Teaching Strategies to Promote Cardiovascular Fitness

It is essential that fitness concepts be introduced, taught, practiced, and assessed using developmentally appropriate teaching methods at the elementary level. Cardiovascular fitness should be incorporated using a systematic process. An eight-step process outlined within the Fitnessgram Test Administration Manual (Cooper Institute for Aerobics Research, 1999) can help students learn fundamental progressions within the fitness process (see Figure 1). While all eight steps are necessary for effectively implementing fitness education, this article will address steps one (instruction) and two (participation) as they relate to cardiovascular fitness.

Cardiovascular Fitness Activities

There are a variety of activities physical educators can use to teach elementary students about cardiovascular fitness and how to safely engage in activities that develop the heart muscle, circulatory system, and respiratory system.
The children will hold a hoop around the body to represent a car. They will fill the car with oxygen fuel, travel through space, and feel the car’s response. Review how to feel the heart beating. Begin the activity by flashing the “oxygen fuel” card that represents inhaling oxygen. The students hold the hoop up overhead and lower the hoop to waist level to inhale oxygen fuel. Then, raise the hoop overhead to exhale. Repeat this several times. Next flash the green light card. The students perform a designated locomotor skill for 30 seconds. Flash the yellow light to slow the car down and walk. Then, flash the red light to signal student to stop and place one hand over the heart. Use the other hand to show how fast the heart is beating by opening and closing it. Continue by flashing the “oxygen fuel” sign followed by the green light and yellow lights and increase the time to one minute. Repeat the activity until the students demonstrate understanding of the following concepts: (a) the body uses oxygen for fuel to make energy to keep the body alive and to move, (b) the lungs breathe in oxygen, and (c) the heart pumps oxygen rich blood to all parts of the body so that the body can stay alive and move. Throughout the lesson, pose questions to the children to check for their understanding. For example, “How does oxygen get into the body? What part of the body pumps oxygen rich blood to all parts of the body?”

**Activity 3**

**Focus:** Pacing  
**Level:** Lower elementary  
**Equipment:** “Pacing” sign means moving at a steady speed, cones, medium paced music, stop watch  
**Activity Description:** Introduce the term “pacing” with a sign. Point out that pacing allows a person to move for a longer period of time—endurance. When teaching younger children pacing, expect to have to repeat the same or similar activities many times for children to understand the concept. Relate the term pacing to the story of the tortoise and the hare. The children need to know the difference and have practiced walking, jogging, and running prior to this activity. It is a good idea to begin “pacing” by walking as a warm-up to jogging. A helpful image may be to have the students try to stay together as a “pack.” Start together, stay together, and finish together. Begin with a time goal of three minutes or for one entire song. When the music begins, the children start walking or jogging around the designated area. Do not allow them to run. It also helps to jog with them to show them a medium speed. Jog or walk with a steady pace until the end of the song or three minutes. Increase the time with repeated practice and constantly reinforce the cue “steady pace.”

**Activity 4**

**Focus:** Practice pacing with the Fitnessgram Pacer test  
**Level:** Lower and upper elementary  
**Equipment:** Fitnessgram pacer CD or tape; cones or poly spots marked at 20 meters or 21 yards, 32 inches  
**Activity Description:** Although it is not recommended to test and record scores for lower elementary students, teachers are encouraged to use the PACER test. The emphasis should be on learning how to pace and take the test while having fun. Allow the children to listen to the CD so they know what to expect. Begin the activity and allow the children to jog/run as long as they wish (usually just a few minutes to start and increase the time as they gain more experience). Allow children to rest and start up again, or have an alternate activity students can begin as soon as they stop the PACER.

