Lesson 6: FLUIDS AND HYDRATION
FACILITATING THE LESSON

PROGRAM OVERVIEW

This program contains the background information, step-by-step plans and handouts you need to teach sessions and conduct activities on 10 topics. Sessions are designed for four age groups: 6-to-9-year-olds, 10-to-12-year-olds, 13-to-15-year-olds and 16-to-18-year-olds.

Generally, each lesson and activity takes about 30 minutes for 6-to-9-year-olds and about 45 minutes for older youth. You can shorten or lengthen the time frame according to the needs and interests of your group.

LESSON FORMAT

Each lesson includes tools to make it easier for you to teach youth about the topic.

- **Objectives.** Each session is designed to meet specific objectives for each age group.
- **Materials.** Materials needed to conduct the activity are listed at the start of each session.
- **Resources and Handouts.** A listing of resources and handouts details the materials you need to prepare for and facilitate the lesson (all necessary resources and handouts follow immediately after the lesson directions).
- **Advance Preparation.** Steps for preparation are detailed at the start of each lesson.
- **Key Teaching Points.** To guide you in teaching youth about the topic, each lesson summarizes key points, the important lessons youth will take away from the session. Adapt the level of detail you provide to the age and learning level of the group.
- **Leading the Activity.** Step-by-step guidelines are included for leading the activity.
  - **Warm-up Exercise** — To promote physical activity during each session, lead the kids in at least one warm-up exercise and review the benefits of physical activity. Choose an idea from the Get-Moving Exercises list (on page 16 of this Implementation Manual), come up with your own idea or ask kids to think of creative ways to get moving.
  - **Introduction** — Each lesson provides step-by-step instructions to help you prepare for and conduct the lesson. It is a good idea to read the lesson carefully a few days in advance, so you will have time to prepare.
  - **Group Learning Activity** — The group learning activity is the core of each session, the time when youth practice, develop or demonstrate what they have learned. The activities are age-appropriate and designed to be fun while reinforcing key concepts.
  - **Individual Application** — Brief application activities follow the group activity, giving youth a chance to apply learning in their own lives. They also promote small steps toward adopting healthy habits.
  - **Snack Time** — During snack time, youth share new learning and insights.
  - **Take-home Challenges** — At the end of each session, you will find suggested challenges for participants to do at home before the next meeting. These challenges reinforce what members have learned about healthy eating and physical activity.
**LEADING THE ACTIVITIES**

*Before an Activity.* You will have more success if you do the following before each lesson:

- **Review the Activity.** Review the activities and become familiar with the issues yourself, including key terms used.
- **Prepare Youth.** Before beginning the activities with youth, you may want to spend a few minutes telling them what they will be doing and why, asking questions to see how much they already know and introducing key terms in language they understand.
- **Gather Materials.** Be sure all materials are available before beginning each activity.

*During an Activity.* While conducting the activities/lessons, be sure to:

- **Establish Ground Rules.** Make it clear what behaviors will be acceptable and what behaviors will not be acceptable by setting ground rules and reinforcing them as necessary.
- **Be Patient.** Keep in mind that some activities will be difficult for some youth and easy for others. Encourage, challenge and support youth, but do not push them.
- **Take Advantage of Learning Opportunities.** Be ready for the “teachable moment” and use it to further understanding of the concepts.

*After an Activity.* At the end of each activity or session, it is a good idea to do the following:

- **Provide Closure.** Give youth a chance to reflect on what they have learned after each activity and discussion.
- **Evaluate the Activity.** Consider whether the objective of the activity was accomplished and try to understand why it was or was not.

**RESPONDING TO DIFFERENT AGE GROUPS**

Activities in this Resource Guide are geared specifically to youth in the targeted age group. You may, however, want to divide the group of 6- to 9-year-olds, for example, into two smaller age groups. Because there is such a difference in interest, reading level and maturity between a 6-year-old and a 9-year-old, having two groups may be more effective. With the youngest children (6-year-olds), you will have to assist with reading, simplify the language you use and eliminate terms they may not understand.

Youth in the 10- to 12-year-old group present a challenge, especially when it comes to working in groups. This is a time when youth in this age group are developing identity, so peer influences are particularly strong. They may be reluctant to share personal experiences, attitudes or feelings. Give them time to get comfortable and encourage them to speak, but do not force them if they are reluctant.

Youth in the 13-to-15 and 16-to-18-year-old group respond well to performance-based activities such as drama, dance, video, music and anything that involves use of computers.
**LESSON OVERVIEW**

Children play a board game, “In the Desert,” that gives them a chance to practice what they have learned about the importance of fluids for the body.

**ESTIMATED TIME:** 30 minutes

**OBJECTIVES**

1. Explore the basics of hydration.
2. Understand what fluids do in the body.
3. Know the appropriate amount of water and fluids to drink daily.
4. Explore personal beverage choices.

