# Champion Fitness. Champion Kids.

## Physical Educator Resource Guide to the Presidential Youth Fitness Program

# Presidential Youth Fitness Program Physical Educator Resource Guide

The Presidential Youth Fitness Program Physical Educator Resource Guide provides an overview of the Presidential Youth Fitness Program. This guide is offered here, at no charge, for use by school staff within the context of the school program only and cannot be sold or distributed for any purpose.

## Suggested Citations

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Presidential Youth Fitness Program (2013). *Presidential Youth Fitness Program Physical Educator Resource Guide* (Internet Resource). Silver Spring, MD: National Foundation on Fitness, Sports and Nutrition.

Dear Physical Education Teachers/Physical Education Administrators:

Physical fitness is critical to our students' health. Developing students who are physically active and fit can positively influence academic success, too.

Because of that, in September 2012, First Lady Michelle Obama launched the Presidential Youth Fitness Program. Created by a partnership between the President's Council on Fitness, Sports and Nutrition; Centers for Disease Control and Prevention ; Amateur Athletic Union; American Alliance for Health, Physical Education, Recreation, and Dance; National Foundation on Fitness, Sports & Nutrition; and The Cooper Institute®, the program reinforces the fact that fitness education is a process integral to the development of children who are physically literate. It is much more than just a test.

Quality physical education programs play a unique role in developing young people who have the physical competence and cognitive understanding about physical activity and fitness to adopt healthy, active lifestyles. Together, the program partners are providing free and supplemental resources to make sure every school in America, regardless of budget, has the ability to follow the Presidential Youth Fitness Program model and help their students reach their fullest potential.

We are excited about this program and the support it provides to you, the physical educators, and your students. Please visit the program website, www.pyfp.org, often for updates and other information, and 'like' us on Facebook to get the latest news and information delivered straight to you.

With much appreciation,

Presidential Youth Fitness Program Partners:

President's Council on Fitness, Sports and Nutrition

Centers for Disease Control and Prevention

Society of Health and Physical Educators (SHAPE America)

National Foundation on Fitness, Sports & Nutrition

The Cooper Institute®

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# Introduction to the Presidential Youth Fitness Program

## Our Vision

America's youth are active and fit.

## Our Mission

To provide a model for fitness education that includes use of a health-related fitness assessment, as well as educational and motivational tools, to support teachers and empower students to adopt an active lifestyle.

## Why Is This Important?

Physical activity is critical to our children's health and well-being. Children who are regularly physically active have

- higher levels of cardiorespiratory fitness and stronger muscles
- lower body fatness
- lower levels of anxiety and depression[1]

**All of these things can lead to improved health.**

Research shows that physically active students are in school more days, are better able to learn, have higher self-esteem, and are at lower risk for developing chronic diseases.

The Presidential Youth Fitness Program (PYFP) partners launched the voluntary program in 2012 to promote the use of an evidence-based, health-related fitness assessment and to emphasize the competencies teachers should employ to promote a positive and beneficial experience before, during, and after the fitness assessment takes place.

**The Presidential Youth Fitness Program focuses on improving each student's health.**

Since 1966, the President's Council on Fitness, Sports & Nutrition has promoted the Physical Fitness Test. That test was phased out at the end of the 2012–2013 school year and for good reason. While the Fitness Test had changed over the years, it continued to place emphasis on performance fitness and catered to more athletic students who thrived on competition. Secondly, it was just a test. There was no training for teachers who chose to use it.

The PYFP takes the emphasis off the test and focuses on the process and promotion of health-related fitness. By using the FITNESSGRAM® Healthy Fitness Zone standards, students are no longer compared to their peers. Emphasis is on individual goal setting and the achievement of age and gender appropriate standards.

1. Physical Activity Guidelines for Americans Midcourse Report Subcommittee of the President's Council on Fitness, Sports & Nutrition. Physical Activity Guidelines for Americans Midcourse Report: Strategies to Increase Physical Activity among Youth. Washington, D.C.: U.S. Department of Health and Human Services, 2012.

## Program Components

Three components drive the Presidential Youth Fitness Program

**Training** for teachers to ensure the proper use and implementation of the following:

- FITNESSGRAM® health-related fitness **assessment**
- **Recognition** for schools and students

These components help physical educators meet Standard 3 of the National Standards for K-12 Physical Education and elements of the School Health Index and the Alliance for a Healthier Generation's Healthy Schools Program. The PYFP is also a recommendation for schools seeking to become a Let's Move! Active School.

### HOMESCHOOL AND NON-SCHOOL PROGRAM USE

While the PYFP emphasizes the importance of having trained physical educators implement the program and support quality physical education, there are instances that require use of the PYFP model in places outside a traditional school setting. These may include a homeschool, homeschool co-op, or community-based organization that provides physical and fitness education to area youth.

Here are a few things to keep in mind when implementing the program in this capacity:

- Fitness assessments should be grounded in a comprehensive fitness education process.
- Avoid over-testing. Students should be interested in the process. Do it too often, and it becomes routine and boring.
- There is a different purpose to using the assessment on students in grades K-3. Emphasis in these grades should be placed on enjoyment and learning proper technique. In grades 4-12, the focus shifts to personal goal setting.
- Test administrators should know the FITNESSGRAM(R) protocols, which can be found beginning on page 14.
- Follow the PYFP model (see page 8). Consider the components that should be a part of the fitness assessment process.

# Program Partners

**Society of Health and Physical Educators** (SHAPE America), the largest organization of professionals involved in physical education, recreation, fitness, dance, health promotion, and all specialties related to achieving an active, healthy lifestyle, provides its members with a comprehensive and coordinated array of programs to help further the health and well-being of the American public. SHAPE America contributes professional development and training expertise to the program and, with the President's Council on Fitness, Sports and Nutrition, co-sponsors the President's Challenge, provider of the program's recognition resources.

**The Center for Disease Control and Prevention** (CDC) works to protect public health and safety by providing information to enhance health decisions. CDC supports the educational and research components of the program, bringing technical expertise and sound evaluation methods.

**The Cooper Institute®** is a nonprofit research and education organization dedicated to preventive medicine and public health. As the developers of FITNESSGRAM®, the CI aims to increase parental awareness of children's fitness levels.

In conjunction with the CI, the **NFL Charities** is the national sponsor for FITNESSGRAM®. The NFL Charities has supported FITNESSGRAM® programming in more than 1,120 schools through a capacity-building grant. This partnership supports the NFL's Play 60 initiative to improve fitness and physical activity among youth. The CI provides the FITNESSGRAM® assessment and Healthy Fitness Zone® standards for the program as well as content support for the protocol and reference manual.

