



Sparking Youth to Create
Healthy Communities

Wise Eating for Youth Respect Your Hunger

K·STATE
Research and Extension

Module 2: Respect Your Hunger

Purpose

- This module will help youth recognize and describe hunger by using the Hunger Scale.

Learners' General Goal

- Recognize hunger signs by the end of this module.

Learners' Objectives

- Use the Hunger Scale to describe hunger.
- Understand the signals associated with hunger.
- Identify the importance of carbohydrates, fats, and proteins.
- Identify the benefits associated with eating breakfast.
- Identify the benefits of eating healthy snacks between meals.

Activities

- Get Your Juices Flowing!
- Banana Wrap



Discussion

1. Start the session by having youth participate in Activity 1 — Get Your Juices Flowing!

- After the exercises, ask youth to describe how they feel when they are hungry and full (without looking at the descriptors on the Hunger Scale).
- Then, show youth the Hunger Scale and ask them to write down their current hunger level by using the Hunger Scale.

HUNGER SCALE



- The Hunger Scale
 - Ask youth how their feelings rank according to the Hunger Scale.
- Prepare and serve the snack (Activity 2 — Banana Wrap) after they finish recording their hunger levels.
 - Share with youth about the major nutrients in the snack.
- After finishing the snack and the discussion, ask them to write down their hunger level.
- Note: If the classroom setting does not allow for activities, just start the session by asking the youth to describe the feelings of hunger and fullness, and then introduce the Hunger Scale.

2. Discuss with youth the signals associated with hunger. Major causes of food cravings include:

- You're dehydrated.
 - Dehydration means your body doesn't have enough water to restore and maintain fluid balance.
 - Thirst and dehydration make you feel hungry, and may kick up food cravings.
 - Stay hydrated throughout the day.
- Your body needs energy and nutrients.
 - We need to feed our bodies every day with energy and a variety of nutrients. If your stomach feels empty, your body may be saying you need to eat. If the body doesn't get enough nutrients, it may send messages in the form of cravings.
 - Did you know that inadequate mineral levels in your body may lead to salty food cravings such as potato chips or pretzels?
 - Overall, poor nutrition can lead to cravings for non-nutritional forms of energy.
 - For example, when you crave salty foods, your body is probably telling you that you need chloride or silicon, so fish, milk, cashews, nuts, or seeds can be really good alternatives.
- You are having strong emotions such as feeling sad, angry, mad, happy, excited, etc.
 - It's not uncommon to see that negative or positive feelings can lead to emotional eating. In these cases, food serves as a coping method for your feelings.
- Your brain controls the need for eating, either physical or emotional, and there are many chemicals — neurotransmitters — involved in this process. Neurotransmitters are like messengers sent by your brain to your organs. For example, your brain uses neurotransmitters to tell your heart to beat, your lungs to breathe, and your stomach to digest. Here are some important neurotransmitters that play a role in your need for eating:
 - *Neuropeptide Y (NPY)* is a chemical produced by the brain and acts like a neurotransmitter that triggers your drive to eat carbohydrates — the body's main fuel source.
 - Hunger activates *NPY*, causing the body to seek more carbohydrates.
 - The brain also makes more *NPY* when carbohydrates are being burned as fuel.
 - Eating carbohydrates will turn off *NPY* through other brain chemicals.
 - Serotonin is a neurotransmitter, and it is widely believed to play a key role in the central nervous system. A low level of serotonin in your body may trigger your cravings for sugary foods.
 - Serotonin decreases your appetite. When you are satisfied by the food you just ate, serotonin will shut off your cravings.
 - Serotonin can also control your mood. It makes you feel calm, less anxious, and even more focused and energetic.