**Activity 5**

**Focus:** Types of activities to improve or maintain cardiovascular fitness  
**Level:** Lower or upper elementary  
**Equipment:** soccer balls, basketballs or playground balls, scrap paper or paper plates, cones, signs with station instructions or pictures on them, 2-3 hurdles, obstacle course equipment (listed below)  
**Activity Description:** Students need to know what kinds of activities they can participate in during and beyond the school day to enhance cardiovascular fitness. Set up this activity in stations and have students rotate with continuous movement every one to three minutes to the following stations:

1. Single jump roping—student can choose the way they want to jump.  
2. Skating—can use two pieces of scratch paper or paper plates for skates; has to be a smooth surface; could substitute bench or box stepping.  
3. Hurdle jump—set up 2 or 3 hurdles. One person clears last hurdle before the next person begins.  
4. Obstacle course—arrange hoop/tire stepping, slide between ropes, walk across beam, roll across mat, jump over stick in a circle formation for continuous movement.  
5. Soccer dribbling—dribble soccer balls around the cones.  
6. Power walking—do laps around the gym.  
7. Cross country skiing—role play using pillow polo sticks for poles.  
8. Basketball dribble—dribble around the cones.

**Activity 6**

**Focus:** Frequency of aerobic exercise  
**Level:** Upper elementary  
**Equipment:** Five 3 x 5-index cards for each student or cut paper strips, yarn or string to connect the cards, pencils, and a variety of equipment for stations.  
This would be a good activity to use as a warm-up for several lessons. For individual stations, there should be two to three cardiovascular activities listed such as locomotor movements or other perpetual motion activities. The teacher can assign an activity or students choose from an list of possible activities. Activities can recorded on 3 x 5 index cards, which have a column to record the date and a column to record the number of times or length of time for each activity. The students can use this card to keep track of their individual
performances over 3 to 5 consecutive class periods. The teacher can collect each student’s card and develop a large class calendar to illustrate and display the frequency of activity.

Activity Description: Explain that frequency is how many days per week the student engages in aerobic exercise and that it is best to participate on most days of the week. Set up four stations with choices of aerobic activities. A fifth station can be added to allow each student to create his or her own activity to add to the file.

Station 1: basketball dribbling around cones, soccer dribbling around cones, step-ups
Station 2: step aerobics routine, aerobic dance routine, sports dance routine
Station 3: lap run, power walk, PACER
Station 4: jump rope solo, jump rope with partner, jump rope routine
Station 5: student-created aerobic activity

The students rotate to each station selecting one activity from each station to transcribe to their card. Use a hole punch to make two holes at the top of each card and connect all five cards with yarn. When the activity is completed, students will have their own personalized flip card file of aerobic activities in which to participate. Students can also log their aerobic activity on the back of the cards for several weeks to help understand the concept of frequency.

Activity 7
Focus: Intensity
Level: Upper elementary
Equipment: Signs for performing different types of jumps, jump ropes, upbeat music (i.e., Jump by Van Halen), sheet to record heart rate for each student
Activity Description: Students need prior experience taking their heart rate. This activity needs to be done repeatedly over a few days or even weeks. Set up the following jump stations:

Station 1: continuous vertical jump touching hanging objects from different heights
Station 2: jumping back and forth over a line
Station 3: zigzag down a line and back
Station 4: jump rope
Station 5: jumping jacks

Divide the students into even groups for each station. Have the students stay at each station for 15 seconds and then rotate to the next station, recording their heart rate at the end of each station. The next time the activity is performed (class session), increase the time at each station from 15 seconds to 20 or 30 and encourage the students to try to perform more jumps (again recording the heart rate after each station). Compare the heart rates each time to help students understand the concept of intensity.

Activity 8
Focus: Time
Level: Upper elementary
Equipment: Aerobic step boxes, crates, or gymnastics mats folded (for step-ups), soccer ball, cones, jump ropes, bean bags, poly spots, basketballs or playground balls, hole punchers, time card for each student
Activity Description: Explain to the students that they should accumulate 30 minutes of aerobic activity on most days of the week to enhance or maintain good cardiovascular fitness. The students will rotate to the stations below. Works best when students rotate on a given signal. Example: stop, put the equipment away neatly, punch holes, sit in-group when ready to rotate. They will stay at each station for three minutes. Each time a station is completed, the students will hole punch the time card. Encourage the student to perform the station activities nonstop, changing the intensity if needed. Relate the three minutes at each station (twice around the circuit for this activity) to the 30 minutes of exercise they need. Students complete the time card at the end of the PE class. Encourage the students to keep additional records of the physical activities they participate in outside of PE class.

