

## NUTRITIONAL NEEDS OF INDIVIDUALS AND FAMILIES ACROSS THE LIFESPAN

### Nutrition Issues and Adolescents

#### Grade Levels: 9-12

**Concept:** Healthy Weight Management

**Comprehensive Standard:** 6.2 Evaluate the nutritional needs of individual and families in relation to health and wellness across the lifespan

**Technical Standard:** 6.2.2 Examine the relationship of nutrition and wellness to individual and family health throughout the life span.

6.2.3 Assess the impact of food and fad diets, eating habits, and eating disorders on wellness.

#### LESSON COMPETENCIES:

- Define body image
- Identify factors that influence body image
- Discuss health risks related to weight management (obesity and underweight)
- Analyze guidelines for healthy weight loss
- Explore fad diets
- Develop a personal plan for maintaining a healthy weight

#### ANTICIPATED BEHAVIORAL OUTCOMES:

- Students recognize that maintaining a healthy weight is a matter of balancing calorie intake and calorie output.
- Students choose foods, practice eating habits and implement lifestyle changes, including exercise and other physical activity that will assist them in maintaining a healthy weight throughout the lifespan.

#### Resources Needed:

- Downloadable handouts on body image from the National Cattlemen's Beef Association (see reference list below)
- Copies of all handouts for students
- Four 5 pound bags of flour
- Stopwatch

#### References for teachers and students:

*Team Nutrition*, a program developed by the USDA to promote healthy eating and physical activity has several resources appropriate for middle school students. These include a Student Activity Guide and Teacher's Guide with several activities called *yoursSELF*. Several can be downloaded for free at their website or ordered at the site. The address is [www.fns.usda.gov/tn](http://www.fns.usda.gov/tn).

*National Cattlemen's Beef Association* has a Leader's Guide and reproducible handouts for students on body image called *Mirror, Mirror*. Both are downloadable at

<http://www.beefnutrition.org/matedownloadsforpatientsandclients.aspx> (updated). This packet was first made available in the 1980s but was updated in 1999.

West, D. (2006). *Nutrition and Fitness: Lifestyle Choices for Wellness*. Goodheart-Wilcox Publishing, [www.g-w.com](http://www.g-w.com) or phone at 1-800-323-0440  
Chapter 12: The Energy Balancing Act and Chapter 13: Healthy Weight Management.

The *Ohio State University Extension Service* has a fact sheet entitled “Body Image” that also includes information on eating disorders. It is available at <http://ohioline.osu.edu/hyg-fact/5000/5238.html>

**NEW** The *Federal Trade Commission* has a web page dedicated to spotting faulty weight loss claims, “Red Flag Bogus Weight Claims”, with examples of the most commonly used claims and advice for informed consumers at <http://www.ftc.gov/redflag/> It also has a link for consumers to file a complaint about an ad or claim that they have found.

**NEW** The IFIC has several downloadable PowerPoint presentations on healthy weight management available for download at [www.ific.org/tools/presentations.cfm](http://www.ific.org/tools/presentations.cfm)

**NEW** A curriculum supplement for 7-8 grade life science teachers, *The Science of Life*, (<http://science-education.nih.gov/supplements/nih4/energy/default.htm>) is available from the NIH.

#### **NEW websites:**

[www.heartsavers.org](http://www.heartsavers.org) from the *National Heart Savers Association* provides several word puzzles on healthy food choices and two quizzes on exercise: “Test Your Exercise” and “Heart Smarts and High or Low?” Answer keys are provided for all activities.

<http://exchange.co-nect.net/Teleprojects/project/Fitness> This site allows for an assessment of personal physical activity relative to other students and an opportunity to participate in an on-line WebQuest to track the results of their physical activity.

[www.cdc.gov/nccdphp/sgr/pdf/adoles.pdf](http://www.cdc.gov/nccdphp/sgr/pdf/adoles.pdf) CDC’s physical activity and the health of young people fact sheet. The site also has BMI calculators ([www.cdc.gov/nccdphp/dnpa/bmi/index.htm](http://www.cdc.gov/nccdphp/dnpa/bmi/index.htm)) for both adults and teen/children.