**MATERIALS**

- Heavy card stock
- Glue stick
- Scissors
- Cardboard
- Pens or pencils
- Small items to use as game board markers (paper clips, stones, coins, checkers, etc.)
- Small prizes for completing the game

**RESOURCES AND HANDOUTS**

- In the Desert Game Board *(page 257)*

**ADVANCE PREPARATION**

1. Visit the Coca-Cola Company Beverage Institute for Health & Wellness website for information on the importance of hydration for youth, guidelines for how much to drink and tips for staying hydrated.
2. Copy the In the Desert Game Board onto heavy card stock and glue onto cardboard (one per team).
3. Select a snack to serve during the session wrap-up.
KEY TEACHING POINTS

- Fluids are extremely important for the body, because they do many important jobs.
- Our bodies use up fluids we drink, so we have to replace them: this is called “hydration.”
- All beverages replace the fluids our body uses — some have no calories (water, zero-calorie soft drinks, many flavored waters, zero-calorie sports drinks and coffee and tea), and some do have calories (100-percent juice, fruit drinks, sports drinks, fluid milk and other soft drinks).

LEADING THE ACTIVITY

I. GET-MOVING EXERCISE

Select a Get-Moving Exercise from the list (on page 16 in the Implementation Manual) and keep group members moving for 10 minutes. Tell the group that kids need to do some physical activity for 60 minutes every day and that this exercise is one example of what they can do.

II. INTRODUCTION

1. Begin by asking, “What do you know about the importance of fluids and the body? What do you want to know about the importance of fluids and the body?”
2. Ask youth whether they know what the human body is made of. Point out that our bodies are about two-thirds water — it is the main ingredient in all body fluids.
3. Explain that fluids are necessary for every single body function. In fact, humans can live only about a week without fluids. Highlight some of the things fluids do:
   - help us digest our food;
   - keep our body temperature right;
   - help our blood move around our bodies;
   - help carry nutrients and oxygen to cells throughout the body;
   - remove toxins and other wastes;
   - keep our joints from rubbing together;
   - protect our tissues and organs; and
   - make us feel more full (less hungry).
4. Point out that a lot of fluid each day is used up for all the jobs it does in the body. Our bodies lose even more when we are exercising or perspiring: fluids come through the skin as sweat and, as they do, they cool down the skin and the blood.
5. Explain that it is very important to drink a lot of fluids so that our bodies have enough to function properly. We need to replace the fluids our bodies lose by drinking water and fluids every day. The word for this is “hydration.”

   HYDRATION is replacing fluids in the body to maintain proper fluid balance.

6. Say that it is especially important for kids to drink enough fluids because they get overheated more than adults do.
Lesson 6

Healthy Habits, Too Resource Guide > Lesson 6: Fluids and Hydration > Ages 6 to 9 Years

7. Point out that, if we do not stay hydrated, we become dehydrated, which can cause us to be tired, confused and unable to focus.

DEHYDRATION occurs when you lose more fluid than you take in, and your body does not have enough water and other fluids to carry out its normal functions.

8. Explain that everyone’s need for water and fluid is different. Young people should drink water or another beverage before they become thirsty, and they should drink even more when it is hot outside or they are exercising.

9. Point out that young people their age should drink about seven-and-a-half cups of water and other beverages a day (9-year-olds may need more).

10. Explain that although water is a good choice for replacing fluids in the body, other beverages such as low-fat/non-fat milk, 100-percent fruit juice and soft drinks also replace fluids. The water in other beverages — even in foods — meets the body’s water needs the same way plain water does.

11. Say that some beverages have no calories (zero-calorie soft drinks, many flavored waters, zero-calorie sports drinks and coffee and tea). Other beverages — like 100-percent juice, fruit drinks, sports drinks, milk and other soft drinks — do have calories.

12. Point out that, in addition to replacing fluids in the body, these beverages can add to the nutrients and energy we take in.

13. Say that it is important to stay hydrated, and it is also good to be aware that calories from beverages “count” toward our daily energy intake.

III. GROUP LEARNING ACTIVITY — WATER IN THE DESERT

1. Ask youth to form groups of four.
2. Tell them they are going to do an activity that gives them a chance to practice what they have learned about how important fluids are for the body.
3. Give each team markers and a copy of the In the Desert Game Board.
4. Instruct them to take turns moving around the board from one numbered square to the next, answering the questions. (Children will hear each other’s answers, but the repetition will reinforce important concepts.)
5. Say that everyone who answers the questions correctly and reaches the end will receive a prize.
6. Distribute prizes at the end.
7. End by asking, “What did you learn about the importance of hydration and the body?”
HYPONATREMIA AND CHILDREN

According to the National Center for Biotechnical Information (NCBI), hyponatremia is a serious condition in which blood sodium levels become too low. Although this can develop as a result of many diseases and conditions, it also can result from drinking excessive amounts of fluids, usually over a short period of time, in the absence of sodium supplementation. This form of hyponatremia is commonly referred to as “water intoxication.” According to the American Academy of Pediatrics (AAP), this condition is rare among young athletes performing for less than four hours. The AAP says that, although water is often enough for adequate hydration, youth participating in strenuous exercise, sports or physical activity for more than one hour (or in repeated, same-day sessions) may need electrolyte-supplemented beverages. This is especially true when athletes are playing in warm or hot weather, when a great deal of sweat loss occurs. For more information, see Hydration Maximizes Young Athletes’ Performance in AAP News (the American Association of Pediatrics journal) and Hyponatremia: Causes, Incidence and Risk Factors from the National Center for Biotechnical Information, U.S. National Library of Medicine, National Institutes of Health.