**National Foundation on Fitness, Sports and Nutrition**, congressionally chartered in 2010, the foundation serves to support the work and programs of the President's Council on Fitness, Sports and Nutrition.

**President's Council on Fitness, Sports and Nutrition** (PCFSN) is a committee of volunteer citizens who advise the President through the Secretary of Health and Human Services. The PCFSN promotes healthy lifestyles through fitness, sports, and nutrition programs that engage Americans across the lifespan. The council is guiding the development and implementation of the Presidential Youth Fitness Program in addition to using its brand recognition to help drive this important initiative.

# Empower Students to Adopt An Active Lifestyle

## Implement the Presidential Youth Fitness Program

### Presidential Youth Fitness Program Overview - Requirements for Participation

To be identified as participating in the Presidential Youth Fitness Program, a school must be able to affirm the following components are part of their fitness education, within a comprehensive, quality physical education program.

| Physical Education Teacher: | |
|---|---|
| Demonstrates:<br>✓ Knowledge of components of health-related fitness and protocols used for assessment<br>✓ Ability to accommodate all students<br>✓ Appropriate grade level use of health-related fitness assessment<br>✓ Purpose and use of Healthy Fitness Zone® standards<br>✓ Importance of goal setting and how to develop an appropriate plan for improvement<br>✓ Appropriate communication with parents and students<br>✓ Appropriate use of recognition | *Professional Development* |
| ✓ Uses FITNESSGRAM® assessment protocols and Healthy Fitness Zone standards<br>✓ Uses Brockport Physical Fitness Test items as needed<br>✓ Provides instruction on test protocols to include purpose of test, what each test measures, and how the information should be applied<br>✓ Provides multiple opportunities to practice before formalized test is conducted<br>✓ Grades K-3: Uses assessment to focus on enjoyment and learning proper technique<br>✓ Grades 4-12: Uses assessment for healthy zone analysis and to develop goals and improvement plan with student<br>✓ Does not assign grades nor evaluate based on FITNESSGRAM scores<br>✓ Does not publicly post or share student scores | *Assessment* |
| ✓ Downloads free school recognition certificate<br>✓ (Optional) Encourages students to achieve their physical activity and/or fitness goal(s) or age/gender-appropriate standard and recognizes students for that achievement | *Recognition* |

**Implement the Presidential Youth Fitness Program**
**Get Started Today!** www.pyfp.org

**Partners**

SHAPE America Society of Health and Physical Educators · The National Foundation on Fitness, Sports and Nutrition · President's Council on Sports, Fitness & Nutrition · CDC · The Cooper Institute 501(c)(3)

www.pyfp.org

## Getting Started

Once you're familiar with the Presidential Youth Fitness Program, take these steps to implement it at your school.

1. Review the participation checklist on page 8. Are all of these components a part of your fitness assessment process? If not, identify which ones aren't and use the resources provided in this guide and at www.pyfp.org to fill in the gaps.
2. Read through the remainder of this manual. Pay close attention to the chapter "Effective Ways of Using Assessment Results."
3. Determine fitness assessment days. Common practice in grades 4-12 is to do a baseline assessment in the fall and a follow-up assessment in the spring. This allows teachers and their students to see where they stand in the fall and set goals (as appropriate) for where they want to be by the end of the school year.
4. Identify which tests will be part of the fitness assessment.
5. Prepare for the assessment. In addition to ensuring teachers and materials are ready, consider whether students are ready. If you are using the free, downloadable score sheet found on pyfp.org under the Assessment tab, save it to your computer and begin entering student identifiers.
6. Do teachers and students have clear instruction and directions? Make sure teachers have reviewed the FITNESSGRAM® manual chapters provided in this guide and on the PYFP website.
7. How are teachers connecting the dots for students? In other words, what's the relationship between the fitness assessment and the units covered in physical education during the assessment process and throughout the year?
8. Are administrators, parents, and colleagues aware of the assessment? Consider what information needs to be shared. A sample template letter for parents is provided on the next page.
9. How will results be shared with students, parents, and administrators? Keep in mind privacy rules and regulations? How are results used to inform planning?
10. How will you recognize students? There are a variety of opportunities to recognize students around the fitness assessment and education process. These range from the Presidential Youth Fitness Award for achievement of the Healthy Fitness Zone® standards for students in grades 4-12; recognizing healthy lifestyle habits with the Presidential Active Lifestyle Award (PALA+), appropriate for any student, regardless of age; and/or recognizing achievement of students' personal goals from fall to spring.

## Sample Letter to Parent/Guardian

*(Note: Appropriate for parents/guardians of students in grades 4-12.)*

Dear Parent/Guardian,

As part of your child's physical education program, <ENTER SCHOOL NAME> School is preparing to participate in the Presidential Youth Fitness Program (PYFP). This national program provides educators with the tools necessary to help students adopt an active lifestyle and improve their health and overall well- being.

Through implementation of this new program, students will participate in FITNESSGRAM®, a comprehensive health-related fitness assessment for youth designed to assess aerobic capacity, muscular strength and endurance, flexibility, and body composition. They can also earn recognition for their efforts. This process will help your child learn how to set goals, interpret fitness assessment results, and learn what they can do to improve their physical well-being over the course of the school year.

FITNESSGRAM is the assessment of the PYFP because it

1. **uses criterion-referenced standards.** This means that a student can compare his/her scores with standards that have been identified for good health. This system prevents students from being compared to other students participating in the assessment.
2. **assesses the current fitness level of students and promotes individual goal setting** to allow students to take ownership of their health.
3. **does not assess skill or athletic ability**.

All students enrolled in physical education regardless of age, gender, or ability will participate in this process. Students are encouraged to be aware of their own health-related fitness and to take responsibility for it by setting personal fitness goals. When students focus on maintaining or improving their fitness level, a positive lifelong impact can be achieved.

*<PARAGRAPH FOR SCHOOLS WITH FITNESSGRAM SOFTWARE>*

You will receive a copy of your child's FITNESSGRAM report. <ENTER SCHOOL NAME> School believes that by providing you and your child this health-related information, you can guide and support your child in his/her efforts to lead a healthy, active lifestyle. A healthy student is better prepared to learn and perform in all aspects of life.

Please make sure that your child is appropriately dressed on fitness assessment day. This includes the proper footwear, such as tennis shoes and socks.

If you have any questions about our participation in the PYFP or the FITNESSGRAM assessment, specifically, feel free to contact me/us <ENTER YOUR NAME> at <ENTER PHONE/EMAIL INFORMATION>. You may also wish to refer to the Presidential Youth Fitness Program Parent Resource Guide for more information. The guide may be accessed via the following link <Insert Link> or you may request a copy by emailing me at <Insert Email Address>.