[www.cdc.gov/nccdphp/sgr/adoles.htm](http://www.cdc.gov/nccdphp/sgr/adoles.htm) This page provides a fact sheet on adolescents and young adults from the *Surgeon General’s Report on Physical Activity and Health*.

<http://library.thinkquest.org/12153/> This site offers physical fitness definitions, as well as information on warming up before, and cooling down after physical activity. Information on benefits of exercise and diet also included.

[www-nehc.med.navy.mil/hp/fitness/index.htm](http://www-nehc.med.navy.mil/hp/fitness/index.htm) is the *NEHC Physical Fitness Homepage* for the *Navy Environmental Health Center*, Norfolk, VA. Contains links for posters, physical tests, nutrition guides, and physical activity planning guides.

[www.bam.gov](http://www.bam.gov) *BAM!* is sponsored by the *Centers for Disease Control and Prevention* (CDC). Designed to answer kid’s questions on health issues and recommend ways to make their bodies and minds healthier, stronger and safer. This is best for elementary and middle school age youth.

[www.kidshealth.org](http://www.kidshealth.org) *KidsHealth* provides health information for children from birth through adolescence, presented on separate areas for kids, teens and parents.

[www.nlm.nih.gov/medlineplus/exercisephysicalfitness.html](http://www.nlm.nih.gov/medlineplus/exercisephysicalfitness.html) *Medline Plus* is a site maintained by the *National Library of Medicine* and the *National Institutes of Health*. The “Exercise and Physical Fitness” page offers many links to web pages with information on physical activity and health.

Eating more fruits and vegetables is a way to manage weight; check out the *Fruits and Veggies More Matters* ([www.fruitsandveggiesmatter.gov/](http://www.fruitsandveggiesmatter.gov/)) website for more information.

[www.pueblo.gsa.gov/](http://www.pueblo.gsa.gov/) Federal publications on fitness, nutrition and health are available at this site.

The *National Governor’s Association* has joined with Gov. Mike Huckabee of Arkansas to launch a *Healthy America* campaign ([www.nga.org/portal/site/nga/menuitem.751b186f65e10b568a278110501010a0/?vgnnextoid=cd86f8dbc1ff6010VgnVCM1000001a01010aRCRD&vgnnextchannel=92ebc7df618a2010VgnVCM1000001a01010aRCRD](http://www.nga.org/portal/site/nga/menuitem.751b186f65e10b568a278110501010a0/?vgnnextoid=cd86f8dbc1ff6010VgnVCM1000001a01010aRCRD&vgnnextchannel=92ebc7df618a2010VgnVCM1000001a01010aRCRD)). The website has PSAs featuring the Sesame Street characters. They also have publications and grants available.

The *California Project Lean* ([www.californiaprojectlean.org/calculator/](http://www.californiaprojectlean.org/calculator/)) website has lesson plans and resource links on healthy meal planning and physical activity.

The *Stanford Health Promotion Resource Center* has online lessons on this topic available at [hprc.stanford.edu/pages/classes/002\\_weight/default.asp](http://hprc.stanford.edu/pages/classes/002_weight/default.asp).

The *National Dairy Council* site has info and research on healthy weight with dairy products at [www.nationaldairycouncil.org/nationaldairycouncil/healthyweight](http://www.nationaldairycouncil.org/nationaldairycouncil/healthyweight).

*Shape Up America* ([www.shapeup.org/shape/index\\_shape.php](http://www.shapeup.org/shape/index_shape.php)) is a nonprofit organization committed to addressing obesity as a health issue.

The government website, *Nutrition.gov* ([www.nutrition.gov/index.php?mode=homepage](http://www.nutrition.gov/index.php?mode=homepage)), has a wealth of nutrition information and a section specifically dedicated to weight management ([www.nutrition.gov/index.php?mode=subject&subject=ng\\_weight\\_control&d\\_subject=Weight%20Management](http://www.nutrition.gov/index.php?mode=subject&subject=ng_weight_control&d_subject=Weight%20Management)) including interactive tools, info on body image, recipes, popular diets, and a special section for youth.