IV. INDIVIDUAL APPLICATION

1. Ask youth to jot down the beverages they drink most. Do they drink mostly water, milk, soda, tea, fruit juice, sports drinks or other beverages?
2. Ask them to compare the amount of fluids they drink with the recommended amount for their age group.

V. SNACK TIME

1. Instruct group members to wash their hands.
2. Serve the snack you have selected for today.
3. While youth are snacking, ask them to share what they remember most from today’s activity.

VI. TAKE-HOME CHALLENGES

Challenge group members to do one of these activities before you meet again:

1. Pay attention to the beverages they drink over the next week.
2. Try replacing one beverage a day with plain water.

ADDITIONAL RESOURCES

- The Coca-Cola Company Beverage Institute for Health & Wellness website has a Hydration Calculator that estimates the amount of water needed daily based on gender, age and weight.
CLEANLINESS AND FOOD ALLERGIES

Instruct group members to wash their hands with hot, soapy water for about 20 seconds to remove germs before snack time or handling food.

Before distributing food, ask whether anyone is allergic to ingredients in today’s snack. The major food allergens are milk, eggs, fish, shellfish, nuts, wheat, peanuts and soybeans.
LESSON OVERVIEW

Members play a game in which the name of a specific beverage is pinned to the back of each participant; youth then try to identify which beverage they are by asking “yes” or “no” questions about color, taste, content, etc.

ESTIMATED TIME: 30 minutes

OBJECTIVES

1. Recognize the importance of hydration.
2. Understand what fluids do in the body.
3. Know the appropriate amount of water and fluids to drink daily.
4. Identify different beverage choices, those with and without calories and those that provide nutrients beyond hydration.
5. Explore personal beverage choices.

MATERIALS

- Tape or safety pins
- Scissors
- Pens or pencils

RESOURCES AND HANDOUTS

- Urine Color Chart (page 258)
- What Beverage Am I? (page 259)

ADVANCE PREPARATION

1. Visit the Coca-Cola Company Beverage Institute for Health & Wellness website for information on the importance of hydration for youth, guidelines for how much to drink and tips for staying hydrated.
2. Copy What Beverage Am I? and cut apart. Make enough so that each youth has one.
3. Select a snack to serve during the session wrap-up.
KEY TEACHING POINTS

- Fluids are extremely important for the body because they do many important jobs.
- Our bodies use up fluids we drink, so we have to replace them; this is called “hydration.”
- Water is a great choice to replace the fluids used up in our bodies, but any beverage (as well as many foods like soup) provides water to meet hydration needs.
- Other drinks, like low-fat/non-fat milk and 100-percent fruit juices are nutritious choices because they replace fluids but also provide nutrients to our bodies. They also contribute calories (energy) to our bodies.
- Kids should consume fluids to hydrate before they become thirsty and especially when they are exercising or working out, or when they are hot and perspiring.
- Energy drinks are not appropriate for children and most adolescents.

I. GET-MOVING EXERCISE

Select a Get-Moving Exercise from the list (on page 16 in the Implementation Manual) and keep group members moving for 10 minutes. Tell the group that kids need to do some physical activity for 60 minutes every day and that this exercise is one example of what they can do.

II. INTRODUCTION

1. Begin by asking, “What do you know about the importance of fluids and the body? What do you want to know about the importance of fluids and the body?”
2. Ask youth if they know what the human body is made of. Point out that our bodies are about two-thirds water — it is the main ingredient in all body fluids.
3. Explain that fluids are necessary for every single body function. In fact, humans can live only about a week without fluids. Highlight some of the things fluids do:
   - help us digest our food;
   - keep our body temperature right;
   - help our blood move around our bodies;
   - help carry nutrients and oxygen to cells throughout the body;
   - remove toxins and other wastes;
   - keep our joints from rubbing together;
   - protect our tissues and organs; and
   - make us feel more full (less hungry).
4. Point out that a lot of fluid each day is used up for all the jobs it does in the body. Our bodies lose even more when we are exercising or perspiring; fluids come through the skin as sweat and, as they do, they cool down the skin and the blood.
5. Explain that it is very important to drink a lot of fluids so that our bodies have enough to function properly. We need to replace the fluids our bodies lose by drinking water and fluids every day. The word for this is “hydration.”
HYDRATION is replacing fluids in the body to maintain proper fluid balance.

6. Say that it is especially important for kids to drink enough fluids because they get overheated more than adults do.
7. Point out that, if we do not stay hydrated, we become dehydrated, which can cause us to be tired, confused and not able to focus and, over time, even more serious problems. Show the group the Urine Color Chart and explain how to use it to know if they are drinking enough fluids every day.

DEHYDRATION occurs when you lose more fluid than you take in, and your body does not have enough water and other fluids to carry out its normal functions.