- Serotonin can be made only after carbohydrates are eaten.
 - Dopamine and norepinephrine are two important neurotransmitters that can control your mood and behaviors. These chemicals are released after eating proteins (meats, poultry, dairy, nuts, and legumes).
 - Low levels of dopamine and norepinephrine lead to lack of motivation, tiredness, addictive behavior, irritability, and memory loss.
 - A low dopamine level may also lead to cravings for junk food.
 - Galanin is a neurotransmitter that is released when fat stores are low.
 - In the evening, galanin level tends to rise, which may be a natural way of making sure that you have enough energy (calories) to get you through the night.
 - Endorphins are the neurotransmitters that act as the natural pain and stress fighters. Endorphin may be triggered and released through eating certain foods, such as chocolate. That's why chocolate has been seen as a comfort food for such a long time!
 - Cravings are normal. If you stop yourself from something you really want, you can actually increase your desire for that very item, which can easily cause overeating later when food becomes available.
 - Other things may trigger eating and overeating:
 - Time of the day, especially late at night.
 - People around you, such as hanging out with friends or visiting a relative
 - Places where you are, such as walking into a movie theater, dining at a buffet restaurant, or attending a sporting event.
3. **Ask youth to raise their hands if they ate breakfast this morning.**
 - Note the percentage of kids who raised their hands. (Approximately 40 percent of kids do not eat breakfast).
 4. **Discuss the reason why people may skip breakfast.**
 - Possible reasons may include:
 - Lack of time.
 - Do not like traditional breakfast foods.
 - Feel sick in the morning.
 - Want to lose weight.
 - Do not feel hungry early in the morning.
 5. **Why is it important to eat breakfast? Discuss the rationale behind eating breakfast.**
 - Breakfast literally means “break the fast.” The purpose of breakfast is to break your overnight fast and replenish nutrients you need to start a new day.
 - If you skip breakfast, you could be going 12 or more hours without eating.
 - Your body is like a car — it needs to be refueled.
 6. **Carbohydrates, proteins, and fats are all important to your body. Discuss the role of carbohydrates, proteins, and fats.**
 - Carbohydrates, proteins, and fats provide your body with energy to function well, but the amount of energy in 1 gram differs:



- 4 calories in a gram of carbohydrate or protein
- 9 calories in a gram of fat
- These nutrients also differ in how quickly they supply energy. Carbohydrates are the quickest, after that are the proteins, and fats are the slowest.
- Carbohydrates, proteins, and fats are digested in the intestine, where they are broken down into their basic units:
 - Carbohydrates into sugars
 - Proteins into amino acids
 - Fats into fatty acids and glycerol
- The body uses these basic units to build substances it needs for growth, maintenance, and activity.
- Read the information provided in Resource #5 to learn more about carbohydrates, proteins, and fats.

7. Discuss how you may feel when you skip a meal and get hungry. What are the consequences?

- Possible answers:
 - Growling noises
 - Stomach pain
 - Headaches
 - Sleepiness
 - Less focused
 - Irritability
 - Eating sugared snacks/beverages to stop the hunger
 - Overeating later in the day
- When you get hungry, your body is telling you that it's running out of fuel. So, listen to your body.
- Paying attention to hunger cues helps avoid overeating. You don't always have to feel full. It doesn't feel good to be stuffed, either.
- Your feelings can affect what and how much you eat.
- Not overeating helps you grow at your healthy weight. You'll also feel better about yourself when you control cravings.

8. Discuss with youth the importance of eating healthy snacks between meals.

- Having a snack between meals prevents you from becoming overly hungry.
- A healthy snack keeps hunger away and allows you to stick to a moderate amount of food at your next meal.
- Eating a healthy snack adds to your intake of essential nutrients.
 - Fruits and vegetables add vitamins A and C, both of which are important for immunity, wound healing, and healthy teeth and gums; they also offer fiber.
 - Low-fat cheese, yogurt, or hummus help increase protein intake, which is necessary for healthy muscles, skin, cells, and hair.



- Low-fat dairy foods increase calcium intake, a nutrient needed for healthy bones and teeth.
- A handful of nuts adds healthy fats to your diet, which protect your heart and brain.
- Whole-grain products are packed with nutrients including protein, fiber, B vitamins, and essential minerals, which help to reduce the risk of heart disease.
- A healthy snack made up of fruits and vegetables, protein, and healthy fats increases your energy levels for a longer period than sugary snacks do.
- Adding healthy snacks between meals increases your focus and performance at school.