The *Centers for Disease Control* program *VERB Now* ([www.verbnow.com/](http://www.verbnow.com/)) promotes physical activities and games to make physical activity fun.

*We Can!* (Ways to Enhance Children's Activity & Nutrition) [www.nhlbi.nih.gov/health/public/heart/obesity/wecan/index.htm](http://www.nhlbi.nih.gov/health/public/heart/obesity/wecan/index.htm) is a national program designed as a one-stop resource for parents and caregivers interested in practical tools to help children 8-13 years old stay at a healthy weight. Tips and fun activities focus on three critical behaviors: *improved* food choices, *increased* physical activity and *reduced* screen time. The program is a collaboration of four Institutes of the National Institutes of Health (NIH): the *National Heart, Lung, and Blood Institute* (NHLBI) ([www.nhlbi.nih.gov/](http://www.nhlbi.nih.gov/)), the *National Institute of Diabetes and Digestive and Kidney Diseases* (NIDDK), the *National Institute of Child Health and Human Development* (NICHD) ([www2.nidDK.nih.gov/](http://www2.nidDK.nih.gov/)) and the *National Cancer Institute* (NCI) ([www.cancer.gov/](http://www.cancer.gov/)).

## Background Information:

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We live in a culture that seems to be obsessed with physical appearance especially body shape and size. **Body image** is our personal view and interpretation of our body, including mental, emotional, historical and physical components. It can be defined as “how we perceive our physical appearance, as well as how we think others perceive us” (Body Image fact sheet, *Ohio State University Cooperative Extension Service*). Another definition is “a picture of the body seen through the mind’s eye. (*Dairy Council of California*)

Body image is influenced by a variety of forces:

- **Culture** – the values of society at large
- **Mass Media** – images of the “ideal” female or male physique
- **Advertising** – a form of mass media that “plays upon” accepted cultural values of thinness and fitness to sell and promote products or services

While body image contributes to concerns over maintaining a healthy weight, physical activity and exercise are important factors in the maintenance of a healthy weight. The following statistics offer a glimpse of the activity patterns of teens:

- More than 1 in 3 (35%) of teens do not participate regularly in vigorous physical activity
- Regular participation in vigorous physical activity drops from 73% of 9<sup>th</sup> grade students to 61% of 12<sup>th</sup> grade students
- Nearly half (45%) are not enrolled in physical education classes; enrollment drops from 79% in 9<sup>th</sup> grade to 37% in 12<sup>th</sup> grade
- National transportation surveys have found that walking and bicycling by children aged 5-15 dropped 40% between 1977 and 1995.
- Although an estimated 38 million young people participate in youth sports programs, participation declines substantially as children progress through adolescence. One study found that attrition from youth sports programs was occurring among 10-year-olds and peaked among 14-15 year olds.

This data indicates that participation in competitive sports is not often the solution to physical activity for teens. Teens need to be encouraged to participate in lifetime fitness activities such as walking, bicycle riding and fitness-oriented recreational activities.

**Terms to know** (definitions from [www.bam.gov](http://www.bam.gov))

- **Exercise** – is planned, is structured and provides for repetitive body movements. It is done to improve or maintain one or more components of physical fitness.
- **Physical Activity** – any bodily movement produced by skeletal muscles that results in energy expenditure and is positively correlated with physical fitness
- **Physical Fitness** – is a set of attributes that people have or achieve relating to their ability to perform physical activity. The health-related components of physical fitness include the following: body composition, cardiovascular endurance, flexibility, muscular endurance and muscular strength
- **Healthy Weight** – depends on several factors including height, physical activity, muscle mass, heredity, gender, etc.

Both exercise and physical activity are a part of healthy management but the

Dietary Guidelines clearly encourage physical activity on a regular basis.

Understanding energy balance is the key to weight management. Balancing energy involves equating the amount of energy you take in with the amount of energy you use. The energy in foods is measured in calories so the energy balance can be expressed as “calories in, equal to calories out”. Energy imbalance occurs when a person consumes too few or too many calories for his or her energy needs (Nutrition and Fitness, 2000).

