

## The PACER

⇒ *Recommended*

The PACER (Progressive Aerobic Cardiovascular Endurance Run) is the default aerobic capacity test in *FITNESSGRAM*. The PACER is a multistage fitness test adapted from the 20-meter shuttle run test published by Leger and Lambert (1982) and revised in 1988 (Leger et al.). The test is progressive in intensity—it is easy at the beginning and gets harder at the end. The progressive nature of the test provides a built-in warm-up and helps children to pace themselves effectively. The test has also been set to music to create a valid, fun alternative to the customary distance run test for measuring aerobic capacity. Information on obtaining the music CD can be found in appendix A on page 81.

The PACER is recommended for all ages, but its use is strongly recommended for participants in grades K-3. The PACER is recommended for a number of reasons, including the following:

- All students are more likely to have a positive experience in performing the PACER.
- The PACER helps students learn the skill of pacing.
- Students who have a poorer performance will finish first and not be subjected to the embarrassment of being the last person to complete the test.

When you are administering the test to these younger children, the emphasis should be on allowing the children to have a good time while learning how to take this test and how to pace themselves. Allow children to continue to run as long as they wish and as long as they are still enjoying the activity. Typically the test in grades K-3 will only last a few minutes. It is not desirable or necessary to make the children run to exhaustion.

### Test Objective

To run as long as possible back and forth across a 20-meter space at a specified pace that gets faster each minute. A 15-meter version of the PACER test has been developed for teachers with smaller sized facilities. In order to enter 15-meter scores into the 8.0 software, a conversion chart is available on page 94. The music CD is now available.

## Equipment and Facilities

Administering the PACER requires a flat, nonslippery surface at least 20 meters long, CD or cassette player with adequate volume, CD or audiocassette, measuring tape, marker cones, pencil, and copies of score sheet A or B (found in appendix B). Students should wear shoes with nonslip soles. Plan for each student to have a 40- to 60-inch-wide space for running. An outdoor area can be used for this test if you do not have adequate indoor space. There should be a designated area for finished runners and for scorekeepers. You may want to paint lines or draw chalk lines to assist students in running in a straight line.

*Note:* Because many gyms are not 20 meters in length an alternative 15-meter PACER test CD is now available. The procedures described below are the same for the 15-meter distance, but an alternate CD and scoring sheet are required to track the number of laps. In order to enter 15-meter scores into the 8.0 software, a conversion chart is available on page 94. The music CD is now available.

### Test Instructions

- Mark the 20-meter (21-yard, 32-inch) course with marker cones to divide lanes and a tape or chalk line at each end.
  - If using the audiotape, calibrate it by timing the 1-minute test interval at the beginning of the tape. If the tape has stretched and the timing is off by more than half a second, obtain another copy of the tape.
  - Make copies of score sheet A or B for each group of students to be tested.
  - Before test day, allow students to listen to several minutes of the tape so that they know what to expect. Students should then be allowed at least two practice sessions.
  - Allow students to select a partner. Have students who are being tested line up behind the start line.
  - The individual PACER CDs have two music versions, one with only the beeps, and one with the cadences for the pushup and curlup tests. Each version of the test will give a 5-second countdown and tell the students when to start.
  - Students should run across the 20-meter distance and touch the line with their foot by the time the beep sounds. At the sound of the beep, they turn around and run back to the other end. If some students get to the line before the beep, they must

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wait for the beep before running the other direction. Students continue in this manner until they fail to reach the line before the beep for the second time.

- A single beep will sound at the end of the time for each lap. A triple beep sounds at the end of each minute. The triple beep serves the same function as the single beep and also alerts the runners that the pace will get faster. Inform students that when the triple beep sounds they should not stop but should continue the test by turning and running toward the other end of the area.

## When to Stop

The first time a student does not reach the line by the beep, the student stops where he or she is and reverses direction immediately, attempting to get back on pace. The test is completed for a student the next time (second time) he or she fails to reach the line by the beep (the two misses do not have to be consecutive; the test is over after two total misses). Students just completing the test should continue to walk and stretch in the designated cool-down area. Figure 5.1 provides diagrams of testing procedures.

*Note:* A student who remains at one end of the testing area through two beeps (does not run to the other end and back) should be scored as having two misses and the test is over.

## Scoring

In the PACER test, a lap is one 20-meter distance (from one end to the other). Have the scorer record the lap number (crossing off each lap number) on a PACER score sheet (samples provided in appendix B). The recorded score is the total number of laps completed by the student. For ease in administration, it is permissible to count the first miss (not making the line by the beep). It is important to be consistent in the method used for counting with all of the students and classes.

An alternative scoring method is available. This method does not eliminate students when they miss their second beep (Schiemer, 1996). Using the PACER score sheet B, the teacher establishes two different symbols to be used in recording, such as a star for making the line by the beep and a triangle for not making the line. The scorer then draws a star in the circle when the runner successfully makes the line by the beep and a triangle when the runner fails to make the

line by the beep, simply making a record of what occurs. The runners can continue to participate until the leader stops the music or until they voluntarily stop running. To determine the score, find the second triangle (or whatever symbol was used). The number associated with the preceding star is the score. An example is provided in figure 5.2.

Criterion standards for students in grades K-3 have purposefully not been established. There are concerns regarding the reliability and validity of the test results for very young children. Even with practice, it is difficult to ensure that young children will pace themselves appropriately and give a maximal effort. The object of the test for these younger students is simply to participate and learn about the test protocol.

Students ages 5 to 9 years in grades K-3 do not have to receive a score; they may simply participate in the activity. With the software, you may enter the actual number of laps or enter a score of 0 laps to indicate that they successfully participated in the PACER run. Regardless of the entry, the performance will not be evaluated against a criterion standard. Nine-year-olds in grade 4 may receive a score, and it will be evaluated against a criterion standard. All 10-year-old students receive a score regardless of grade level.

## Suggestions for Test Administration

- Both PACER CDs contain 21 levels (1 level per minute for 21 minutes). During the first minute, the 20-meter version allows 9 seconds to run the distance; the 15-meter version allows 6.75 seconds. The lap time decreases by approximately one-half second at each successive level. Make certain that students have practiced and understand that the speed will increase each minute.

- A single beep indicates the end of a lap (one 20-meter distance). The students run from one end to the other between each beep. Caution students not to begin too fast. The beginning speed is very slow. Nine seconds is allowed for running each 20-meter lap during the first minute.

- Triple beeps at the end of each minute indicate the end of a level and an increase in speed. Students should be alerted that the speed will increase. When students hear the triple beeps they should turn around at the line and immediately continue running. Some students have a tendency to hesitate when they hear the triple beeps.

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- A student who cannot reach the line when the beep sounds should be given one more chance to attempt to regain the pace. The second time a student cannot reach the line by the beep, his or her test is completed.

- Groups of students may be tested at one time. Adult volunteers may be asked to help record scores. Students may record scores for each other or for younger students.

- Each runner must be allowed a path 40 to 60 inches wide. It may work best to mark the course.

- If using the audiotape, you may save time by using two tapes and two cassette players. Rewind the first tape while the second group is running the tests, and so forth. Using the CD is a much more efficient method for administering this test item.