Sincerely,

<SIGN YOUR NAME>

Physical Education Teacher(s)

<ENTER SCHOOL NAME> School

# Assessment

The following sections address the FITNESSGRAM® assessment, specifically. These sections have been generously provided for free by The Cooper Institute® for use by physical educators and others in the school setting who may be responsible for or assisting in the fitness assessment process. These chapters support some of what is addressed in the FITNESSGRAM online course, access to which is free and can be found via pyfp.org.

While there are references in these sections to the FITNESSGRAM software, The Cooper Institute(R) has made available a free, preprogrammed score sheet to help educators record student scores. This score sheet can be downloaded from pyfp.org/assessment.

## Assessing Students with Disabilities

All students benefit from regular physical activity and being physically fit. Regular physical activity may help some students with disabilities delay or prevent the onset of secondary or tertiary conditions that may result from a sedentary lifestyle.

The Presidential Youth Fitness Program recommends modifications to the FITNESSGRAM® tests (when appropriate) and use of the Brockport Physical Fitness Test when necessary. Additionally, physical educators may decide that other students without identified disabilities, such as those with asthma, also need modifications in one or more of the test categories. NOTE: If modifications are made to the FITNESSGRAM test protocols or one or more test items from Brockport Physical Fitness Test are used, scores for these items should not be entered into the FITNESSGRAM software or free, downloadable FITNESSGRAM scoresheet.

Please refer to www.pyfp.org for information on the Brockport Physical Fitness Test and for general information related to conducting fitness assessments on youth with disabilities.

Be sure to consider that many students with disabilities will be able to meet the criteria for the Presidential Youth Fitness Award or the Presidential Active Lifestyle Award (PALA+). All students deserve an opportunity to be recognized for their efforts!

# FITNESSGRAM TEST ADMINISTRATION

This chapter describes basic considerations for administering and scoring fitness test items from the FITNESSGRAM battery in an efficient and organized manner. Table 4.1 provides a summary list of the test items.

## Considerations for Testing Primary Grades

The major emphasis when testing children in grades K-3 should be on enjoyment and instructions on proper technique. It is important at this age not to focus on performance level. Performance standards are not available for the aerobic capacity test items for students younger than 10 years of age. While standards are provided for other test items for primary grade children, you are strongly encouraged not to emphasize performance level and test results.

## Considerations for Safety

The test items used in *FITNESSGRAM* have been administered to millions of students and have been shown to be very safe. The prudent teacher, however, will recognize that with any strenuous physical activity there is always the possibility that incidents may occur.

Before administering any test items, be aware of the potential health problems of all students in your classes. For example, it is possible for a student to have a congenital heart condition that may require special consideration during the administration of an aerobic capacity measure or other test items. Maximizing the safety of all students should be the primary objective.

Your school district or agency should have established policies related to medical information, medical records, and medical clearance for activity. It is important that you be aware of these policies and that you follow them strictly.

It is also important that students be conditioned adequately before taking the test. This conditioning period is especially important during the fall of the year and in hotter climates.

**TABLE 4.1** ***FITNESSGRAM* Test Items**

| | | Muscular strength, endurance, and flexibility | | | |
|---|---|---|---|---|---|
| **Aerobic capacity** | **Body composition** | **Abdominal strength and endurance** | **Trunk extensor strength and flexibility** | **Upper body strength and endurance** | **Flexibility** |
| The PACER* | Skinfold measurements | Curl-up* | Trunk lift* | 90° push-up* | Back-saver sit and reach |
| One-mile run | Body mass index | | | Modified pull-up | Shoulder stretch |
| The walk test (secondary students) | Bioelectric impedance analyzers | | | Flexed arm hang | |

*Recommended test.

## *Considerations for Testing Special Populations*

*FITNESSGRAM* is intended for use with students who do not have disabilities. You will, in many situations, also be working with students with disabilities. If certain physical fitness components are deemed important as a dimension in education, they are equally important for all students. We suggest, therefore, that teachers needing assistance in developing tasks for an assessment should consult one of these excellent resources: *Brockport Physical Fitness Test Kit, The Brockport Physical Fitness Test Manual,* and *The Brockport Physical Fitness Training Guide* (Winnick and Short, 1999). The software program with these materials has been designed so that you can easily share student data with the *FITNESSGRAM/ACTIVITYGRAM* software.

### *Need Additional Information?*

To order the Brockport or FITNESSGRAM resources, call Human Kinetics at 800-747-4457 ext 5555, or order online at www.HumanKinetics.com. Visit www.fitnessgram.net for complete information about the assessment.

# AEROBIC CAPACITY

Aerobic capacity is perhaps the most important component of any fitness program. Research indicates that acceptable levels of aerobic capacity are associated with a reduced risk of high blood pressure, coronary heart disease, obesity, diabetes, some forms of cancer, and other health problems in adults. The evidence documenting the health benefits of physical activity has been well described, and this information was the basis for the development of the U.S. physical activity guidelines and other similar public health recommendations for physical activity.

Many terms have been used to describe this dimension of physical fitness, including cardiovascular fitness, cardiorespiratory fitness, cardiorespiratory endurance, aerobic fitness, aerobic work capacity, and physical working capacity. Although defined somewhat differently, these terms can generally be considered synonymous with aerobic capacity. A laboratory measure of maximal oxygen uptake ($\dot{V}O_2$max) is generally considered to be the best measure of aerobic capacity. Because differences in body size can influence oxygen uptake, aerobic capacity is typically expressed relative to body weight (i.e., milliliters $O_2$ consumed per kilogram of body weight per minute, or $ml \cdot kg^{-1} \cdot min^{-1}$).

The *FITNESSGRAM* program provides three field tests of aerobic capacity (PACER, one-mile run/walk, and walk test). Beginning with version 8.6 and version 9 of the *FITNESSGRAM* software, estimates of aerobic capacity are reported as $\dot{V}O_2$max and expressed as $ml \cdot kg^{-1} \cdot min^{-1}$. For the one-mile run/walk and the walk test, calculation of aerobic capacity requires the use of BMI (which is calculated from height and weight). Therefore, entry of height and weight are required in order to estimate $\dot{V}O_2$max when these tests are used. High test–retest reliability and accurate estimates of measured $\dot{V}O_2$max have been demonstrated for all measures of aerobic capacity. The following sections provide guidelines for administering and scoring all three tests.