8. Explain that everyone’s need for water and fluid is different. Young people should drink water or another beverage before they become thirsty, and they should drink even more when it is hot outside or they are exercising.
9. Point out that young people their age should drink about 10 cups of water and other beverages a day (12-year-olds may need more).
10. Explain that although water is a good choice for replacing fluids in the body, other beverages such as low-fat/non-fat milk, 100-percent fruit juice and soft drinks also replace fluids. The water in other beverages — even in foods — meets the body’s water needs the same way plain water does.
11. Ask youth what they think are the most popular drinks for kids. Say that they are milk, soda, fruit juices and fruit drinks.
12. Point out that some of these beverages have no calories (zero-calorie soft drinks, many flavored waters, zero-calorie sports drinks and coffee and tea). Others — like 100-percent juice, fruit drinks, sports drinks, milk and other soft drinks — do have calories. In addition to replacing fluids in the body, these beverages can add to the nutrients and energy we take in.
13. Say that it is important to stay hydrated, and it is also good to be aware that calories from beverages “count” toward our daily energy intake.
14. Ask youth if they know the difference between energy drinks and sports drinks. Remind them that energy drinks are not a substitute for sports drinks — which are used to replace fluids in the body and refuel before, during and after vigorous physical activity. Say that sports drinks replenish important carbohydrates and electrolytes that the body loses during vigorous activity. Stress that energy drinks are inappropriate for kids in this age range.

III. GROUP LEARNING ACTIVITY — WHAT BEVERAGE AM I?

1. Tell youth that they are going to play a game that will help them become familiar with different types of beverages.
2. Tape or pin a picture of a beverage on the back of each youth, making sure that they do not see which one they have. (It is okay if several youth have the same drink.)
3. Explain that the object of the game is for each youth to find out which beverage is attached to her back by asking “yes” or “no” questions of others in the group.
4. Prompt them to ask questions about color, sugar content, etc.
5. After all youth have guessed which beverage they are, ask them to share the characteristics of that drink with the rest of the group. (If more than one youth has a beverage, they can do this together.)
6. End by asking, “What did you learn about the importance of hydration and the body?”

**HYPONATREMIA AND CHILDREN**

According to the National Center for Biotechnical Information (NCBI), hyponatremia is a serious condition in which blood sodium levels become too low. Although this can develop as a result of many diseases and conditions, it also can result from drinking excessive amounts of fluids, usually over a short period of time, in the absence of sodium supplementation. This form of hyponatremia is commonly referred to as “water intoxication.” According to the American Academy of Pediatrics (AAP), this condition is rare among young athletes performing for less than four hours. The AAP says that, although water is often enough for adequate hydration, youth participating in strenuous exercise, sports or physical activity for more than one hour (or in repeated, same-day sessions), may need electrolyte-supplemented beverages. This is especially true when athletes are playing in warm or hot weather, when a great deal of sweat loss occurs. For more information, see Hydration Maximizes Young Athletes’ Performance in AAP News (the American Association of Pediatrics journal) and Hyponatremia: Causes, Incidence and Risk Factors from the National Center for Biotechnical Information, U.S. National Library of Medicine, National Institutes of Health.

**IV. INDIVIDUAL APPLICATION**

1. Ask youth to jot down beverages they drink most. Do they drink mostly water, milk, soda, tea, fruit juice, sports drinks or other beverages?
2. Ask them to compare the amount of fluids they drink with the recommended amount for their age group.

**V. SNACK TIME**

1. Instruct group members to wash their hands.
2. Serve the snack you have selected for today.
3. While youth are snacking, ask them to share what they remember most from today’s activity.

**VI. TAKE-HOME CHALLENGES**

Challenge group members to do one of these activities before you meet again:

1. Pay attention to the beverages they drink over the next week, think about the calories and nutrients in the beverages they choose.
2. Try to include beverages from several food groups by replacing water or a no-calorie/low-calorie beverage with 100-percent fruit juice or low-fat/non-fat milk.

**ADDITIONAL RESOURCES**

- The Coca-Cola Company Beverage Institute for Health & Wellness website has a Hydration Calculator that estimates the amount of water needed daily based on gender, age and weight.
**CLEANLINESS AND FOOD ALLERGIES**

Instruct group members to wash their hands with hot, soapy water for about 20 seconds to remove germs before snack time or handling food.

Before distributing food, ask whether anyone is allergic to ingredients in today’s snack. The major food allergens are milk, eggs, fish, shellfish, nuts, wheat, peanuts and soybeans.
LESSON FOR YOUTH AGES 13 TO 15 YEARS

LESSON OVERVIEW

Participants play a team game of “baseball” in which they score bases and runs by correctly answering questions about fluids and hydration.

ESTIMATED TIME: 45 minutes

OBJECTIVES

1. Understand the importance of hydration.
2. Identify the functions of fluids in the body.
3. Know the appropriate amount of water and fluids to drink daily.
4. Identify different beverage choices, those with and without calories and those that provide nutrients beyond hydration.
5. Explore personal beverage choices.

MATERIALS

• Pens or pencils
• Paper

RESOURCES AND HANDOUTS

• Urine Color Chart (page 258)
• Bases Loaded Questions (Answer Key) (page 262)

ADVANCE PREPARATION

1. Visit the Coca-Cola Company Beverage Institute for Health & Wellness website for information on the importance of hydration for youth, guidelines for how much to drink and tips for staying hydrated.
2. Set up a mock baseball diamond with chairs or other objects to represent home plate and the bases.
3. Select a snack to serve during the session wrap-up.
KEY TEACHING POINTS

- Fluids are extremely important for the body, because they do many important jobs.
- Our bodies use up fluids we drink, so we have to replace them; this is called “hydration.”
- Water is a great choice to replace the fluids used up in our bodies, but any beverage (as well as many foods like soup) provides water to meet hydration needs.
- Other drinks, like low-fat/non-fat milk and 100-percent fruit juices are nutritious choices because they replace fluids but also provide nutrients to our bodies. They also contribute calories (energy) for our bodies.
- Kids should consume fluids to hydrate before they become thirsty, and especially when they are exercising or working out or when they are hot and perspiring.
- Energy drinks are not appropriate for children and most adolescents.

