

ASSESSING THE CARDIAC COSTS OF SEVEN ACTIVITIES

Name: _____ Date: _____ Ambient heart rate: _____

A heart rate monitor can be used to measure movements and their intensity. These data can then be used to compare the cardiac costs of a variety of movement patterns or activities. Cardiac costs can depend on a number of factors, including body weight and position, the force of gravity, equipment, the size of the muscle groups used, and skill. Generally, the higher the cardiac cost, the higher the number of total calories burned. In this lesson you will learn how to determine and compare the cardiac costs (i.e., strenuousness) of seven activities.

Instructions

1. Practice each of the activities in step 2 so that you are familiar with them before measuring their cardiac costs.
2. Program your heart rate monitor according to the nature of the activities. The seven activities are as follows:
 - ▶ Prone stretching. On floor mats, perform four different floor stretches for one minute each, record your heart rate after each, and average them.
 - ▶ Standing stretching. Perform four different standing stretches for one minute each, record your heart rate after each, and average them.
 - ▶ Skipping. Skip for one to three minutes and estimate and record your average heart rate for the last 30 seconds.
 - ▶ Chest pass. Pass a ball with a partner for three minutes. Estimate and record your average heart rate for the last 30 seconds.
 - ▶ Plyometrics. Perform one minute of a double-leg squat jump drill. Start in a half-squat, your arms at your sides. Jump upward and outward, thrusting your arms forward. On landing, start the sequence again. Estimate and record your average heart rate for the last 30 seconds.
 - ▶ Steps. Use bleachers or steps and do a four-step count (i.e., up, up; down, down) for three minutes. Estimate and record your average heart rate for the last 30 seconds.
 - ▶ Dribbling. Dribble a basketball back and forth across the court at an easy pace for three minutes. Estimate and record your average heart rate for the last 30 seconds.

3. Fill in the following table.

ASSESSING THE CARDIAC COSTS OF ACTIVITIES

Activity	Estimated average heart rate (bpm)	Total heartbeats*	Comparative cardiac costs**
Prone stretching			
Standing stretching			
Skipping			
Chest pass			
Plyometrics			
Steps			
Dribbling			

*Must use an advanced heart rate monitor to have this information.

**Use 7 for the most costly and 1 for the least costly.

Questions

Make a list of six sport activities and estimate their cardiac costs. Rank them in order from highest to lowest cardiac cost.

What effect do you believe each of the following conditions would have on the cardiac cost of each of the six activities you identified in question 1? Discuss your answers with a partner and justify them.

AVERAGE HEART RATE OR TOTAL HEARTBEATS

	Higher	Lower
It is a hotter day.		
You are in better shape.		
You do the same six activities in a swimming pool.		
You did not get much rest the night before the activities.		
You are dehydrated because you haven't had a chance to drink all day.		
You just received good news that you got an A on a test.		
You do these activities at a higher elevation.		

4. Perform the six activities you listed, recording your heart rate data for each. Then rank the activities according to their actual cardiac cost.

Questions

Which activity was most affected by body position? How does body position affect cardiac cost? As you observe your heart rate, you will notice that when lying down, your heart rate will be lower.

Which activity had the greatest effect on heart rate, and which had the least? Why?

Name an activity that requires a lot of coordination. What effect does coordination have on cardiac cost?

Which activities, from the six listed above, require the body to resist the pull of gravity? How does gravity affect cardiac cost?