruit, salad dressings, cheese, milk, beverages, tuna, etc. Avoid using the more costly foods from the special dietetic section.

6. Display animal fats and vegetable fats. Discuss the controversy concerning the type of fat in our diet and our health.

7. On a blackboard or chart, write a typical food recall. Identify foods that are high in fat, sugar, and sodium content. Discuss ways to improve the quality of the food recall.

**How to Tell What the Homemaker(s) Learned**

**Immediately following the lesson:**
- Using food models, ask each homemaker to identify foods high in fat, sugar, and sodium.
- Ask each homemaker to identify whether she is exceeding recommended calories from solid fats and added sugars.
- Ask her to identify whether she is exceeding the amount of sodium or cholesterol recommended by her USDA Dietary Guidelines eating plan.
- Ask her to name three changes she is willing to make to improve her diet.

**At a later visit:**
- Review the homemaker’s “24-Hour Food Recall Record.” Has she made changes in how she chooses or prepares food in order to reduce sugar, fat, or sodium?
- If meeting in the home, are there obvious signs of change in diet? For example, are there fewer empty soft drink cans or more reduced-calorie items within view?
- Ask the homemaker to figure the amount of money she now spends on soft drinks in a month. Is this a change from before you taught the lesson on empty calories?