**NEW** MyPyramid ([www.mypyramid.gov](http://www.mypyramid.gov)) and the *Dietary Guidelines, 2005* ([www.health.gov/dietaryguidelines/](http://www.health.gov/dietaryguidelines/)) are as much about physical activity as they are about what to eat to maintain health. **Healthy weight** is defined as a body mass index (BMI) equal to or greater than 19 and less than 25 among **all people aged 20 or over**. To determine body mass index, divide weight in kilograms (2.2 lbs. = 1 kg) by height in meters squared (39.4 ins. = 1 m). See the “table” ([www.consumer.gov/weightloss/bmi.htm](http://www.consumer.gov/weightloss/bmi.htm)) for quick conversion from height and weight to BMI. (From the “Partnership Principles” of the *Partnership for Healthy Weight Management*, [www.consumer.gov/weightloss/principles.htm](http://www.consumer.gov/weightloss/principles.htm) at the *Partnership for Healthy Weight Management* website [www.consumer.gov/weightloss/index.htm](http://www.consumer.gov/weightloss/index.htm)).

## Learning Activities:

### Middle School Level

- Use the reproducibles, [Worksheet A – Great Figures](#) and [Worksheet B – Beautiful People](#) from the *National Cattlemen’s Beef Association* website (see reference list) to begin a discussion on body image and body types. Discuss student responses to the questions.
  - Do all of the celebrities you have listed have a similar body type? How would you describe their body types?
  - Do they look healthy? What characteristics indicate that they are healthy or unhealthy?
  - Do we admire people based on their appearance? Why or why not?
  - What characteristics make a person “beautiful”?
  - Why is so much emphasis placed on physical appearance? What can we do to change these pressures?
- Define body image and list the influences on body image. Discuss these influences (see background information)
- Show pictures of individuals who are underweight and who are overweight. Ask: What risk factors are associated with each of these eating problems?
- Define healthy weight. Discuss the factors that are involved in determining healthy weight – a weight at which your body fat is in an appropriate proportion to lean tissue. Consider age, physical maturity, gender, physical activity, heredity factors, etc.
- Ask students to participate in a “Plus Ten” Relay. Divide the class into 2 relay teams. Place half of the participants at one hand of the room and the other half at the other end of the room. Each participant must walk a designated distance carrying a five-pound bag of flour or sugar in each hand.

When they reach the destination, the student passes off the bags of flour or sugar to the next person to continue the relay. When the relay is completed, discuss how an added ten pounds impacts health. Possible questions include:

- How did it feel to carry the bags of flour or sugar?
- Did you get tired?
- What if you had to carry the bags around all day? How would that impact your day?

Relate this activity to being overweight and how the added weight places stress on your body.

**NOTE TO TEACHER:** You could repeat the relay with students carrying a ten pound bag of flour/sugar in each hand. Discuss the additional stress with 20 pounds of added weight. Time both relays to see if the time increases when the students carry the added weight.

- Define “healthy weight”. Ask students to brainstorm their definition of what is meant by a healthy weight. Discuss factors that influence a healthy weight such as height, activity level, heredity, muscle mass, etc. Students can calculate their body mass index (BMI) using the “What’s Your BMI?” activity in the *yourSELF Student Activity Guide* (<http://teamn nutrition.usda.gov/Educators/repromas.pdf>) from *Team Nutrition*. Use the government “BMI calculators for teens” ([www.cdc.gov/nccdphp/dnpa/bmi/index.htm](http://www.cdc.gov/nccdphp/dnpa/bmi/index.htm)).
- Discuss the concept of energy balance and the “calories in- calories out” equation for maintaining body weight.
- Ask students to develop a plan for an active lifestyle by completing “Worksheet D – Say “YES!” to a High-Energy Life” ([www.beefnutrition.org/uDocs/ACF871.pdf](http://www.beefnutrition.org/uDocs/ACF871.pdf)) available at *National Cattlemen’s Beef Association* website (see reference list) OR use the “Move It!” and “What’s Your Goal?” worksheets available in the *yourSELF Student Activity Guide* (<http://teamn nutrition.usda.gov/Educators/repromas.pdf>), from *Team Nutrition*. Students set goals for healthy food choices and for increasing physical activity and develop plans to meet these goals. The teacher’s guide for *yourSELF* provides assistance for teachers in using these activities.

