

Skills for Healthy Living

Coping With Change

Teacher's Guide

Grade Level: 9–12

Curriculum Focus: Health

Lesson Duration: Two–three class periods

Program Description

The teen years are a time of changes – at home, school, and inside and outside the body. All can have an effect on the teenager's physical and emotional health. One of the reasons teens' bodies change so much is hormones. Developing strategies to cope with these changes is an important part of healthy living.

Discussion Questions

All in the Family

- How does your family settle disagreements?
- How has your relationship with your parents changed as you've grown older?

Teens and Hormones

- What body functions do hormones control?
 - What health conditions are affected by problems with hormones?
-

Lesson Plan

Student Objectives

- Describe the function of the endocrine system.
- Identify and explain the locations and functions of glands in the endocrine system.
- Explain the common disorders and symptoms of the endocrine system, and how these are medically treated.
- Explain how to maintain a healthy body to ensure proper growth and development.

Materials

- Coping with Change: Teens and Hormones
- Computer with Internet access
- Drawing or model of the human brain
- Drawing or model of the human endocrine system (without identifying information)

Procedures

1. Discuss the importance of the endocrine system on human growth and development.
2. Discuss as a class what might happen when a particular type of hormone doesn't function the way it should. How might that affect growth, development, general health, or the aging process?
3. Students will research the locations and functions of following glands in the endocrine system and identify the hormone(s) they produce.
 - thyroid
 - hypothalamus
 - pituitary
 - adrenal
 - gonads

They will label the glands on the drawing or model of the endocrine system.

4. Students will work in groups to research and report on one of these glands, its function or role within the endocrine system, potential malfunctions, related health issues, and possible treatments.
5. Students may also wish to explain social complications relating to possible hormonal imbalances in their assigned gland, such as being teased about being short, which might be related to a deficiency of human growth hormone, or having to test blood sugar levels and take insulin injections several times a day because of diabetes.
6. Students will present their findings to the class. Drawings, photographs, or models may be used as visual aids.
7. As a class, discuss how all the glands must function together for optimal health; what steps they can take now to ensure good hormonal health, and what lifestyle changes they may wish to consider for future health reasons.

The following web sites have useful information about the endocrine system, growth and development. They are good starting points for exploring this topic:

<http://www.innerbody.com/image/endoov.html>

<http://www.emc.maricopa.edu/faculty/farabee/BIOBK/BioBookENDOCR.html>

<http://www.ama-assn.org/ama/pub/category/7157.html>

<http://www.endocrineweb.com/>

<http://www.hormone.org/learn/diabetes.html>

<http://www.nlm.nih.gov/medlineplus/endocrinediseases.html>



Assessment

Use the following three-point rubric to evaluate students' work during this lesson.

3 points: The student accurately identified and located the major glands of the endocrine system, described the hormone(s) produced by the gland and explained the hormone's function in the human body, and prepared an accurate and informative report including all the information requested.

2 points: The student partially identified and located the major glands of the endocrine system, partially described the hormone(s) produced by the gland and explained the hormone's function in the human body, and prepared an accurate report including most of the information requested.

1 point: The student did identify or locate the major glands of the endocrine system, did not describe the hormone(s) produced by the gland or explain the hormone's function in the human body, and did not prepare an accurate report including most of the information requested.

Vocabulary

endocrine system

Definition: A group of ductless glands that secrete hormones necessary for normal growth and development, reproduction, and self-regulating biological systems

Context: The endocrine system plays an important role in our growth, development, and overall health.

estrogen

Definition: Any of a group of hormones that promote the development and maintenance of female characteristics of the body

Context: Women going through menopause lose natural estrogen and often take supplements to help minimize symptoms caused by decreasing amounts of the hormone in their bodies.

gland

Definition: A collection of cells or tissue that either produces hormones and releases them into the blood stream or removes specific substances from the blood and eliminates them

Context: The human endocrine system relies on specific glands to produce hormones that regulate growth, energy, reproduction, body weight, and metabolism.

hormone

Definition: An organic substance produced by a gland and conveyed through the bloodstream to affect cells in another part of the body

Context: Hormone imbalances can affect growth, metabolism, and sexual development.

human growth hormone (hGh)

Definition: A hormone secreted by the pituitary gland, affecting growth of bone and other body tissues

Context: Tyler's pituitary gland did not make enough human growth hormone, resulting in him being considerably shorter than other kids his age,

hypothalamus

Definition: The region of the brain containing a control center for many automatic nervous system functions

Context: The hypothalamus influences many functions, such as weight regulation, fluid intake and balance, thirst, body heat, and sleep.

osteoporosis

Definition: A generalized loss of bone density, causing skeletal weakness.

Context: Osteoporosis may be avoided through proper nutrition, exercise, and good health habits as a teenager.