LEADING THE ACTIVITY

I. GET-MOVING EXERCISE

Select a Get-Moving Exercise from the list (on page 16 in the Implementation Manual) and keep group members moving for 10 minutes. Tell the group that kids need to do some physical activity for 60 minutes every day and that this exercise is one example of what they can do.

II. INTRODUCTION

1. Begin by asking, “What do you know about the importance of fluids and the body? What do you want to know about the importance of fluids and the body?”
2. Ask youth whether they know what the human body is made of. Point out that our bodies are about two-thirds water — it is the main ingredient in all body fluids.
3. Explain that fluids are necessary for every single body function. In fact, humans can live only about a week without fluids. Highlight some of the things fluids do:
   - help us digest our food;
   - keep our body temperature right;
   - help our blood move around our bodies;
   - help carry nutrients and oxygen to cells throughout the body;
   - remove toxins and other wastes;
   - keep our joints from rubbing together;
   - protect our tissues and organs; and
   - make us feel more full (less hungry).
4. Point out that a lot of fluid each day is used up for all the jobs it does in the body. Our bodies lose even more when we are exercising or perspiring; fluids come through the skin as sweat and, as they do, they cool down the skin and the blood.
5. Explain that it is very important to drink a lot of fluids so that our bodies have enough to function properly. We need to replace the fluids our bodies lose by drinking water and fluids every day. The word for this is “hydration.”
HYDRATION is replacing fluids in the body to maintain proper fluid balance.

6. Say that it is especially important for kids to drink enough fluids because they get overheated more than adults do.

7. Point out that, if we do not stay hydrated, we become dehydrated, which can cause us to be tired, confused and not able to focus and, over time, even more serious problems. Show the group the Urine Color Chart and explain how to use it to know if they are drinking enough fluids every day.

DEHYDRATION occurs when you lose more fluid than you take in, and your body does not have enough water and other fluids to carry out its normal functions.

8. Explain that everyone’s need for water and fluid is different. Young people should drink water or another beverage before they become thirsty, and they should drink even more when it is hot outside or they are exercising.

9. Point out that youth their age should drink from 10 to 14 cups of water and other beverages a day — 10 cups for girls and 14 for boys (13-year-olds may need less).

10. Explain that although water is a good choice for replacing fluids in the body, other beverages such as low-fat/non-fat milk, 100-percent fruit juice and soft drinks also replace fluids. The water in other beverages — even in foods — meets the body’s water needs the same way plain water does.

11. Ask youth what they think are the most popular drinks for kids. Say that they are milk, soda, fruit juices and fruit drinks.

12. Point out that some of these beverages have no calories (zero-calorie soft drinks, many flavored waters, zero-calorie sports drinks and coffee and tea). Others — like 100-percent juice, fruit drinks, sports drinks, milk and other soft drinks — do have calories. In addition to replacing fluids in the body, these beverages can add to the nutrients and energy we take in.

13. Say that it is important to stay hydrated, and it is also good to be aware that calories from beverages “count” toward our daily energy intake.

14. Ask youth whether they know the difference between energy drinks and sports drinks. Remind them that energy drinks are not a substitute for sports drinks, which are used to replace fluids in the body and refuel before, during and after vigorous physical activity. Say that sports drinks replenish important carbohydrates and electrolytes that the body loses during vigorous activity. Stress that energy drinks are inappropriate for kids in this age range.

III. GROUP LEARNING ACTIVITY — BASES LOADED

1. Divide the large group into two teams.

2. Explain that they will play a baseball game in which they score bases and runs by correctly answering questions about hydration.

3. Explain the rules:
   • When a player steps up to “bat,” he is given a question (either true/false or fill-in-the-blank) related to hydration.
• If the response is correct, he proceeds to the base.
• As the players found the bases and return home, runs are scored.
• If the player at bat answers incorrectly, it is considered an out.
• After three outs, the team must forfeit its turn at bat to the other team.
• The team with the most runs at the end of the time wins.

4. End by asking, “What did you learn about the importance of hydration and the body?”

### HYPNATREMIA AND CHILDREN

According to the National Center for Biotechnical Information (NCBI), hyponatremia is a serious condition in which blood sodium levels become too low. Although this can develop as a result of many diseases and conditions, it also can result from drinking excessive amounts of fluids, usually over a short period of time, in the absence of sodium supplementation. This form of hyponatremia is commonly referred to as “water intoxication.” According to the American Academy of Pediatrics (AAP), this condition is rare among young athletes performing for less than four hours. The AAP says that, although water is often enough for adequate hydration, youth participating in strenuous exercise, sports or physical activity for more than one hour (or in repeated, same-day sessions), may need electrolyte-supplemented beverages. This is especially true when athletes are playing in warm or hot weather, when a great deal of sweat loss occurs. For more information, see Hydration Maximizes Young Athletes’ Performance in AAP News (the American Association of Pediatrics journal) and Hyponatremia: Causes, Incidence and Risk Factors from the National Center for Biotechnical Information, U.S. National Library of Medicine, National Institutes of Health.