### *Need Additional Resources?*

For complete information about FITNESSGRAM, visit www.fitnessgram.net. To order the FITNESSGRAM software and related resources, call Human Kinetics at 800-747-4457, or order online at www.HumanKinetics.com. To review the science behind the assessment, please read the Reference Guide, which is available at no cost at www.fitnessgram.net.

## *Overview of the FITNESSGRAM Aerobic Capacity Standards*

The *FITNESSGRAM* Scientific Advisory Board has worked to ensure that all of the assessments in fitnes are scored using health-related standards. The availability of nationally representative data on fitness from the National Health and Nutrition Examination Survey (NHANES) made it possible to develop objective health standards for aerobic fitness when expressed as $\dot{V}O_2$max. Detailed information on the development of the standards is provided in the Reference Guide and in a comprehensive research supplement published in the *American Journal of Preventive Medicine*. Several key points associated with the aerobic fitness standa ds are summarized here:

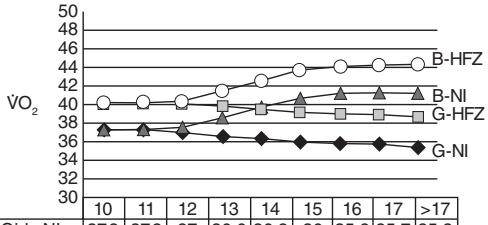
1. Estimates of aerobic capacity are expressed as $\dot{V}O_2$max in ml·kg–1·min–1, regardless of what assessment was used. The $\dot{V}O_2$max is estimated from equations developed specifical y for the PACER or one-mile run/walk. For the one-mile run/walk, time, age, sex, height, and weight need to be entered into the program in order to receive an estimate of $\dot{V}O_2$max. For the PACER, laps completed, age, and sex are required in order to receive an estimate of $\dot{V}O_2$max.

2. The health-related standards used to evaluate aerobic capacity are age and sex specific and also take into account normal changes during growth and maturation. The values for boys increase with age, while the values for girls decrease with age. These changes do not imply higher expectations for boys and lower expectations for girls. The changes are reflecti e of the natural developmental trends for boys and girls (boys gain muscle with age while girls tend to gain body fat through adolescence). The lines actually reflect the same elative level of fitness ac oss age for both boys and girls.

3. The new standards are equivalent for 10- and 11-year-old boys and girls. From a developmental perspective, boys and girls are more similar than different at these young ages. As they mature, boys and girls follow different developmental trends, so the fitness standa ds would follow these tracks.

4. The new standards allow classification into three unique zones (rather than two) with the use of two parallel lines. Students who have scores above the top line for their sex would be classified in the **Healthy Fitness Zone**. A child above this line would be classified as having sufficient fitness for good health. Students who have scores between the two lines would be classified in the **Needs Improvement** and receive a message that they should work to reach the Healthy Fitness Zone. Students below the bottom line would be classified in the **Needs Improvement—Health Risk** zone. This lowest fitness zone would provide youth and parents with an appropriate warning that this low level of fitness increases health risks. The use of three distinct fitnes zones makes it possible to provide more specific information about health and potential health risks. Students in the HFZ are provided with feedback to maintain their fi - ness, while students in the Needs Improvement zone are appropri- ately warned about possible health risks if their fitness emains low.

**Comparison of Boys and Girls**




| | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | >17 |
|---|---|---|---|---|---|---|---|---|---|
| Girls NI | 37.3 | 37.3 | 37 | 36.6 | 36.3 | 36 | 35.8 | 35.7 | 35.3 |
| Girls HFZ | 40.2 | 40.2 | 40.1 | 39.7 | 39.4 | 39.1 | 38.9 | 38.8 | 38.6 |
| Boys NI | 37.3 | 37.3 | 37.6 | 38.6 | 39.6 | 40.6 | 41.1 | 41.2 | 41.2 |
| Boys HFZ | 40.2 | 40.2 | 40.3 | 41.4 | 42.5 | 43.6 | 44.1 | 44.2 | 44.3 |

# 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 more difficult at the end. The progressive nature of the test provides a built-in warm-up and helps children to pace themselves. The test has also been set to music to create a valid, fun alternative to the customary distance run test for measuring aerobic capacity.

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 pace themselves. Allow children to continue to run as long as they wish and as long as they are still enjoying the activity. The main goal for young children is to allow them the opportunity to experience the assessment and to enjoy it.

## Test Objective

The objective is to run as long as possible with continuous movement 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.

## Equipment and Facilities

Administering the PACER requires a flat, nonslip surface at least 20 meters long, CD player with adequate volume, CD with PACER cadence (available for purchase from Human Kinetics), measuring tape, marker cones, pencil, and a score sheet. Students should wear shoes with nonslip soles. Plan for each student to have a 40- to 60-inch-wide space for run-ning. An outdoor area can be used for this test if you do not have adequate indoor space. There should be a designated area for runners who have finished 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 is now available. The procedures described as follows are the same for the 15-meter distance, but an alternative cadence and scoring sheet are required for tracking the number of laps. The 15-meter PACER test is for use only in elementary schools.

## Test Instructions

- Mark the 20-meter (21-yard, 32-inch) course with marker cones to divide lanes and use a tape or chalk line at each end.
- Make copies of the score sheet for each group of students to be tested.
- Before test day, allow students to listen to several minutes of the cadence CD 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.
- Each student being tested should run across the 20-meter distance and touch the line with a foot by the time the beep sounds. The student should take full weight on the foot that is touching the line. At the sound of the beep, the student turns around and runs back to the other end. If some students get to the line before the beep, they must 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.

*( continued )*

- 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.
- Calculation of aerobic capacity requires a score of at least 10 laps (20-meter version).

## When to Stop

The first time a student does not reach the line by the time of 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 time of 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.

*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). The scorer records the lap number (crossing off each lap number) on a PACER score sheet. The recorded score is the total number of laps completed by the student. For ease in administra-tion, it is permissible to count the first miss (not making the line by the time of the beep). It is impor-tant to be consistent with all of the students and classes in the method used for counting.

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, establish two different symbols to be used in recording, such as a star for making the line by the time of the beep and a triangle for not making the line. The scorer then draws a star in the circle when the runner makes the line by the time of the beep and a triangle when the runner fails to make the line by the time of 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.

Regardless of the method, the scoring of the PACER test is based on the number of laps completed. It is important to count each individual 15-meter or 20-meter distance as a lap (rather than based on a down-and-back count for the laps).

