CRITICAL ELEMENTS & CUES
by Carolyn Masterson and Jeffrey J. Walkuski

The National Association for Sport and Physical Education’s (NASPE) Physical Best program and the Cooper Institute for Aerobic Research’s (CIAR) FITNESSGRAM have established a partnership to create a comprehensive health-related fitness education and assessment package (CIAR, 2004). The goal of the Physical Best program is to enable students to acquire the knowledge, skills and attitudes to achieve physical fitness. The goal of FITNESSGRAM is to assess and provide information to students regarding their personal fitness levels (AAHPERD, 1999). The FITNESSGRAM is a comprehensive assessment program designed to measure health-related fitness and activity levels in school-aged children. This article is not intended to be a comprehensive overview of FITNESSGRAM, but rather to provide critical elements and cues in chart form. For more on FITNESSGRAM, readers can refer to the FITNESSGRAM Test Administration Manual (CIAR, 2004).

Physical education programs should have a long-range view of promoting physical activity, health and wellness. Fitness assessment should not be viewed as an end, but as a means to assess one’s fitness levels. Assessment is a powerful tool that should be used to inform and teach students about their own health-related fitness. Students who are aware of their own fitness levels can utilize the information to set goals and pursue activities that can maintain or improve their fitness, and serve as powerful motivating factors for a lifetime of health and wellness.

One of the biggest challenges that teachers face in preparing students for fitness assessment is to find ways to teach the protocol for each of the tests and, in return, to enable students to become competent in the performance of the test so that they may self-assess. Fitness assessment is a meaningful learning activity only if it is linked

<table>
<thead>
<tr>
<th>Table 1: The Pacer – Progressive Aerobic Cardiovascular Endurance Run</th>
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</thead>
<tbody>
<tr>
<td>Test Objective: Run as long as possible back and forth across a 20-meter area (21 yards and 32 inches). The pace of the run becomes progressively faster as the lap time diminishes.</td>
</tr>
</tbody>
</table>

- Critical elements in plain text, cues in bold.
- Circle “Yes” if performed.
- Circle “No” if not performed.

1. Performer starts behind the line. (Ready position) YES NO
2. 5-4-3-2-1-Start on the beep. (Hear it - Go!) YES NO
3. Performer jogs to other side before the “Beep” on the CD or tape. (Beat the beep) YES NO
4. Performer pivots with one foot behind the line to reverse the shuttle. (Cross, Pivot, Turn) YES NO
5. Performer waits for “Beep” before jogging back. (Hear it - Go!) Repeat Steps 3-5. YES NO
6. Performer continues until unable to complete a second lap successfully. Students are allowed one lap not completed. (Two and Out) YES NO
7. Performer stops and then cools down by stretching as he/she walks slowly. (Cool Down) YES NO

Number of laps completed: ____________________________
Performer’s Name: ________________________________
Partner’s Name: ________________________________
### Table 2: 90° Push-up Test

<table>
<thead>
<tr>
<th>Test Objective: Complete as many push-ups as possible at a specific pace within the Healthy Fitness Zone. “Down” 2, 3 and “Up” 2, 3 (1 every 3 seconds).</th>
</tr>
</thead>
</table>
| - Critical elements in plain text, cues in bold.  
- Circle “Yes” if performed.  
- Circle “No” if not performed. |
| 1. Hands placed flat under shoulders on floor. (Shoulder Width) | YES | NO |
| 2. The shoulders, back, and legs are in a straight slanted line. (Keep it Straight) | YES | NO |
| 3. The body is lowered until elbows are at a 90-degree angle and upper arms and shoulders are parallel to the floor. (90 degrees) | YES | NO |
| 4. The body lifts up until the arms are straight. (Up and Straight) | YES | NO |
| 5. Cadence is to “down, two, three and up, two, three”. (Down, 2, 3 and Up, 2, 3). | YES | NO |
| Performer’s Name: | | |
| Partner’s Name: | | |

