



Jr. Chef Club II Fueling Physical Activity Lesson 2



Educator Information Preparing to Teach the Lesson

Fueling Physical Activity

In this lesson students find out more information about physical activity and share results from their How Active Am I? Activity Record. They'll prepare and sample a "Go" food multi-grain snack bar.

Grains Fuel Activity

Grains provide plenty of fuel for physical activity in the form of complex carbohydrate (starch). The recipe in this lesson uses whole grain wheat flour and oats.

The body uses complex carbohydrates by changing them into simple carbohydrates or sugars. Glucose, the simple carbohydrate used as fuel in the body is either used immediately, such as by the muscles, or stored in the muscles or liver for later use. Many people erroneously think they need to eat large amounts of protein to build muscles, but this is not true. Rather, exercising the muscles depletes them of stored carbohydrate energy that eventually is replaced, again with carbohydrate energy. Using muscles increases their strength and endurance, but carbohydrate is the fuel of choice for physical activity. As a fuel it 'burns clean' i.e. the waste products are water and carbon dioxide that are easily expelled from the body.

How Physical Activity Effects Health

The following information is excerpted from the 2005 U.S. Dietary Guidelines, Chapter 4. The entire document is located at:

<http://www.health.gov/dietaryguidelines/dga2005/document/>

OVERVIEW

Americans tend to be relatively inactive. In 2003, 38 percent of students in grades 9 to 12 viewed television 3 or more hours per day.¹⁰ Regular physical activity and physical fitness make important contributions to one's health, sense of well-being, and maintenance of a healthy body weight. Physical activity is defined

as any bodily movement produced by skeletal muscles resulting in energy expenditure (<http://www.cdc.gov/nccdphp/dnpa/physical/terms/index.htm>). In contrast, physical fitness is a multi-component trait related to the ability to perform physical activity. Maintenance of good physical fitness enables one to meet the physical demands of work and leisure comfortably. People with higher levels of physical fitness are also at lower risk of developing chronic disease. Conversely, a sedentary lifestyle increases risk for overweight and obesity and many chronic diseases, including coronary artery disease, hypertension, type 2 diabetes, osteoporosis, and certain types of cancer. Overall, mortality rates from all causes of death are lower in physically active people than in sedentary people. Also, physical activity can aid in managing mild to moderate depression and anxiety.

(Selected) KEY RECOMMENDATIONS

- Engage in regular physical activity and reduce sedentary activities to promote health, psychological well-being, and a healthy body weight.
- Achieve physical fitness by including cardiovascular conditioning, stretching exercises for flexibility, and resistance exercises or calisthenics for muscle strength and endurance.
- *Children and adolescents.* Engage in at least 60 minutes of physical activity on most, preferably all, days of the week.

DISCUSSION

Regular physical activity is also a key factor in achieving and maintaining a healthy body weight for adults and children.

It is also important during leisure time to limit sedentary behaviors, such as television watching and video viewing, and replace them with activities requiring more movement. Reducing these sedentary activities appears to be helpful in treating and preventing overweight among children and adolescents.

Different intensities and types of exercise confer different benefits. Vigorous physical activity (e.g., jogging or other aerobic exercise) provides greater benefits for physical fitness than does moderate physical activity and burns more calories per unit of time.

Resistance exercise (such as weight training, using weight machines and resistance band workouts) increases muscular strength and endurance and maintains or increases muscle mass. These benefits are seen in adolescents, adults, and older adults who perform resistance exercises on 2 or more days per week. Also, weight-bearing exercise has the potential to reduce the risk of osteoporosis by increasing peak bone mass during growth, maintaining peak bone mass during adulthood, and reducing the rate of bone loss during aging.

The barrier often given for a failure to be physically active is lack of time. Setting aside 30 to 60 consecutive minutes each day for planned exercise is one way to obtain physical activity, but it is not the only way. Physical activity may include short bouts (e.g. 10 minute bouts) of moderate-intensity activity. The accumulated total is what is important—both for health and for burning calories. Physical activity can be accumulated through three to six 10-minute bouts over the course of a day.

Elevating the level of daily physical activity may also provide indirect nutritional benefits. A sedentary lifestyle limits the number of calories that can be consumed without gaining weight. The higher a person's physical activity level, the higher his or her energy requirement and the easier it is to plan a daily food intake pattern that meets recommended nutrient requirements.

Proper hydration is important when participating in physical activity. Two steps that help avoid dehydration during prolonged physical activity or when it is hot include: (1) consuming fluid regularly during the activity and (2) drinking several glasses of water or other fluid after the physical activity is completed.

TABLE 4. Calories/Hour Expended in Common Physical Activities

Some examples of physical activities commonly engaged in and the average amount of calories a 154-pound individual will expend by engaging in each activity for 1 hour. The expenditure value encompasses both resting metabolic rate calories and activity expenditure. Some of the activities can constitute either moderate- or vigorous-intensity physical activity depending on the rate at which they are carried out (for walking and bicycling).

Moderate Physical Activity	Approximate Calories/Hr for a 154 lb Person^a
Hiking	370

Light gardening/yard work	330
Dancing	330
Golf (walking and carrying clubs)	330
Bicycling (<10 mph)	290
Walking (3.5 mph)	280
Weight lifting (general light workout)	220
Stretching	180
Vigorous Physical Activity	Approximate Calories/Hr for a 154 lb Person^a
Running/jogging (5 mph)	590
Bicycling (>10 mph)	590
Swimming (slow freestyle laps)	510
Aerobics	480
Walking (4.5 mph)	460
Heavy yard work (chopping wood)	440
Weight lifting (vigorous effort)	440
Basketball (vigorous)	440

^a Calories burned per hour will be higher for persons who weigh more than 154 lbs (70 kg) and lower for persons who weigh less.

Source: Adapted from the 2005 DGAC Report.

NOTE: The above chart is exactly as it appeared in the 2005 Dietary Guidelines for Americans.

Lunges

To do a “lunge” start by standing up straight, feet several inches apart and hands on hips.

Take a large (but not giant) step forward. Bend the knee of the same leg that just stepped forward and lower the body down a little ways. Let the heel of the back foot raise up as the body lowers.

Repeat five times.

Bring both legs back together.

Repeat with other leg taking the step forward and bending.