Criterion standards are not available for students in grades K-3. The object of the test for these younger students is simply to have them participate in the testing process and to complete as many laps as possible. The main goal is to provide the students with the opportunity to experience the PACER and to have a positive experience with the assessment. Nine-year-olds in grade 4 will 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 half a 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

*( continued )*

# FITNESSGRAM

## The PACER Individual Score Sheet A

**Teacher** _____ **Class period** _____ **Date** _____

**Lap = one 20-meter length**

| Level | Laps | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | | | | |
| 2 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | | | | | | |
| 3 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | | | | | | |
| 4 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | | | | | |
| 5 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | | | | | |
| 6 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | | | | |
| 7 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | | | | |
| 8 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | | | |
| 9 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | | | |
| 10 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | | | |
| 11 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | | |
| 12 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | | |
| 13 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | |
| 14 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | |
| 15 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | |

**Lane** _____ **Student's signature** _____ **Laps completed** _____

From *FITNESSGRAM/ACTIVITYGRAM Test Administration Manual, Updated Fourth Edition* by The Cooper Institute, 2010, Champaign, IL: Human Kinetics.

*( continued )*

PACER *( continued )*

- 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.
- A student who cannot reach the line when the beep sounds should be given one more chance to regain the pace. The second time a student cannot reach the line by the time of 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.
- Using the CD is an efficient method for administering this test item.

## One-Mile Run

⇨ *Alternative*

The one-mile run can be used instead of the PACER to provide an estimate of aerobic capacity ($\dot{V}O_2max$). For students who enjoy running and are highly motivated, it is a very good alternative assessment. Scoring of the one-mile run will require the input of a student's height and weight since the calculation of aerobic capacity includes BMI.

### Test Objective

The objective of the assessment is to run a mile at the fastest pace possible (i.e., shortest time). If a student gets tired, it is okay to allow him or her to walk, but encourage the student to try to at least maintain a slow jog throughout the assessment. An aerobic capacity score cannot be obtained for mile times greater than 13:00, and this time would not likely be achieved at a walking pace. If students cannot complete a one-mile jog or run, they should be encouraged to complete the one-mile walk test. Note that the walk test is validated only for those age 13 and older.

### Equipment and Facilities

A flat and accurately measured running course, stopwatch, pencil, and score sheets are required. The course may be a track or any other measured area. The course may be mea-sured using a tape measure or cross country wheel. Caution: If the track is metric or shorter than 440 yards, adjust the running course (1,609.34 meters = 1 mile; 400 meters = 437.4 yards; 1,760 yards = 1 mile). On a 400-meter track the run should be four laps plus 10 yards.

### Test Instructions

Describe the course to the students, and encourage them to complete the distance in the shortest possible time. Remind them to listen for their time as they cross the line. Also, many students begin too fast and tire out, so it is important to remind them to use appropriate pacing to get an accurate assessment. To initiate the assessments, you can provide a signal of "Ready . . . start." As they cross the finish line, elapsed time should be called out to the participants (or their partners) and then recorded.

### Scoring

The scoring of the one-mile run is based on the total time as well as the child's age, sex, and BMI (obtained from height and weight). The software will use the entered data to estimate the child's aerobic capacity. The score will then be used in the software to determine what fitness zone the child is placed into and what feedback is provided.

Criterion standards are not available for students in grades K-3 (ages 5-9). The object of the test for these younger students is simply to complete the one-mile distance at a comfortable pace and to prac-tice pacing, so it is not necessary to time the run for these students. Nine-year-olds in grade 4 will receive a standard. All 10-year-olds should receive a score regardless of grade level.

*( continued )*

Remember that the height and weight for each student must be entered in addition to the performance time on the one-mile run. Calculation of aerobic capacity also requires a time less than 13:01. A child scoring above this time will be placed into the Needs Improvement—Health Risk zone since this achievement would result in an estimate of aerobic capacity below the health standard.

## Suggestions for Test Administration

- Call out times as the runners pass the start-and-stop line to assist students in pacing themselves.
- Preparation for the test should include instruction about pacing and practice in pacing. Without instruction, students usually run too fast early in the test and then are forced to walk near the end.
- Results are generally better if a student can maintain a constant pace during most of the test.
- Walking is certainly permitted, but students should be encouraged to complete the assessment at a slow jog rather than a walking pace. If students can't complete a mile, they should be assessed with the one-mile walk test, although that test is validated only for ages 13 and older.
- Have students set a goal before running.
- Students should always warm up before taking the test. They should also cool down by continuing to walk for several minutes after completing the distance. A good suggestion is to have those who have completed the distance do an easy activity (juggle, hula hoop) while waiting for others to complete the distance. This keeps everyone moving and busy and takes the focus off the slower students who will complete the distance last.
- Avoid administering the test under conditions of unusually high temperature or humidity or when the wind is strong, because these elements may be unsafe or may lead to an invalid estimate of aerobic capacity.
- Counting laps completed and accurately recording the run time can be a problem when a relatively small course is used with younger children. Many techniques are acceptable. Pair the students and have the resting partner count laps and record time for the runner. Older students or parents may be asked to assist in recording results for younger students.

**PHOTO © Human Kinetics.** Student running.

## Walk Test

➪ *Alternative*

Another alternative to the PACER test is the one-mile walk test. This test is only for students ages 13 and older since it hasn't been validated with younger samples. The walk test is an excellent alternative assessment because it can be used for a lifetime. Secondary students should learn to do this test because it is one that they can repeat on their own to self-assess their fitness levels

### Test Objective

The objective is to walk one mile as quickly as possible while maintaining a constant walking pace for the entire distance. The assessment is based on the relative heart rate for a given speed of walking, so the actual pace is not critical. This test is included

*( continued )*

in *FITNESSGRAM* for use with participants ages 13 years and older. The walk test is an excellent self-assessment skill for everyone to use throughout life.

## Equipment and Facilities

A flat, accurately measured (1 mile) course, two or more stopwatches, pencils, and score sheets are required. Heart rate monitors, if available, make heart rate monitoring much easier. The course may be measured using a tape measure or cross country wheel. Caution: If the track is metric or shorter than 440 yards, adjust the course (1,609.34 meters = 1 mile; 400 meters = 437.4 yards; 1,760 yards = 1 mile). On a 400-meter track the walk should be four laps plus 10 yards.

## Test Instructions

Describe the course to the students, and instruct them to complete the full mile at a steady, brisk walking pace that can be maintained the entire distance. As they cross the finish line, elapsed time should be called to the participants (or their partners). It is possible to test 15 to 30 students at one time by dividing the group. Have each student select a partner; one is the walker and one is the scorer. While one group walks, the scorers count laps and record the finish time.

At the conclusion of the one-mile walk, each student should take a 60-second heart rate count. The scorer can time the 60 seconds, or students can count the time themselves by using a pace clock with a second hand. If using heart rate monitors to determine the heart rate, each participant should start his or her stopwatch at the beginning of the walk and stop it at the end. The last heart rate recorded during the walk should be used as the walking heart rate.