### Table 3: Curl-up Test

<table>
<thead>
<tr>
<th>Test Objective: Complete as many curl-ups as possible to a cadence set by a CD/tape or “Up, 2, 3. Down, 2, 3.” (1 every 3 seconds) using correct form.</th>
</tr>
</thead>
</table>
| - Critical elements in plain text, cues in bold.  
- Circle “Yes” if performed.  
- Circle “No” if not performed. |
| 1. Strip placed so that “finger pads” are at edge, head touching surface. (Finger Pads - Touch) | YES | NO |
| 2. Knees bent at a 140-degree with heels touching the ground. (Knees Bent/Heels Down) | YES | NO |
| 3. Finger pads slide across strip and back-curling body up and curling body down. (Forward and Back) | YES | NO |
| 4. Cadence is to “Curl Up, 2, 3 and Curl Down, 2, 3.” (Up, 2, 3 and Down, 2, 3) | YES | NO |
| Performer’s Name: | | |
| Partner’s Name: | | |

to the total physical education curriculum and to physical education lessons. To provide meaningful instruction on health-related fitness, teachers should be knowledgeable about the tests’ critical elements, incorporate fitness activities and assessment into their lesson planning, and be prepared to assess the fitness of students.

Teaching and assessment of health-related fitness is like teaching physical skills. Effective teaching of skills requires that teachers have clear objectives and activities linked to assessment that lead to student learning (Siedentop & Tannehill, 2000). The goals of many teachers are to have students learn skills as soon as possible, perform skills correctly, and remember what they have learned. Effective teachers allow students adequate time to practice and use cues and other materials to assist in student learning.

FITNESSGRAM provides assessment tools to evaluate the components of health-related fitness. These tools have “testing protocols” or sets of instruction for conducting each of the tests. The testing protocols provide specific criteria or “critical elements” that allow students to take the test correctly (CIAR, 2004). This article provides teachers with a description of five FITNESSGRAM test items and a table/checklist of critical elements and cues for each test item. The FITNESSGRAM test items covered in this article are the PACER, Push-up, Curl-up, Trunk Lift, and Back-Saver Sit and Reach.

Practice of the test items/protocols prior to assessment is necessary to attain a reliable assessment. Throughout the year in and out of physical education classes students can practice test items using the checklists of critical elements and cues. Teachers can blow-up the checklists and place them on the wall for students to refer to as they perform the practice test. Individual check sheets can be created so partners can check off attainment of critical elements for a particular test item and record whether each element was performed correctly or not. Students can take the check sheets home to practice with their family members or by themselves.

Progressive Aerobic Cardiovascular Endurance Run (PACER) Test — The PACER Test is a 20-meter progressive shuttle run published in 1982 and revised by Leger and Lambert in 1988 (CIAR, 2004). Because many students are not able to pace themselves well
enough to complete the mile-run successfully, the PACER is the recommended test by FITNESSGRAM. The student jogs back and forth over a distance of 20 meters across an open space to a tone provided by the FITNESSGRAM CD/tape or to the teacher’s signal. As the test progresses the pace is steadily increased so that lap times decreases. The object of the test is to complete as many laps as possible within the student’s Healthy Fitness Zone to the pace of a CD or tape. Critical elements and cues that teachers can use to help students learn and perform the PACER test are shown in Table 1.

90° Push-up Test – The Push-up Test has several critical elements. Because students who have little or no upper body strength cannot perform a complete pull-up, the push-up is FITNESSGRAM’s recommended test to measure upper body strength (CIAR, 2004). The object of the test is to complete as many push-ups as possible within the Healthy Fitness Zone to a set cadence provided by the FITNESSGRAM CD/tape or by the teacher’s signal. Practice throughout the year in and out of physical education classes helps students to improve their form. Critical elements and cues that teachers can use to help students learn and perform the push-up test are shown in Table 2.

Curl-Up Test – The Curl-up Test, (CIAR, 2004) has several critical elements that are more difficult to perform than the other FITNESSGRAM assessments, and thus practice, prior to assessment is especially important. The object of the test is to complete as many curl-ups as possible in the Healthy Fitness Zone to a set cadence provided by the FITNESSGRAM CD/Tape or by the teacher’s signal. The students place their finger pads at the edge of a curl-up strip and slide their finger pads forward to the other side of the strip. Placing masking tape on the side of a tumbling mat according

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### Table 4: Trunk Lift Test

**Test Objective:** To SLOWLY lift the upper body no more than 12 inches off the floor using upper back muscles. Hold that position for measurement.