9. Inform youths about the benefits of eating each meal and healthy snacks.

- Helps you perform at a higher level in school and in sports.
- Improves your physical and mental performance.
- Increases your ability to concentrate (increases attention span).
- Decreases irritability.
- Helps you maintain and achieve a healthy body size.
- Helps you meet daily nutritional needs.
- Decreases absenteeism.
- Helps keep the body healthy.

10. How could you eat wisely when you're hungry?

- Eat slowly, so your brain and stomach have time to "talk."
 - There's a gap of about 20 minutes after you eat and before you start feeling full.
 - To slow down, take smaller bites, eat foods that take longer to chew, and talk between bites.
- Don't get too hungry!
 - Skipping meals can make you feel so hungry that you probably may overeat later.
- Use the Hunger Scale before and after each meal and snack to discover your hunger level.
 - You may find a pattern or certain time that you get hungry and eat. There may also be a relationship between how much you eat and the length of time between eating.



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11. **Before ending the module, have youth write down their current hunger level for the third time.**
 - How would you compare your hunger feelings before you eat, right after you eat, and then 20 minutes after you eat?
 - Do you see a difference in the hunger level?
 12. **Have youth set one individual goal for eating three balanced, moderate, and various meals a day.**
 - Eat three meals a day for every day of the week.
 - Eat three meals a day for at least ___ days of the week.
 13. **Have youth set one individual goal for eating healthy snacks a day.**
 - Eat healthy snacks for every day of the week.
 - Eat healthy snacks for at least ___ days of the week.

Activities

Get your juices flowing!

- Possible activities:
 - Jumping Jacks: Have youth stand next to their desks. Instead of raising their hands to volunteer, youth will do a jumping jack.
 - Simon Says
- The point of these activities is to let youth feel how hungry they are, how much they enjoy the snack, and how filling it is.
- When youth are engaging in physical activities:
 - Ask: what's the benefit of moving more and sitting less?
 - Point out: besides being physically active, active living also helps them have a healthy appetite, feel good about themselves, and feel energetic.
- Take about 10 minutes for physical activity.

Banana Wrap (2 servings)

Ingredients:

- 1 banana
- 1 8-inch whole-wheat tortilla
- 2 tablespoons peanut butter
- 1 teaspoon brown sugar

Preparation:

- Spread peanut butter on whole-wheat tortilla.
- Sprinkle brown sugar over the peanut butter.
- Place banana on top of the peanut butter.
- Wrap banana and peanut butter with tortilla.
- Cut into two pieces.

Main nutrients the snack provides:

- Peanut butter: healthy fat
- Whole wheat tortilla: whole grain
- Banana: fiber, vitamins B and C, potassium, manganese



Worksheet

1. Running late and don't have time to eat? Try these healthy tricks to get a good start on your day:

- Low-fat string cheese and whole-wheat crackers
- Whole-grain cereal bar and skim milk
- Dried fruit bites mixed in with dry cereal and eaten like a snack food, washed down with a glass of skim milk
- Toast with peanut butter and bananas
- Granola with dried or fresh fruit bites and yogurt
- Make a large batch of pancakes and/or waffles and put it in the freezer. Reheat for a fast and easy breakfast.

2. 10 common breakfast foods vs. 10 healthier alternatives for kids your age.

Common	Healthier
Milk	Low-fat or fat-free milk
Ready-to-eat cereal	Cereal with low-sugar content
White bread	Whole-wheat bread
Juice	100% fruit juice
Eggs	Boiled eggs
Meat	Skinless chicken or turkey
Fruit	Fresh whole fruit
Pastries, donuts, granola bars	Whole-wheat bread
Cooked cereal	Oatmeal, farina
Pancakes	Whole-wheat pancakes

3. Top 10 healthy and tasty snacks and their main nutrients for kids your age.

Snacks	Main Nutrients
Fruit	Fiber, vitamins
Whole-grain cereal, low in sugar	Fiber
Quesadillas with melted low-fat cheese	Calcium, protein
Peanut butter	Healthy oil
Bite-sized veggies	Fiber, vitamins
Whole wheat pitas with pizza sauce, low-fat cheese, and your favorite tasty veggies	Fiber, calcium, protein
Trail mix with healthy nuts and dried fruits	Healthy oil, protein, fibers
Popcorn	Fiber
String cheese or cheese cubes	Calcium, protein
Whole-grain tortilla chips with homemade salsa	Fiber