## Scoring

The walk test is based on the relative heart rate in walking a mile at a specific speed. Therefore, it is important to have an accurate measure of the mile walk time (scored in minutes and seconds) as well as a 60-second heart rate. The child's estimated $VO_2$max is calculated using the Rockport Fitness Walking Test equation (Kline et al. 1987; McSwegin et al. 1998). The estimate is evaluated using the same aerobic fitness standards as the other assessments.

PHOTO © Human Kinetics. Student walking.

## Suggestions for Test Administration

- Preparation for the test should include instruction and practice in pacing and in techniques for heart rate monitoring.
- Results are generally better if the student can maintain a constant pace during most of the test.
- Students should always warm up before taking the test. They should also cool down by continuing to walk for several minutes after completing the distance.
- Avoid administering the test under conditions of unusually high temperature or humidity or when the wind is strong, because these elements may cause an invalid estimate of aerobic capacity.

# BODY COMPOSITION

Body composition refers to the division of total body weight (mass) into components, most commonly fat mass and fat-free mass. The proportion of total body weight that is fat (referred to as percent body fat) is an important health-related indicator because high levels of body fatness are associated with increased risk of coronary heart disease, stroke, and diabetes. While children are not generally at risk for heart disease or stroke, elevated blood pressure and cholesterol occur in overweight and obese children. In addition, type 2 diabetes has increasingly been diagnosed among children, even though this condition has generally been viewed as "adult-onset" diabetes. Risk factors for obesity and heart disease are known to track through the life span, so it is important to document body composition as part of a comprehensive health-related fitness profile. Like other dimensions of health-related fitness, body composition does affect health status (even in childhood) and does improve with regular participation in physical activity.

A number of methods are available for estimating body fatness, but the most commonly used field measures are skinfold measurements and bioelectrical impedance analyzers. The skinfold approach involves the measurement of skinfold thicknesses at different parts of the body using a calibrated measurement tool called a caliper. The *FITNESSGRAM* skinfold procedure uses two sites that are easy to measure and whose measurements are not very invasive (triceps and calf). The measurements from these sites are then used in prediction equations to estimate body fatness. Bioelectric impedance analyzers use a very different approach to estimate body fatness. The devices send a small current through the body and measure resistance to current flow. A body with more muscle will have lower resistance to current flow, whereas a body with more fat will have greater resistance to current flow. While originally used only in research, a number of portable bioelectric impedance analyzer (BIA) devices are now commercially available at a price that is reasonable for most physical education programs (<$100). Because these devices can produce estimates of body composition faster than a skinfold test and do not require specific skill or experience, they may be a useful alternative to skinfold testing in some schools. The procedure is also less invasive than skinfold testing and may be better accepted in some districts that have specific policies against the use of skinfold calipers. However, the intuitive nature of skinfold testing also provides

some unique educational advantages. Regardless of which approach is used, it is important to note that the estimates can vary by 2% to 3% of actual values. Body mass index (BMI) is another indicator of body composition. It is a commonly used index that provides an estimate of the appropriateness of a person's weight in relation to his or her height. While it technically does not reflect body composition, it is an assessment that is widely used in determining weight status (e.g., overweight or obesity). The use of BMI may lead to inaccurate classifications of body composition in heavily muscled individuals, but it provides a good indicator of body composition for the majority of the population. An advantage of using BMI is that it allows for more direct comparisons with public health data released from state and national health departments. The *FITNESSGRAM* Scientific Advisory Board has historically recommended the reporting of body fat for assessments of body composition, but the popularity and ease of obtaining estimates of BMI make this an appropriate and acceptable measure. Details on collecting and scoring these assessments of body composition are provided in the following sections.

### *Need Additional Information?*

For additional information on the advantages and disadvantages of various body composition measures and justification for the *FITNESSGRAM* Healthy Fitness Zone criteria, visit the *FITNESSGRAM* Reference Guide. The guide is available on the *FITNESSGRAM* website, www.fitnessgram.net (go to the Reference Guide section). Read the chapter "Body Composition Assessments" by Going, Lohman, and Falls.

## *Overview of the FITNESSGRAM Body Composition Standards*

The use of criterion-referenced standards is a defining characteristic of the *FITNESSGRAM* program. Members of the *FITNESSGRAM* Scientific Advisory Board used data from the National Health and Nutrition Examination Survey (NHANES) to develop the *FITNESSGRAM* standards for body fatness. A unique advantage of the NHANES data set is that the data are based on a representative sample of children and youth from across the United States. The *FITNESSGRAM* body fat standards take growth and maturation into account and reflect a child's current risk for metabolic syndrome—a significant health problem that is viewed as a precursor to the development of diabetes. Detailed information on the development of the body fat standards is provided in the Reference Guide and in a comprehensive research supplement published in the *American Journal of Preventive Medicine*.

A parallel set of *FITNESSGRAM* BMI standards correspond with the standards established for body fatness, but a limitation is that they differed from the widely used CDC growth charts, which are commonly used by pediatricians. Although the differences between the CDC values and the *FITNESSGRAM* standards were small in absolute terms, it caused some children to be classified differently using the two methods. Therefore, the Cooper Institute commissioned an additional set of analyses to directly compare the predictive utility of the *FITNESSGRAM* standards with the CDC values. The study used additional rounds of NHANES data and directly evaluated the classification differences of the alternative schemes. The analyses revealed that there were no statistically significant differences between the approaches and they both had similar clinical utility. Therefore, the CDC standards have been adopted as the BMI standards in *FITNESSGRAM*. The adoption of these commonly used BMI standards will enable youth to receive consistent information from *FITNESSGRAM* and the CDC growth charts.