Standards

National Academy of Sciences

The National Academy of Sciences provides guidelines for teaching science in grades K–12 to promote scientific literacy. To view the standards, visit this Web site:

<http://books.nap.edu/html/nses/html/overview.html#content>.

This lesson plan addresses the following national standards:

- Science in Personal and Social Perspectives: Personal and community health

Mid-continent Research for Education and Learning (McREL)

McREL's Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education addresses 14 content areas. To view the standards and benchmarks, visit

<http://www.mcrel.org/compendium/browse.asp>

This lesson plan addresses the following national standards:

- Health: Understands the fundamental concepts of growth and development
- Health: Knows how to maintain and promote personal health
- Working with Others: Uses conflict-resolution techniques
- Working with Others: Displays effective interpersonal communication skills

Support Materials

Develop custom worksheets, educational puzzles, online quizzes, and more with the free teaching tools offered on the Discoveryschool.com Web site. Create and print support materials, or save them to a Custom Classroom account for future use. To learn more, visit

- <http://school.discovery.com/teachingtools/teachingtools.html>
-

DVD Content

How To Use the DVD

The DVD starting screen has the following options:

Play Video – This plays the video from start to finish. There are no programmed stops, except by using a remote control. With a computer, depending on the particular software player, a pause button is included with the other video controls.

Video Index – Here the video is divided into sections, indicated by video thumbnail icons. Watching all parts in sequence is similar to watching the video from start to finish. Brief descriptions and total running times are noted for each part. To play a particular segment, press Enter on the remote for TV playback; on a computer, click once to highlight a thumbnail and read the accompanying text description and click again to start the video.

Curriculum Units – These are specially edited video segments pulled from different sections of the video (see below). These nonlinear segments align with key ideas in the unit of instruction. They include onscreen pre- and post-viewing questions, reproduced below in this Teacher's Guide. To play a particular segment, press Enter on the TV remote or click once on the Curriculum Unit title on a computer.

Standards Link – Selecting this option displays a single screen that lists the national academic standards the video addresses.

Teacher Resources – This screen gives the technical support number and Web site address.

Video Index

I. All in the Family (13 min.)

Teens struggle with many changes in their lives, and some of the biggest can be right in their own homes. See how some teens have met the challenges of a changing family.

II. Teens and Hormones (15 min.)

Teens hear a lot about hormones, but what do these chemicals inside the body actually do? Find out why hormones are so important as teens transition into adulthood.

Curriculum Units

1. Yours, Mine, Ours

Pre-viewing question

Q: What are some of the challenges you face getting along with your parents or siblings?

A: Answers will vary.

Post-viewing question

Q: What special challenges do blended families face?

A: Answers will vary but might mention not respecting the stepparent's authority, resenting the stepparent and/or sibling(s), not wanting to share, resenting the birth parent for making the decision to remarry.

2. Change Happens

Pre-viewing question

Q: How do you and your family deal with major life issues or crisis situations?

A: Answers will vary.

Post-viewing question

Q: What strategies did the teens in the video use to help cope with changes in their families?

A: Talking within the family, therapy, using a journal to express emotions, maintaining a positive outlook, or appreciating what they do have.

3. Four Generations, One Roof

Pre-viewing question

Q: What are the positives and negatives to living in an extended family?

A: Answers will vary.

Post-viewing question

Q: What has Marcus gained by living with his extended family compared to what he's had to give up?

A: He's given up some private space but gained a new understanding of older people, strengthened his relationship with his family, and becoming a more caring, giving, and responsible person.

4. Puberty

Pre-viewing question

Q: What changes to teens go through during puberty?

A: Answers will vary.

Post-viewing question

Q: What strategies can teens use to cope with their changing bodies?

A: Understanding these changes are "normal," talking about concerns with a health professional, using humor to cope.



5. Out of Balance

Pre-viewing question

Q: What body functions do hormones control?

A: Hormones regulate most body functions, including growth, development of sexual characteristics, reproduction, metabolism, and emotions.

Post-viewing question

Q: Why is it important for people with diabetes to monitor their blood sugar levels?

A: People with diabetes either don't produce enough of the hormone insulin to regulate blood sugar levels, or their bodies are unable to use insulin efficiently. Because of that, they have to make sure their blood sugar levels don't get too high, which could lead to nerve damage and other problems.

6. Building Healthy Bones

Pre-viewing question

Q: What do you do to build strong bones?

A: Answers might include

Post-viewing question

Q: What are the risk factors for osteoporosis?

A: Not getting enough calcium in your diet, smoking, lack of exercise, being overweight, and genetic susceptibility.

7. Steroids: Bad for Hormones and Health

Pre-viewing question

Q: Why do some athletes use steroids even though they know them to be harmful?

A: Answers will vary.

Post-viewing question

Q: What are some of the health effects of using steroids?

A: Possible answers include hormonal imbalances, mood swings, decrease in testosterone production, women develop male traits like beards, risk of heart disease and liver cancer.