### IV. INDIVIDUAL APPLICATION

1. Ask youth to jot down beverages they drink most. Do they drink mostly water, milk, soda, tea, fruit juice, sports drinks or other beverages?
2. Ask them to compare the amount of fluids they drink with the recommended amount for their age group.

### V. SNACK TIME

1. Instruct group members to wash their hands.
2. Serve the snack you have selected for today.
3. While youth are snacking, ask them to share what they remember most from today’s activity.

### VI. TAKE-HOME CHALLENGES

Challenge group members to do one of these activities before you meet again:

1. Pay attention to the beverages they drink over the next week, think about the calories and nutrients in the beverages they choose.
2. Try to include beverages from several food groups — by replacing water or a no-calorie/low-calorie beverage with 100-percent fruit juice or low-fat/non-fat milk.
ADDITIONAL RESOURCES

- The Coca-Cola Company Beverage Institute for Health & Wellness website has a Hydration Calculator that estimates the amount of water needed daily based on gender, age and weight.

CLEANLINESS AND FOOD ALLERGIES

Instruct group members to wash their hands with hot, soapy water for about 20 seconds to remove germs before snack time or handling food.

Before distributing food, ask whether anyone is allergic to ingredients in today’s snack. The major food allergens are milk, eggs, fish, shellfish, nuts, wheat, peanuts and soybeans.
Lesson Overview

Youth do an Internet search in small groups of three to learn more about various beverages, particularly their calorie contribution to total diet and their role in energy balance.

Estimated Time: 45 minutes

Objectives

1. Identify the importance of hydration.
2. Identify the functions of fluids in the body.
3. Know the appropriate amount of water and fluids to drink daily.
4. Understand hydration for sports and exercise.
5. Identify the role of fluids in daily calorie/energy intake.
6. Understand the risk of dehydration.
7. Explore personal beverage choices.

Materials

- Flip chart and markers
- Pens or pencils

Resources and Handouts

- Urine Color Chart (page 258)
- Re-think Your Drink! (page 263)

Advance Preparation

1. Visit the Coca-Cola Company Beverage Institute for Health & Wellness website for information on the importance of hydration for youth, guidelines for how much to drink and tips for staying hydrated.
2. Copy Re-think Your Drink! (one per participant).
3. Select a snack to serve during the session wrap-up.
Lesson 6: Fluids and Hydration

**Key Teaching Points**

- Fluids are extremely important for the body, because they do many important jobs.
- Our bodies use up fluids we drink, so we have to replace them; this is called “hydration.”
- Water is a great choice to replace the fluids used up in our bodies, but any beverage (as well as many foods like soup) provides water to meet hydration needs.
- Other drinks, like low-fat/non-fat milk and 100-percent fruit juices are nutritious choices because they replace fluids but also provide nutrients to our bodies. They also contribute calories (energy) for our bodies.
- It is important to stay hydrated during sports and physical activity, to replace the fluids and electrolytes lost during a workout.
- Energy drinks are not appropriate for youth under 17 years of age.

**Leading the Activity**

**I. GET-MOVING EXERCISE**

Select a Get-Moving Exercise from the list (on page 16 in the Implementation Manual) and keep group members moving for 10 minutes. Tell the group that kids need to do some physical activity for 60 minutes every day and that this exercise is one example of what they can do.

**II. INTRODUCTION**

1. Begin by asking, “What do you know about the importance of fluids and the body? What do you want to know about the importance of fluids and the body?”
2. Ask youth whether they know what the human body is made of. Point out that our bodies are about two-thirds water — it is the main ingredient in all body fluids.
3. Explain that fluids are necessary for every single body function. In fact, humans can live only about a week without fluids. Highlight some of the things fluids do:
   - help us digest our food;
   - keep our body temperature right;
   - help our blood move around our bodies;
   - help carry nutrients and oxygen to cells throughout the body;
   - remove toxins and other wastes;
   - keep our joints from rubbing together;
   - protect our tissues and organs; and
   - make us feel more full (less hungry).
4. Point out that a lot of fluid each day is used up for all the jobs it does in the body. Our bodies lose even more when we are exercising or perspiring: fluids come through the skin as sweat and, as they do, they cool down the skin and the blood.
5. Explain that it is very important to drink a lot of fluids so that our bodies have enough to function properly. We need to replace the fluids our bodies lose by drinking water and fluids every day. The word for this is “hydration.”

**HYDRATION** is replacing fluids in the body to maintain proper fluid balance.

6. Say that it is especially important for kids to drink enough fluids because they get overheated more than adults do.

7. Point out that, if we do not stay hydrated, we become dehydrated, which can cause us to be tired, confused and not able to focus and, over time, even more serious problems. Show the group the Urine Color Chart and explain how to use it to know if they are drinking enough fluids every day.

**DEHYDRATION** occurs when you lose more fluid than you take in, and your body does not have enough water and other fluids to carry out its normal functions.

8. Explain that everyone’s need for water and fluid is different. Young people should drink water or another beverage before they become thirsty, and they should drink even more when it is hot outside or they are exercising.