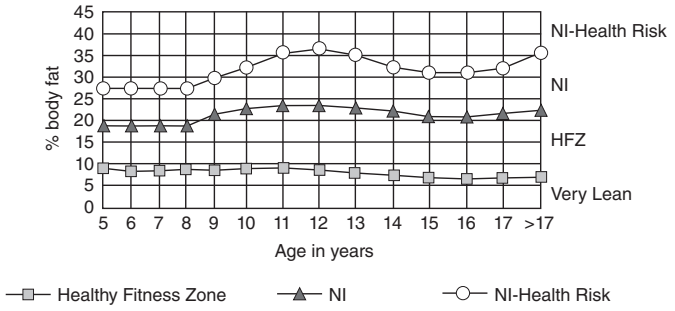
The *FITNESSGRAM* body fat standards allow classification in three unique zones, and these can be operationalized similarly to the commonly used terms of normal weight, overweight, and obese. In this case, students are placed in the **Healthy Fitness Zone** if they have a healthy level of body fatness or a normal weight classification according to the CDC BMI values. Similarly, a child would be

*( continued )*

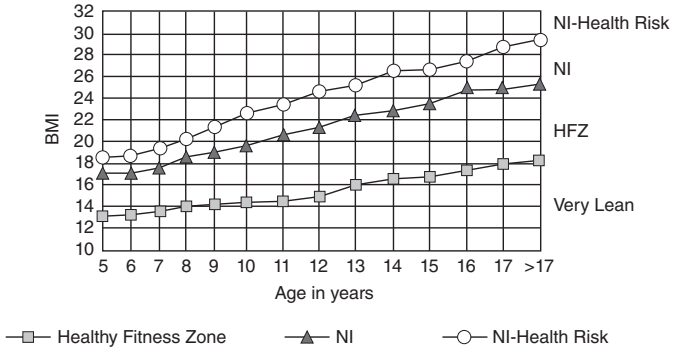
placed into the **Needs Improvement** zone if he is in the overweight category and in the **Needs Improvement—Health Risk** zone if he is in the obese category. With body composition, there are also risks associated with being too lean, so there is a zone called **Very Lean**. Youth who score in this category will receive feedback about the importance of healthy eating and activity. While there are children who are naturally very lean, it is important to make parents aware that their children's body composition places them in this category.

It is important to recognize that body fat and BMI provide different perspectives about a child's body composition. The two assessments are based on different measures and cannot be expected to provide consistent information for all youth or to provide similar group distributions. However, the standards have been set up so that the BMI standards can be interpreted in a similar way as the body fat standards. If placed into the same fitness zone, students would receive similar information regardless of whether they are assessed with body fat or BMI.

**Male Body Fat Standards**




**Male BMI Standards**

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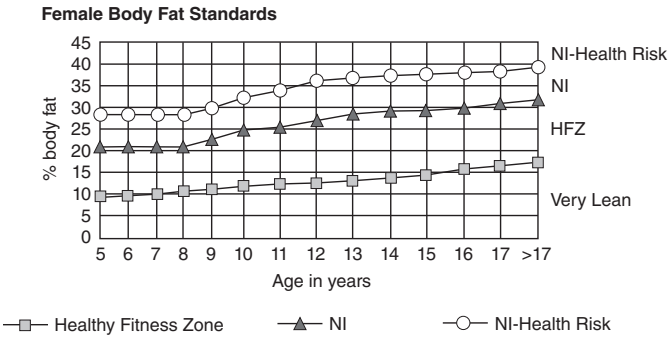
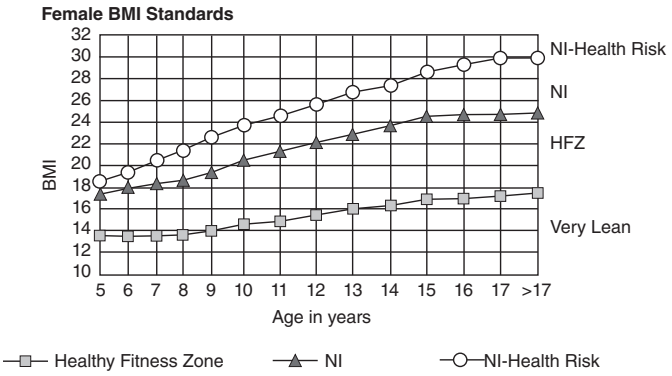
Overview of the *FITNESSGRAM* Body Composition Standards *( continued )*




## Skinfold Measurements

This section provides information on measuring skinfolds, including suggestions on performing the measurements.

### Equipment

A skinfold caliper is necessary for performing this measurement. The caliper measures the thickness of a double layer of subcutaneous fat and skin at different parts of the body. The cost of calipers ranges from $5 to $200. Appendix A on page 85 lists a source for calipers, but it is important to know that training and practice are more important than the quality of the caliper for body composition assessment.

### Testing Procedures

There are multiple procedures for skinfold testing. The *FITNESSGRAM* protocol involves collecting measurements from the triceps and calf. These sites have been chosen for *FITNESSGRAM* because they are easily measured and highly correlated with

*( continued )*

total body fatness. (An additional measure from the abdominal site is used for college students.) Following are details on the location of each of the sites as well as specific measurement tips.

- Triceps: The triceps skinfold is measured on the back of the right arm over the triceps muscle, midway between the elbow and the acromion process of the scapula. Using a piece of string to find the midpoint is a good suggestion. The skinfold site should be vertical. Pinching the fold slightly above the midpoint will ensure that the fold is measured on the midpoint.
- Calf: The calf skinfold is measured on the inside of the right leg at the level of maximal girth. The right foot is flat on an elevated surface with the knee flexed at a 90-degree angle. Grasp the vertical skinfold just above the level of maximal girth and take the measurement below the grasp.
- Abdomen (college students only): For college students, the formula for calculating percent body fat includes the abdominal skinfold measurement in addition to the triceps and calf skinfolds. The abdominal skinfold is measured at a site 3 centimeters to the side of the midpoint of the umbilicus and 1 centimeter below it. The skinfold is horizontal and should be measured on the right side of the body while the person relaxes the abdominal wall as much as possible.

For accurate information from skinfolds, it is important to use standardized techniques and to conduct assessments as consistently as possible. The following tips are recommended for accurate skinfold measurements:

- Measure skinfolds on the person's right side.
- Instruct the student to relax the arm or leg being measured.
- Firmly grasp the skinfold between the thumb and forefinger and lift it away from the other body tissue. The grasp should not be so firm as to be painful.
- Place the caliper half an inch (~1.25 cm) below the pinch site.
- Be sure the caliper is in the middle of the fold.
- The recommended procedure is to do one measurement at each site before doing the second measurement at each site and finally the third set of measurements.

