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Student Information Handout
Lesson 6
Energy Metabolism

ENERGY METABOLISM PRE-TEST

An understanding of calories and their function in response to body needs is an important part of the knowledge of nutrition and weight control. This lesson is designed to help you do the following:

- (1) Define calorie and identify three nutrient sources of calories.
- (2) Understand the role that calories play in nutrition.
- (3) Explain caloric requirements and factors that affect them.
- (4) Define voluntary and involuntary activity and explain how both types affect caloric use.
- (5) Understand energy balance and the relationship of calories to body weight.

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Component ideas to be covered in this lesson include:

- (1) Definition of calorie and nutrient sources of calories.
- (2) Common misconceptions associated with the "calorie concept."
- (3) Calorie requirements and factors influencing them.
- (4) Voluntary and involuntary activities.
- (5) Energy balance.

Pre-Test

This test will not be recorded as a grade. The answers are provided on the back of this handout.

Read the following statements. If the statement is true, circle the T. If the statement is false, circle the F.

- T F 1. Every 18-year-old girl needs the same number of calories daily.
- T F 2. Your body only needs enough calories to supply you with the necessary energy to carry out your daily physical activities.
- T F 3. "Empty calorie" foods are foods which contain no calories.
- T F 4. Whole milk and skim milk contain the same number of calories per serving.
- T F 5. Butter and margarine contain the same number of calories per serving.
- T F 6. A medium size potato has fewer calories than a one-ounce chocolate bar.
- T F 7. The three nutrients that supply calories are carbohydrates, fats, and proteins.
- T F 8. The number of calories needed each day to maintain normal weight depends on age, weight, height, bone structure, state of health, and the amount of daily activity.
- T F 9. The involuntary activities of the body burn up relatively few calories.
- T F 10. An ounce of sugar contains more calories than an ounce of fat.

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ANSWERS AND EXPLANATIONS FOR THE PRE-TEST FOR ENERGY METABOLISM

1. *False.* There are wide individual variations in the physical activity of young people. Energy allowances must be individually adjusted to compensate for differences in activity levels among individuals.
2. *False.* Your body needs enough calories to supply you with the necessary energy to carry out your daily physical activities in addition to the amount of calories needed to meet basal energy requirements.
3. *False.* Empty calorie foods supply large amounts of calories but little, if any, of the essential nutrients.
4. *False.* Whole milk contains more calories than does a similar size serving of skim milk due to the higher amount of fat, a concentrated source of calories, in whole milk.
5. *True.* Butter and margarine consist primarily of fat which yields approximately 9 calories per gram when oxidized. Some of the newer whipped margarines have air incorporated into them. Therefore, they have fewer calories per unit volume (i.e. per tablespoon) but the same number of calories per unit weight (i.e. per gram) as butter.
6. *True.* A medium size potato provides approximately 90 calories. A one-ounce bar of sweetened chocolate supplies 150 calories.
7. *True.* Carbohydrates and proteins supply approximately 4 kilocalories per gram. Fats supply approximately 9 kilocalories per gram.
8. *True.* Caloric needs vary in relation to a great many factors. They increase as size and physical activities increase. They increase in certain disease conditions. They are greater for males than for females. They decrease with age. They increase as rate of growth increases.
9. *False.* The majority of calories or energy ingested is used to meet involuntary activity requirements. These requirements account for 50 to 65 percent of total energy needs.
10. *False.* An ounce of sugar (a carbohydrate) contains approximately one-half the calories found in one ounce of fat.