9. Point out that youth their age should drink from 10 to 14 cups of water and other beverages a day — 10 cups for girls and 14 for boys.

10. Explain that although water is a good choice for replacing fluids in the body, other beverages such as low-fat/non-fat milk, 100-percent fruit juice and soft drinks also replace fluids. The water in other beverages — even in foods — meets the body’s water needs the same way plain water does.

11. Ask youth what they think are the most popular drinks for kids. Say that they are milk, soda, fruit juices and fruit drinks.

12. Point out that some of these beverages have no calories (zero-calorie soft drinks, many flavored waters, zero-calorie sports drinks and coffee and tea). Others — like 100-percent juice, fruit drinks, sports drinks, milk and other soft drinks — do have calories. In addition to replacing fluids in the body, these beverages can add to the nutrients and energy we take in.

13. Say that it is important to stay hydrated, and it is also good to be aware that calories from beverages “count” toward our daily energy intake.

14. Ask youth whether they know the difference between energy drinks and sports drinks. Remind them that energy drinks are not a substitute for sports drinks, which are used to replace fluids in the body and refuel before, during and after vigorous physical activity. Say that sports drinks replenish important carbohydrates and electrolytes that the body loses during vigorous activity. Stress that energy drinks are inappropriate for kids in this age range.

15. Ask youth what they know about staying hydrated during sports. Make sure they understand that the bodies of kids and adolescents do not regulate heat efficiently, so it is important to drink fluids before, during and after physical activity.

16. Review these basic guidelines with the group:
   - Drink **before** exercise, about 14 to 24 ounces of fluid two hours before.
• Weigh themselves to make sure they replace fluids lost during exercise (weight loss during exercise is water loss, not fat loss, so it must be replaced).
• Drink during exercise, approximately 6 to 12 ounces every 15 to 20 minutes.
• Drink sports drinks to help replace fluids and electrolytes (sodium, potassium and other minerals lost during physical activity) for activities lasting one hour or more.
• Drink after exercise, about 16 to 24 ounces for every pound of weight lost through sweat, to balance out fluid losses and to re-hydrate.

III. GROUP LEARNING ACTIVITY — THINK YOUR DRINK!

1. Ask youth to form small groups of three.
2. Tell them they are going to do an activity that gives them a chance to learn more about different beverages and the benefits of each.
3. Distribute copies of Re-think Your Drink! To all group members.
4. Point out that there are 10 different beverages listed on the worksheet, although there may be others they would like to include.
5. Remind youth that all beverages provide hydration. Some have no calories, while others do. Some contribute nutrients to our bodies and others do not.
6. Point out that all calories “count” toward their total daily energy intake.
7. Say that, in this activity, they will get an idea of the number of calories each beverage contributes to total daily energy intake.
8. Explain that group members will work in teams to do an Internet search to determine what types of physical activity an individual could do in order to balance the energy intake from each beverage with energy output.
9. Refer group members to a website that allows them to calculate how many minutes of a particular activity are needed to burn a specific number of calories: the Time to Burn Calculator.
10. End by asking, “What did you learn about the importance of hydration and the body?”

HYPONATREMIA AND CHILDREN

According to the National Center for Biotechnical Information (NCBI), hyponatremia is a serious condition in which blood sodium levels become too low. Although this can develop as a result of many diseases and conditions, it also can result from drinking excessive amounts of fluids, usually over a short period of time, in the absence of sodium supplementation. This form of hyponatremia is commonly referred to as “water intoxication.” According to the American Academy of Pediatrics (AAP), this condition is rare among young athletes performing for less than four hours. The AAP says that, although water is often enough for adequate hydration, youth participating in strenuous exercise, sports or physical activity for more than one hour (or in repeated, same-day sessions), may need electrolyte-supplemented beverages. This is especially true when athletes are playing in warm or hot weather, when a great deal of sweat loss occurs. For more information, see Hydration Maximizes Young Athletes’ Performance in AAP News (the American Association of Pediatrics journal) and Hyponatremia: Causes, Incidence and Risk Factors from the National Center for Biotechnical Information, U.S. National Library of Medicine, National Institutes of Health.
IV. INDIVIDUAL APPLICATION

1. Ask youth to jot down the beverages they drink most. Do they drink mostly water, milk, soda, tea, fruit juice, sports drinks or other beverages?
2. Ask them to compare the amount of fluids they drink with the recommended amount for their age group.

V. SNACK TIME

1. Instruct group members to wash their hands.
2. Serve the snack you have selected for today.
3. While youth are snacking, ask them to share what they remember most from today’s activity.

VI. TAKE-HOME CHALLENGES

Challenge group members to do one of these activities before you meet again:

1. Pay attention to the beverages they drink over the next week, and think about the calories and nutrients in the beverages they choose.
2. Try to include beverages from several food groups — by replacing water or a no-calorie/low-calorie beverage with 100-percent fruit juice or low-fat/non-fat milk.

ADDITIONAL RESOURCES

- The Coca-Cola Company Beverage Institute for Health & Wellness website has a Hydration Calculator that estimates the amount of water needed daily based on gender, age and weight.

CLEANLINESS AND FOOD ALLERGIES

Instruct group members to wash their hands with hot, soapy water for about 20 seconds to remove germs before snack time or handling food.

