



Food and Fitness Virtual Workshop

Activity Six:
Your Nutritional Needs

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Virtual Workshop: Food and Fitness (Activity Six) – Your Nutritional Needs

Activity Six: Your Nutritional Needs, of the instructional unit, Food and Fitness, allows students to compare their own eating habits to standard recommendations for a healthy diet.

Science and health concepts covered in this activity include the following.

- Nutrition is essential to health.
- Good nutrition includes eating a variety of foods and eating less sugar, refined carbohydrates and unhealthy fats.

The complete Food and Fitness Activities Guide for Teachers may be downloaded as a PDF file from the Teacher Resources menu on BioEd Online.
<http://www.bioedonline.org/resources/nsbri.cfm>

Viewing this presentation fulfills part of the requirements for completing the Virtual Workshop on Energy, Food and Nutrition (“Food and Fitness”), offered for professional development contact hours on BioEd Online.

Funding for development of the Food and Fitness unit and accompanying online professional development was provided by the National Space Biomedical Research Institute (NSBRI), a consortium of leading biomedical research centers funded by the National Aeronautics and Space Administration (NASA). Visit the following sites for more information about these organizations.

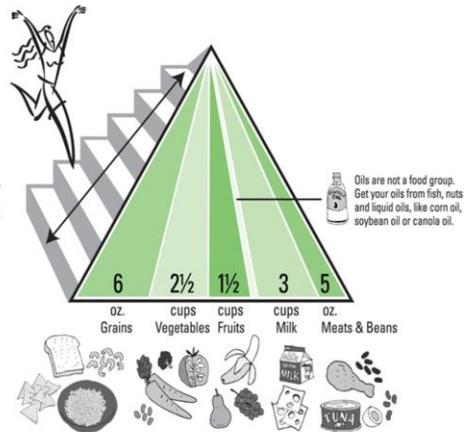
Center for Educational Outreach, Baylor College of Medicine: <http://www.ccit.bcm.tmc.edu/ceo/>

National Space Biomedical Research Institute: www.nsbri.org

National Aeronautics and Space Administration: <http://www.nasa.gov>

Food Guide Pyramid

- Choose
 - Whole grain carbohydrates (cereals and breads)
 - 5–9 servings of fruits and vegetables per day
 - Low-fat sources of calcium, such as skim milk products
- Avoid
 - Refined sugars
 - Refined carbohydrates
 - Fats that are solid at room temperature



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Food Guide Pyramid

The Food Guide Pyramid serves as a visual guide for healthier eating. However, consumers also should pay attention to the quality of their food choices. For example, it is preferable to obtain carbohydrates from whole grains than from refined (white) flours and sugars. In addition, added sugars (those that do not occur naturally in a food, such as added sugar in soft drinks) should be limited to no more than 25 percent of total calories consumed. Carbohydrates are an important energy source for the body and should account for 45 to 65 percent of the calories in an adult diet, according to the Institute of Medicine (2002).

Similarly, five to nine servings of fruits and vegetables should be eaten daily. Fruits and vegetables are valuable sources of vitamins (chemicals needed by the body in small amounts) and minerals, and may have important roles in the prevention of certain diseases, such as cancer. Dairy products provide essential calcium. Skim milk and other low fat dairy products with added vitamin D are the best choices.

Meats, fish, poultry, eggs, nuts and beans all are good sources of protein, which is needed by the body to build muscles, hair, skin and collagen, as well as to carry out essential processes within cells. Protein also can be used by the body as an energy source. The best protein choices are low in fat. In general, the visible fat on meats and poultry should be avoided.

Fats and oils aid in the absorption of essential vitamins and are very dense energy sources. Fats provide more Calories per gram (nine) than do carbohydrates or proteins (four Calories per gram). However, certain kinds of fats are healthier than others. Fats that are solid at room temperature, such as shortening, margarine and lard, should be avoided. Foods that include

large amounts of unhealthy fats include some red meats, cream and whole milk dairy products, and most cakes, cookies and crackers. Plant-based oils, such as canola, olive and flaxseed, are much better choices.

References:

Institute of Medicine. (2002). *Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (Macronutrients)*. Washington, DC: National Academies Press. Retrieved July 12, 2004 from http://www.nap.edu/catalog/10490.html?onpi_newsdoc090502

US Department of Agriculture. Food Guide Pyramid. Retrieved July 12, 2004 from <http://schoolmeals.nal.usda.gov/py/pmap.htm>

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Estimating Serving Sizes

Use the Quick Hand Measures to estimate the size of one serving of different foods.