4. Carbohydrates, proteins, and fats

- Carbohydrates, proteins, and fats are digested in the intestine, where they are broken down into basic units:
 - Carbohydrates into sugars
 - Proteins into amino acids
 - Fats into fatty acids and glycerol
- The body uses these basic units to build substances it needs for growth, maintenance, and activity.
- Carbohydrates: Depending on carbohydrates' size, they can be either simple or complex.
 - Simple carbohydrates: Very small sugar molecules like glucose and sucrose (table sugar) are simple carbohydrates. They can be easily broken down and absorbed by the body quickly and are the quickest source of energy. They quickly increase the blood sugar level. Table sugar, syrup, jams or jelly, fruit drinks, or soft drinks contain large amounts of simple carbohydrates, which provide sweet taste in the foods.
 - Complex carbohydrates: These carbohydrates are composed of long chains of simple carbohydrates. They are bigger compared with simple carbohydrates, so they must be broken down into simple carbohydrates before they can be absorbed by the body. They tend to slowly provide energy to the body and are less likely to turn into fat. Complex carbohydrates include starches and fibers, which occur in wheat products, whole fruits, beans, and root vegetables such as potatoes.
- Proteins: Consist of units called amino acids, joined together in complex formations.
 - Proteins are more intricate than complex carbohydrates, so the body takes even longer to break them down.
 - As a result, proteins are a much slower and long-lasting source of energy than carbohydrates.
 - The body contains large amounts of protein, and it's the main building block in the body.
 - The body needs protein to maintain and replace tissues and to function and grow. Protein is not usually used for energy.
 - If the body is not getting enough calories from other nutrients or from the fat stored in the body, protein is used for energy.
- Fats: The body needs fats for growth and energy and uses them to make hormones and other important chemicals for the body's activities.
 - Fats are the slowest source of energy but the most energy-efficient form of food.
 - Fats are such an efficient form of energy, the body stores any excess energy from food as fat.
 - The body may store fat around your belly and lower back and under the skin to use when it needs more energy.
 - The body may also store excess fat in blood vessels and within organs where it can block blood flow and damage organs, often causing serious disorders.



Resources Sheet

1. Why do you need to pay attention to your body's hunger cues?
 - To refuel the body, and to avoid overeating later.
2. How can you beat hunger without feeling stuffed?
 - Listen to the body's hunger cues so you know you are full or partly full. Slow down between each bite and let the brain and stomach have time to talk. Take smaller bites, eat foods that take longer to chew, and talk between bites. And it is totally OK to stop eating before you feel full.
3. Use the healthy breakfast options in Resource #3 to identify which foods you eat most frequently. Then, create a fun and tasty breakfast to start your day.
4. What are some benefits of eating each meal and healthy snacks?
 - Helps you perform at a higher level in school and in sports.
 - Improves your physical and mental performance.
 - Increases your ability to concentrate (increases attention span).
 - Decreases irritability.
 - Helps you maintain and achieve a healthy body size.
 - Increases likelihood of meeting daily nutritional needs.
 - Helps lower blood cholesterol levels.
 - Decreases absenteeism.
5. What would be an example of a healthy snack you would like to try?
6. If you just ate a BLT sandwich, which contains 34g of total fat, 43g of total carbohydrates, and 16g of protein, roughly how many calories did you just consume?
 $34 \times 9 + 43 \times 4 + 16 \times 4 = 542$ calories
(Note: 4 calories are in a gram of carbohydrate or protein; 9 calories are in a gram of fat. See page 5.)



Resources

- Intuitive Eating, 2012, E. Tribole and E. Resch
- K.N.A.C.K Online: <http://knackonline.org>
- Development and testing of a labeled magnitude scale of perceived satiety, 2005, A.M. Cardello, HG Schutz, L.L. Leshner, and E Merrill
- Dietary Guidelines for Americans, 2015-2020, 8th Edition, 2016

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