### High School Level

- Define healthy weight. Discuss the factors that are involved in determining healthy weight – a weight at which your body fat is in an appropriate proportion to lean tissue. Consider age, physical maturity, gender, physical activity, heredity factors, etc.
- Assess several measures for determining whether or not your weight is healthy:
  - Height and weight tables (examples in Nutrition and Wellness text)
  - Body fat measuring methods: skinfold test with caliper, pinch test (examples in Nutrition and Wellness text and Dairy Council materials)
- Calculate body mass index (BMI) using charts available in texts or on the web at [www.consumer.gov/weightloss](http://www.consumer.gov/weightloss) Use caution as BMI calculations are meant

for adults (see text, Nutrition and Wellness from reference list). Students can calculate their body mass index (BMI) using the “What’s Your BMI?” activity in the *yourSELF Student Activity Guide*

(<http://teammnutrition.usda.gov/Educators/repromas.pdf>) from *Team Nutrition*.

- Ask students to work in groups of 2-3 and brainstorm everything that can be considered physical activity and write each on a sticky note. When students are finished, ask them to place the sticky notes on the board. Ask students if they could form “clusters” of similar activities (for example, gardening, housework may be in one category, while biking, walking might be in another). Discuss which of these could be part of a plan for physical activity to help maintain or lose body weight.
- Discuss the benefits of physical activity and physical fitness using the [Benefits of Regular Physical Activity](#) transparency master. For additional information, read [Life Advice About Fitness and Exercise](#).
- Develop a personal fitness calendar for one week including athletic practices, exercise routines and other physical activities such as walking,

#### Extended Learning Activities:

- ***KidsWalk-to-School Campaign*** – As a class activity or as an FCCLA Student Body, Community Service or FACTS project, conduct a *KidsWalk-to-School* campaign. *KidsWalk-to-School* is a program that aims to get children and teens to walk and to bicycle to and from school in groups accompanied by adults. The program encourages physical activity by showing communities how to make it safer and more enjoyable for kids to walk to and from school. **NEW** To obtain a copy of the *KidsWalk-to-School* guide and other links to information about this event, go to the *Centers for Disease Control* website and download guides and reproducibles to help plan the event [www.cdc.gov/search.do?action=search&queryText=kids+walk&x=15&y=10](http://www.cdc.gov/search.do?action=search&queryText=kids+walk&x=15&y=10) Also, visit the United States website for International Walk to School Day at [www.walktoschool.org/](http://www.walktoschool.org/)
- **National Family Week** – As part of National Family Week, develop a brochure on physical activities that families can do together which are inexpensive such as walking, biking, hiking, etc.
- Host a **Family Fitness Night** as part of National Family Week activities with relays and other events involving physical activity – a Family Olympics with medals for winners, etc.

#### Academic Connections **NEW**

- ✓ **Mathematics** – Calculate the number of calories burned by a variety of different activities: walking, running, mowing lawn, gardening, bowling, etc. Create posters and graphs showing how much exercise is needed to burn off specific foods such as a slice of pepperoni pizza, a cheeseburger, a 20-oz. soda, etc.

- ✓ **Physical Education** – Students can take the *President's Challenge* (<http://www.presidentschallenge.org/index.aspx>) a fitness challenge for all ages; work with teachers and staff to conduct the challenge for everyone involved in the school system in a school wide effort to improve health and fitness. Host a school wide competition between students, faculty and staff to see who has the most success. Awards can be ordered at the site.
- ✓ **Economics** – Research the cost of the obesity epidemic in the United States on insurance costs and health care.
- ✓ **Mathematics** – research and graph the changes in weight and obesity rates of Americans over the course of the past twenty years.

## **Benefits of Regular Physical Activity**

- **Assists in maintaining health body weight**
- **Increases energy**
- **Increases strength for routine activities**
- **Improves muscle tone**
- **Bone strength**
- **Strong heart and lung systems**
- **Improves mental health**
- **Helps you handle stress**
- **Sleep better**
- **Lowers risk of**
  - **heart disease**
  - **high blood pressure**
  - **high cholesterol**
  - **obesity**
  - **diabetes**