Quick Hand Measures

				
A closed fist	Two fingers	A cupped hand	An open palm	Tip of thumb
=	=	=	=	=
Piece of fruit or cup of raw vegetables	Ounce of cheese	Cup of dry cereal	Single serving of meat	Teaspoon of butter
				



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Estimating Serving Sizes

Serving sizes are different for various kinds of foods (meats, fruits and vegetables, etc.), liquid and solid foods, and cooked versus raw foods. It also can be difficult to judge appropriate portion sizes, which often are smaller than people think they are. In the absence of measuring devices, the hand can be used to estimate appropriate portion sizes of different foods. A closed fist is equivalent to a single serving of fruit or raw vegetables (chopped or whole). Two fingers or a domino are approximately the size of a single serving of cheese. A cupped hand holds about one cup of dried cereal or popcorn. An open palm represents a single serving size of meat, poultry or fish. The tip of the thumb is about the same size as a teaspoon of butter.

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How Does Your Diet Compare?

- List the servings of food you ate during one day in the appropriate categories under My Selections.
- Compare your eating habits to those suggested by the Food Pyramid.
- Create and record a new Healthier Plan for eating.

	My Recommended Amounts	My Selections	My Healthier Plan
Fruits			
Vegetables			
Grains			
Meats and Beans			
Milk			
Oils			
Discretionary Foods			



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How Does Your Diet Compare?

Students will use individual lists compiled in Activity Five of the foods they consume during a typical 24-hour period. First, students should compare their food consumption to recommendations of the Food Pyramid. Some items on their lists may fall into more than one food category. For example, a large portion of lasagna might count as one serving from the bread/grains/cereals group (pasta), one serving from the milk products group (cheese), one-half serving from the vegetable group (tomato sauce), and one serving from the meat group (ground beef). Have students record the foods they ate in the My Selections column next to the appropriate categories. (The student page, “What’s On your Menu?,” may be found on page 23 of the Guide for Teachers. See below.)

When students have recorded their original food lists, ask them to compare their eating habits to recommendations of the Food Pyramid. Also, have students consider questions, such as the following. Did you make optimal choices of carbohydrates (whole grain instead of white bread, for example)? Does your diet include too much of anything? Did you have at least five servings of fruits and vegetables?

After students have had time to discuss their lists, have them devise ways to improve their daily eating habits. Their “Healthier Plans” should be recorded in the appropriate column on the sheet.

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Good Nutrition Contributes to Health

- Researchers at the National Space Biomedical Research Institute are looking for ways to improve astronaut health in space through nutrition.
- For example, astronauts suffer bone and muscle loss while in space, which might be attenuated through diet or nutritional supplements.

Astronauts select their meals from a wide variety of foods. Shown here during off-duty time, astronauts N. Jan Davis, payload commander, and Stephen K. Robinson, mission specialist, try their hands at chopsticks while having a meal of Japanese rice on the Space Shuttle's mid-deck.

(Photo courtesy of NASA)



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Good Nutrition Contributes to Health

The impact of good nutrition and physical fitness on health problems such as cancer, heart disease and muscle loss has been studied for years. In fact, up to one-third of cancers may be linked to nutrition. Some foods actually help to protect against certain cancers. To understand the role of nutrition as a preventative tool for reducing the potential danger of radiation- or chemically-induced colon cancer, researchers funded by the National Space Biomedical Research Institute (NSBRI) are designing diets that may protect against radiation-induced DNA damage and cancer. Other NSBRI researchers are studying the use of specific amino acids to augment, enhance and normalize insulin secretion, which may help reduce muscle wasting. And investigators are combining essential amino acids with carbohydrates to determine if they provide a remedy to muscle loss, which affects millions of people suffering from muscle-wasting diseases or muscle weakening due to prolonged bed rest, immobilization or aging. These programs are carried out by members of NSBRI's Nutrition, Physical Fitness and Rehabilitation Team.

The student reading accompanying this activity highlights work by NSBRI researchers at the University of Texas Medical Branch at Galveston. This group is searching for ways to reduce the muscle wasting that occurs in space, when muscles do not have to work to against the force of gravity.

References:

National Space Biomedical Research Institute. Retrieved July 12, 2005 from www.nsbri.org

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