



Instructor's Guide

Healthy Eating: A Guide to Nutrition **Nutrition for Sports and Exercise**

Introduction

This guide provides information to help you get the most out of *Healthy Eating: Nutrition for Sports and Exercise*. The contents of this guide will allow you to prepare your students before using the program, and to present follow-up activities to reinforce the program's key learning points.

This program emphasizes the importance of exercise and the necessity of healthy eating to support overall fitness. Regular exercise not only contributes to improved physical appearance, it also keeps our energy levels high, improves muscle tone and cardiovascular fitness, and strengthens our health. But what is the best exercise to do? How can we eat and drink most effectively to promote fitness and health? This program walks us through some general guidelines and helpful information to make the best exercise and nutritional choices.

Learning Objectives

After viewing the program, students will be able to:

- Describe different types of exercise and their effects on the body
- Understand the internal mechanics of the body's response to exercise
- Make informed choices about food and drink choices to best support fitness goals
- Explain the importance of consuming water and electrolytes while exercising
- Describe how different nutritional decisions can have various effects on the body

Program Overview

Good decisions about exercise and nutrition are some of the most important we can make in regards to our overall health. Did you know there are different types of fitness and they affect the body in different ways? This program informs viewers as to the various exercise options they have, and how their bodies will respond to each. Of course, to be most effective, we need to support and promote our fitness goals through nutritional awareness and good choices. After viewing this program, students should feel they can make a variety of good food and drink choices to support their exercise objectives.

Main Topics

Topic 1: Nutrition and Fitness

This section of the program describes the different types of fitness: cardiovascular and respiratory; muscle strength and endurance; flexibility; and body composition. It also reviews why choosing to exercise is a positive decision.

Topic 2: What Happens When We Exercise?

In this section, the program reviews exactly how exercise affects the mechanics of the body. Viewers observe changes and reactions at the cellular and muscular level.

Topic 3: Meeting Nutrient Needs: What Should Athletes Eat?

Here, viewers review the types of nutritional choices they can make to most effectively achieve their desired level of fitness and even to gain a competitive edge.

Topic 4: Keeping Cool: Water and Electrolytes

Consuming water and electrolytes during exercise is critical. This section of the program describes the importance of consuming appropriate amounts, and also looks into the various supplements marketed to improve athletic performance.

Topic 5: Nutritional Problems Common Among Athletes

For some sports in particular, common nutritional practices are actually dangerous. In this section, viewers learn how poor nutritional choices can adversely affect both fitness and overall health.

Fast Facts

- There are four basic types of fitness: cardiovascular and respiratory fitness; muscle strength and endurance; flexibility; and body composition.
- When you exercise, your body releases feel-good hormones called endorphins.
- Aerobic production of ATP is slow, but very efficient. It provides up to 38 molecules of ATP for every molecule of glucose used in the process.
- For activities requiring endurance, muscles will typically use 80% carbohydrates and 20% fat.
- If when dieting you eliminate an entire food group or type of food, you may miss out on important nutrients that support your health and fitness.
- Our bodies are more than 60% water by weight.
- It's critical to replace water and electrolytes — especially sodium — when exercising in hot and humid weather. Water cannot be absorbed by the body without the presence of sodium.
- Many nutritional supplements are safe at low doses, but have adverse effects at higher doses.
- Weight gain for athletics (such as football or wrestling) should be accompanied by exercise that builds muscle. It's important to ensure that the body gains lean tissue and not just fat.
- Excessive training without rest can lead to overtraining syndrome, a serious condition with significant consequences such as illness, depression, and fatigue.

Vocabulary Terms

anaerobic metabolism: Used by the body when aerobic processes cannot keep up with muscle demand. Anaerobic metabolism produces energy at a faster rate, but is less efficient than aerobic metabolism.

atrophy: Process by which unused muscles become smaller and weaker.

cardiovascular fitness: Refers to the health of your heart, arteries, and veins.

electrolytes: Substances that help maintain the body's fluid balance.

ergogenic aids: General name for products (such as pills, powders, drinks, and foods) that claim to improve athletic performance.

flexibility: Capable of being bent or moving easily.

glycogen: Excess glucose that the body stores in our liver and muscles.

hypertrophy: Process by which an exercised muscle will increase in size and strength.

muscular strength and endurance: The health and strength of the muscles.

respiratory fitness: The health of the lungs.

Pre-Program Discussion Questions

1. What types of exercise do you enjoy? What was the last exercise or sport in which you took part?
2. Do you know anyone who has taken a diet or fitness supplement? What was the outcome?
3. What types of training regimens do you think professional athletes complete? How might training differ for a long distance runner versus a weightlifter?
4. Why do people drink beverages like Gatorade or Powerade?
5. How much water do you drink every day? Why?

Post-Program Discussion Questions

1. There are four different types of fitness. What exercises or sports can lead to achievement in all four areas simultaneously?
2. How do you feel after you exercise? What internal changes have taken place that explain your physical and emotional reaction?
3. If you want to improve your running distance, what are some positive nutritional choices you can make? What if you want to build muscle as a wrestler?
4. What are electrolytes? How can you replenish them in your body after a workout?
5. Why do some athletes and students make unhealthy choices when trying to achieve fitness goals or athletic success?