| Critical elements in plain text, cues in bold. |
| Circle “Yes” if performed. |
| Circle “No” if not performed. |
1. Performer lies down in a prone position. (Face Down) **YES** **NO**
2. Performer’s hands tucked under thighs. (Hands Tucked) **YES** **NO**
3. A performer looks at a marker that is place placed directly below their eyes (performer does not hyperextend the neck). (Eyes Down) **YES** **NO**
4. Performer SLOWLY lifts upper body off the floor in a controlled manner to a maximum height of 12 inches. (Slowly Up - Hold) **YES** **NO**
5. Two trials are attempted recording only the higher score of the two. Repeat steps 1-4. **YES** **NO**
6. 6 to 12 inches is the passing standard for both boys and girls (12 inches is the maximum distance that students should raise up, students should not raise beyond 12 inches). **YES** **NO**

Inches Attained: 

Performer’s Name: 

Partner’s Name: 

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### Table 5: Back Saver Sit and Reach Test

**Test Objective:** Be able to reach a specified distance on the right and left side of the body by stretching the hamstring muscles.

| Critical elements in plain text, cues in bold. |
| Circle “Yes” if performed. |
| Circle “No” if not performed. |
1. Shoes off; one leg straight with sole of foot against the box; the other leg bent with heel flat on ground. (“One Straight” and “Other Bent”) **YES** **NO**
2. Both arms stretch out above the head with hands on top of each other. (Arms Up - Hands together) **YES** **NO**
3. Stretch forward to measure the side. Keep the bent knee out of the way as arms and body stretch slowly forward. (Reach Slow) **YES** **NO**
4. Four “stretch” tries are given for each leg. The fourth held stretch is marked. (Forth - Hold - Measure) Repeating Steps 1-5 for the other side. **YES** **NO**
5. 8 inches is the passing standard for boys and depending on age, 9 inches to 12 inches is the passing standard for girls (9 inches is where the bottom of the foot touches the sit and reach box). **YES** **NO**

Inches Attained: 

Performer’s Name: 

Partner’s Name: 

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to the distance appropriate for the age group or providing inexpensive curl-up strips by buying refrigerator shelving paper and cutting 3-inch strips for 5 to 9 year olds and/or 4.5-inch strips for 10 year olds enables many students to practice at one time. The curl-up cadence is “Up, 2, 3” and “Down, 2, 3.” Table 3 shows a checklist that can be used by teachers to help students learn and perform the curl-up test.

**Trunk Lift** – The Trunk Lift assesses abdominal flexibility and lower back strength (CIAR, 2004). Students lie face down, toes pointed, hands under thighs and eyes focused on a mark the same level as the chin. They SLOWLY raise their shoulders and chest no higher than 12 inches keeping their eyes focused on the mark below and holding the position for a measurement. Students are permitted two trials utilizing the critical elements and cues shown in Table 4.

**Back Saver Sit and Reach** – Back Saver Sit and Reach measures flexibility of the hamstring muscles (CIAR, 2004). Rulers can be attached to cardboard boxes or the bottom row of bleacher steps as an inexpensive alternative to a sit-and-reach box. With shoes off, one leg is extended straight in front with the foot against box. The other leg is bent with heel flat on the ground. Students reach forward with one hand on top of each other for a measurement and hold the position for a few seconds. After the forth trial, the measurement is taken; students switch legs and repeat the steps. Table 5 shows the elements and cues that teachers can use to help students learn and perform the back saver sit and reach.

To summarize, it is important that students practice the protocols for the FITNESSGRAM assessments on a regular basis, both formally and informally, so that they can acquire the knowledge, skill, and attitude essential to physical fitness. Students can practice during physical education classes as part of warm-ups, cool-downs or as an instant activity. They can also practice out of class with parents or friends (AAHPERD, 1999). Test-taking practices should be efficiently organized with plenty of opportunities to keep students moving and on task (Siedentop and Tannehill, 1999). Formal fitness testing should occur only after students know the purpose, testing protocol and critical elements for each test. Therefore, the information checklists shown in each of the tables should be taught by the teacher and practiced by students before formal testing is conducted.

(Note: Part 2, Developing Health-related Fitness, will appear in the January/February 2005 issue of this journal.)

References


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