Station 1: step-ups
Station 2: soccer dribble around cones
Station 3: jump rope
Station 4: shuttle walk/run (similar to the PACER) with bean bags and poly spots
Station 5: basketball dribble around cones

Promoting Cardiovascular Fitness
Most experts agree that physically inactive children tend to remain inactive as adults. Physical inactivity increases an individual’s risk for many chronic diseases including...
Infuse the teaching of cardiovascular endurance with appropriate motor skill lessons (i.e., teaching soccer dribbling). Take resting heart rate, practice dribbling at different speeds in personal and general space, take heart rate, discuss the benefits of participating in soccer type activities.

Use instant activities to teach and engage kids in cardiovascular fitness activities (i.e., chasing, fleeing and dodging, soccer skills, aerobic endurance activities like run to the front; Ratliffe & Ratliffe, 1994; Pacer, traveling using locomotor steps).

When using stations as an instructional approach to teach a movement concept or skill theme, include a station that focuses on cardiovascular fitness (i.e., three stations for teaching balancing are set up in the middle of the gym while station four is the straw walk/jog around the perimeter of the gym).

When taking children outside for PE, measure off a distance of 1/8 of a mile for lower elementary children and 1/4 of a mile for the upper elementary children. Use cones or chalk to mark the track. The children can follow that track in and out of the gym. By the end of the PE class, the lower elementary children have accumulated 1/4 of a mile and 1/2 for the upper. Teachers can give students the option of walking, power walking, or jogging to accommodate individual fitness levels. Mileage can be logged for each class. To avoid the same students always finishing first, have everyone travel for a certain amount of time (3-5 minutes) as a warm-up so everyone starts and finishes together.

Walking, jogging, jump roping, and biking clubs before and after school

School-wide walking/jogging programs

Create a “Century Club” where students (with the help of parents and teachers) log 100 minutes of aerobic activity per week.

Collaborate with classroom teachers; use the walking club for extra PE time not met through the regular schedule.

Encourage classroom teachers to integrate movement into academic lessons. Children love to move, but the reality of teaching in the classroom is that many classroom teachers have no idea how to organize or integrate movement into academic lessons. The physical educator can hold two or three workshops after school to demonstrate how movement concepts, skill themes, and fitness concepts can be easily integrated into science, language arts, math, etc. (for example, working with the teachers to coordinate the teaching of the heart and circulatory system). An activity by Ratliffe & Ratliffe (1994, p. 77) demonstrates setting up the heart circuit. This activity has children learn about the circulatory system by physically traveling through it. Another example would be to demonstrate a “fitness break” for the classroom teachers to use. This would involve a video exercise tape taught in the PE class that could be used by the teacher at times during the week.

Communicate with the recreation department. Most recreation departments have flyers made for sign up dates and activities. In addition, many of them post applications and information on their website. Physical educators can announce dates in class, hand out flyers, or put website addresses in the school newsletter to help inform parents of recreational activities.

Community activities such as Diabetes Walk and Relay for Life can be announced in the physical education class. The school as a whole could participate in this with each class trying to involve as many students and parents as possible.

Field trips are a great way to educate children and increase opportunities for participation in physical activity. Trips can be taken to local fitness centers, YMCAs, roller and ice skating rinks, and to nearby university and recreational swimming pools to introduce swimming.

Try to involve faculty and staff participation within school-wide activities.

Heart disease, obesity, diabetes, and hypertension. To simply believe that children’s cardiovascular fitness is obtainable within a 30-minute physical education class that meets twice weekly is highly unlikely. Instead, physical educators should attempt to not only promote cardiovascular fitness within the physical education curriculum but within school and community settings as well. Along with teaching specific learning activities that address cardiovascular fitness, there are other strategies that physical educators can employ to provide children with additional opportunities for moderate activity and incorporate cardiovascular fitness concepts into the physical education, school-wide, and community settings (see Figures 2-4).

A variety of strategies can be used to help children understand fitness concepts and increase participation in moderate to vigorous physical activity. Physical education classes provide one means to accomplish these goals. However, the opportunities to participate need to be expanded to include school-wide and community agency initiatives such as field trips, walking clubs, etc. that involve both teachers and children. Providing opportunities for regular cardiovascular fitness participation should improve student fitness levels and encourage an active lifestyle.

References


© 2004 Human Kinetics