Student Projects

- This program reviews four types of fitness: cardiovascular and respiratory, muscle strength and endurance, flexibility, and body composition. Define each of these types, and make two realistic, local, specific recommendations for improving fitness in each category. For instance, to improve flexibility you might list a beginner's yoga class at a local studio and a YouTube video that guides at-home viewers through simple stretching exercises. As a class, review all suggestions and potentially combine them to create a local fitness guide that can be distributed to all students with contact information, websites, and pricing.
- We know that exercise helps make us healthier and can lead to improved appearance, emotional attitude, and energy levels. But why? How exactly does exercise affect the body? Using the discussion of aerobic and anaerobic metabolism from the video as a starting point, research the internal physical effects of exercise on the body. Create a diagram or other visual depicting the body processes in play during exercise and how they impact different body systems. Through your visual, make the connection between the physical processes of the body during exercise and the improvements in physical and emotional health that can result.
- Why is a healthy, balanced diet essential for athletes? What happens to athletic performance if the athlete does not consume enough nutrients over a period of time? How can athletes ensure they are maximizing the nutritional 'punch' of their diets as they train? Create a nutritional guide for amateur athletes, including overall nutritional needs, key nutrients to consume (taking into account that nutrients work together for optimal body function), and menu suggestions. Your guide can target a particular sport or training regimen (for instance factoring in the carbohydrate needs of long-distance runners) or be more general for a variety of student athletes. Share your guide with your classmates and review the specific suggestions they've made as well.
- There are hundreds of diet aids and supplements on the market, each making a different claim — fast weight loss, increased muscle mass, suppression of appetite, improved energy levels, and many more. Many people try these products out, hoping to experience the promised results. Are any of these products effective? Are they all safe? Why have some been taken off the market? Do some independent research into diet supplements and share some of your findings, such as results from independent trials, reported physical effects, and testimonials from users. Leveraging what you've learned through your research, make your own personal determination as to whether or not you would want to use any of these products. Why or why not? Are there nutritional and exercise adjustments you could make to achieve your desired results instead?

Assessment Questions

- Q1:** This type of fitness refers to the health of your heart, arteries, and veins.
a) muscular b) flexibility c) cardiovascular d) body composition
- Q2:** True or False: Exercise can help us feel better emotionally as well as physically.
a) True b) False
- Q3:** Carbohydrates are converted to _____, our primary source of energy.
a) aerobic b) protein c) sucrose d) glucose
- Q4:** _____ metabolism produces energy at a faster but less efficient rate than aerobic metabolism during exercise.
a) Anaerobic b) ATP c) Lactic acid d) Endurance
- Q5:** This process refers to unused muscles becoming smaller and weaker.
a) hypertrophy b) metabolism c) atrophy d) ATP
- Q6:** Carbo-loading refers to the following:
a) consuming fewer carbohydrates than competitors to build muscles
b) consuming more carbohydrates ahead of a race or athletic event to have a readily available energy source
c) finding a diet supplement that balances out carbohydrate consumption with fiber consumption
d) drinking a sports drink containing electrolytes
- Q7:** Our bodies are more than 60% _____ by weight.
a) fat b) muscle c) tissue d) water
- Q8:** True or False: Energy drinks that contain high levels of caffeine always improve athletic performance.
a) True b) False
- Q9:** Weight gain for athletics should be accompanied by this type of exercise to ensure that lean tissue is gained.
a) muscle-building b) flexibility c) respiratory d) stretching
- Q10:** Excessive training without rest can lead to this.
a) illness b) injury c) depression d) all of the above

Assessment Questions Answer Key

Q1: This type of fitness refers to the health of your heart, arteries, and veins.

A1: (c) cardiovascular

Feedback: There are four general types of fitness: cardiovascular and respiratory; muscle strength and endurance; flexibility; and body composition.

Q2: True or False: Exercise can help us feel better emotionally as well as physically.

A2: (a) True

Feedback: When you exercise, your body releases hormones called endorphins, which enable you to feel better overall.

Q3: Carbohydrates are converted to _____, our primary source of energy.

A3: (d) glucose

Feedback: If we have more glucose in our bodies than needed for energy, it will be stored as glycogen in our liver and muscles.

Q4: _____ metabolism produces energy at a faster but less efficient rate than aerobic metabolism during exercise.

A4: (a) Anaerobic

Feedback: The more intense your exercising, the more ATP is produced and the more glucose fuel is utilized.

Q5: This process refers to unused muscles becoming smaller and weaker.

A5: (c) atrophy.

Feedback: Hypertrophy refers to the opposite process — when muscles are exercised and increase in size and strength.

Q6: Carbo-loading refers to the following:

A6: (b) consuming more carbohydrates ahead of a race or athletic event to have a readily available energy source

Feedback: During a carbo-loading regimen, an athlete aims to consume 5 grams of carbohydrates per pound of body weight.

Q7: Our bodies are more than 60% _____ by weight.

A7: (d) water

Feedback: Water is found in every tissue and cell of the body. Its prevalence means that replacing the water lost when exercising is critical.

Q8: True or False: Energy drinks that contain high levels of caffeine always improve athletic performance.

A8: (b) False

Feedback: While high levels of caffeine benefit some people, for others they cause intestinal cramps and decrease performance levels.

Q9: Weight gain for athletics should be accompanied by this type of exercise to ensure that lean tissue is gained.

A9: (a) muscle-building

Feedback: Simply gaining fat without also adding lean tissue can lead to health problems later in life.

Q10: Excessive training without rest can lead to this.

A10: (d) all of the above

Feedback: Excessive training without appropriate breaks can lead to overtraining syndrome, a serious condition with physical and emotional consequences.