Before distributing food, ask whether anyone is allergic to ingredients in today’s snack. The major food allergens are milk, eggs, fish, shellfish, nuts, wheat, peanuts and soybeans.
You're taking a trip through the desert. You need to drink lots of fluids for ________.

It's very dry in the desert and your mouth is dry. You drink fluids because you're ________.

You just climbed a big sand dune and it was hard work. You drink fluids when you do ________.

Whew, it's hot! You need to cool your body off. You drink fluids when you ________.

Your knees are sore. You drink fluids because your body needs help to cushion ________.

You need a meal. You drink fluids because your body needs help to digest ________.

You did it! You drank enough fluids to make it through the desert!
This urine color chart is a simple tool you can use to assess if you are drinking enough fluids throughout the day to stay hydrated.

If your urine matches colors 1, 2 or 3 you are hydrated.

If your urine matches colors 4 through 8 you are dehydrated and need to drink more fluid.
WHAT BEVERAGE AM I?

Reduced-fat Milk (2 percent)  Non-fat Milk

Chocolate Milk  100-percent Apple Juice
WHAT BEVERAGE AM I?

- Regular Soft Drink
- No-calorie Soft Drink
- Bottled Water
- Sports Drink
WHAT BEVERAGE AM I?

100-percent Orange Juice

Lemonade

Sweetened Iced Tea

Fruit Punch
BASES LOADED QUESTIONS (ANSWER KEY)

TRUE OR FALSE QUESTIONS

Low-fat chocolate milk has more fat than low-fat milk. (False)
Fruit punch has the same vitamins and nutrients as 100-percent fruit juice. (False)
Kids should drink fluids before, during and after physical activity. (True)
Sports drinks replace important carbohydrates and electrolytes lost during workout. (True)
Kids should drink fluids whenever they are thirsty. (True)
A milkshake has the same nutrients as a low-fat yogurt drink. (False)
Whole milk is better for teens to drink that low-fat or non-fat milk. (False)
Diet soda has fewer calories than regular soda. (True)
All beverages contribute the same nutrients to the body. (False)
The most popular drink with kids is vegetable juice. (False)
A milkshake is a beverage to drink less often than other beverages. (True)
Kids should drink when they perspire. (True)
A fruit drink is just as nutritious as 100-percent fruit juice. (False)
Sports drinks and energy drinks are the same. (False)
All beverages can help us stay hydrated. (True)
All beverages have the same amount of calories. (False)
Kids do not need to hydrate when they are working out. (False)

FILL-IN-THE-BLANK QUESTIONS

All beverages can replace _______ in the body. (fluids)
Energy drinks are not appropriate for _______. (children and adolescents)
Fluids help us digest and absorb _____. (foods)
A cup of 100-percent apple juice equals 1 cup of _______. (fruit)
Water regulates body ______ and cools us down. (temperature)
A veggie drink, like V8, is a drink rich in nutrients in the ______ food group. (vegetable)
Water helps regulate ______ circulation. (blood)
Water and other beverages help us feel full and less _______. (hungry)
_______ is replacing fluids in the body to maintain proper fluid balance. (hydration)
Water consumed from beverages and foods removes ______ and ______ from the body. (toxins and wastes)
Low-fat yogurt is a beverage in the ______ group that is rich in nutrients. (dairy)
Water cushions the _______. (joints)
A cup of low-fat milk equals one serving from the ______ food group. (dairy)
Water protects ______ from damage. (tissues)
**RE-THINK YOUR DRINK!**

The following chart lists various beverages and the approximate number of calories in each. Use the Time to Burn Calculator (http://www.fitwatch.com/qkcalc/burncalc.html) to find a physical activity to do that will burn off the calories taken in by the beverage. Fill in the number of calories in the beverage, select an activity from the pull-down menu, enter your approximate weight (or an average of group members’ weights) and click the “calculate” button.

<table>
<thead>
<tr>
<th>Beverage</th>
<th>Calories</th>
<th>Activity</th>
<th>No. of minutes needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit punch (12 oz.)</td>
<td>192</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100-percent apple juice (12 oz.)</td>
<td>180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100-percent orange juice (12 oz.)</td>
<td>168</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lemonade (12 oz.)</td>
<td>168</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular cola (12 oz.)</td>
<td>136</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweetened lemon iced tea, bottled (12 oz.)</td>
<td>135</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seltzer water (12 oz.)</td>
<td>124</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sports drink (12 oz.)</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unsweetened iced tea (12 oz.)</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO-calorie soda (12 oz.)</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbonated water, unsweetened (12 oz.)</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water (12 oz.)</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chocolate milk (whole) (12 oz.)</td>
<td>208</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chocolate milk, 2-percent/reduced fat (12 oz.)</td>
<td>190</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chocolate milk, 1-percent/low-fat (12 oz.)</td>
<td>158</td>
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</tr>
<tr>
<td>Whole milk (12 oz.)</td>
<td>150</td>
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</tr>
<tr>
<td>Two-percent/reduced-fat milk (12 oz.)</td>
<td>120</td>
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<tr>
<td>One-percent/low-fat milk (12 oz.)</td>
<td>105</td>
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<td></td>
</tr>
<tr>
<td>Fat-free milk (12 oz.)</td>
<td>90</td>
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</table>