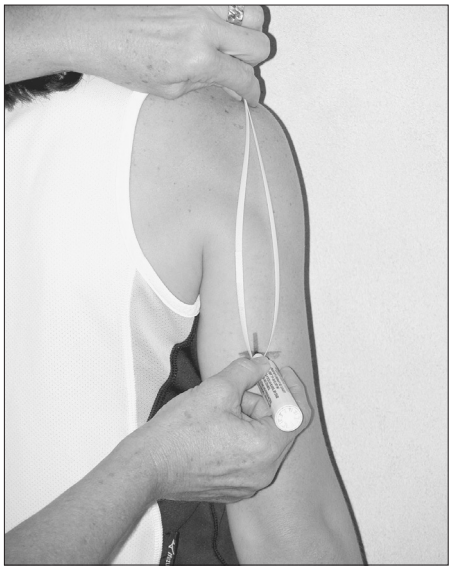


**PHOTO © Human Kinetics.** Locating the triceps skinfold site.

**PHOTO © Human Kinetics.** Site of the triceps skinfold.

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Skinfold Measurements *( continued )*

**PHOTO © Human Kinetics.** Triceps skinfold measurement.

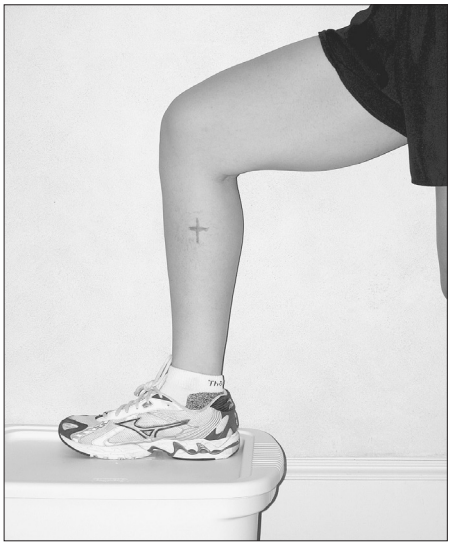

**PHOTO © Human Kinetics.** Placement of the leg for locating the calf skinfold site.

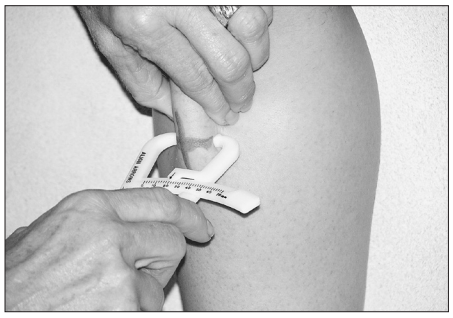

**PHOTO © Human Kinetics.** Calf skinfold measurement.

**PHOTO © Human Kinetics.** Site of abdominal skinfold.

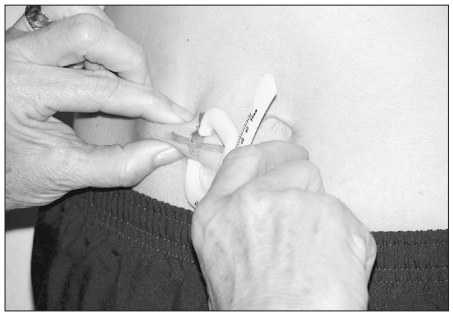

**PHOTO © Human Kinetics.** Abdominal skinfold measurement.

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### Scoring

The skinfold procedure requires accurate estimates of skinfold thicknesses (measured in millimeters) as shown on the caliper. Each measurement should be taken three times, and the recorded score should be the median (middle) value of the three scores. For example, if the readings were 7.0, 9.0, and 8.0, the score would be recorded as 8.0 millimeters. Each reading should be recorded to the nearest .5 millimeter. *FITNESSGRAM* uses the formula developed by Slaughter and Lohman to calculate percent body fat (Slaughter et al., 1988).

## Additional Recommendations

### Suggestions for Test Administration

- Body composition testing should be conducted in a setting that provides each child with privacy.
- Interpretation of the measurements may be given in a group setting as long as individual results are not identified.
- Whenever possible, the same tester should conduct the measurements to ensure consistency.
- Measuring should be practiced, and repeat measurements are recommended occasionally for ensuring accuracy. Once familiar with the methods, testers can generally find agreement within 10%.

### Learning to Do Skinfold Measurements

Using video training and participating in workshops are excellent ways to learn skinfold measurements.

## Body Mass Index

The BMI provides an indication of the appropriateness of a child's weight relative to height. Body mass index is determined by the following formula: BMI = weight (kg) / height$^2$ (m). An example is provided to demonstrate how weight and height interact to influence the BMI score. A student weighing 100 pounds (45.36 kg) who is 5 feet (1.52 m) tall would have a BMI of 19.6. Another student of the same weight but 5 feet 2 inches (1.57 m) tall would have a BMI of 18.3. The same weight is more appropriate for the slightly taller person, so the BMI is slightly lower.

Height and weight measures can be entered in pounds and inches, but they are converted to metric units to calculate BMI—pounds to kilograms and feet to meters. This section describes how to collect height and weight data and how the results can be interpreted.

### Equipment

To collect information about BMI, it is important to obtain accurate measures of height and weight. A stadiometer is recommended for obtaining accurate measurements of height. The use of a tape measure attached to a wall will not be as accurate. For weight, a high-quality digital scale is recommended. Portable stadiometers and digital scales are available for reasonable prices and are a worthwhile investment.

### Testing Procedures

To obtain accurate data on height and weight, it is important to measure children without their shoes on. Shoes can be heavy and also can increase a person's height. Therefore, use this procedure for all measurements. In measuring height and weight, you are encouraged to drop fractions of an inch or a pound and use the lower whole number. For example, a height of 5 feet 5.5 inches would be recorded as 5 feet 5 inches, and a weight of 112.5 pounds would be recorded as 112 pounds. Use of the FITNESSGRAM software allows for use of decimals when recording height and weight.

### Scoring

The general values defining overweight in adults is a value less than 25 (for both males and females). However, boys and girls have BMI values that are very different due to the dramatic changes in growth and development that occur with age. Therefore, age and sex-specific values of BMI are used to assess weight status for youth.

A score that is classified as Needs Improvement generally indicates that a child weighs too much for his or her height. Body mass index is not the recommended procedure for determining body composition because it does not estimate the percent of fat. It merely provides information on the appropriateness of the weight relative to the height. For children found to be too heavy for their height, a skinfold test would clarify whether the weight is due to excess fat.

## Portable Bioelectric Impedance Analyzers

A number of portable bioelectric impedance analyzer (BIA) devices are now commercially available at a price that is reasonable for most physical education programs (<$100). These devices estimate body composition by measuring the body's resistance to current flow. A body with more muscle will also have more total body water (and therefore have low resistance to current flow). A body with more fat will have less total body water and greater resistance to current flow. One type of device requires participants to stand on an instrument resembling a bathroom scale while barefoot. Another type of device uses a handgrip system that has participants squeeze handles while extending the arms.

Preliminary results with these devices suggest that they provide similar accuracy of classification and estimates of body composition as skinfold calipers provide. Because these devices can produce estimates of body composition faster than a skinfold test and do not require specific skill or experience, they may provide a useful alternative to skinfold testing in some schools. The procedure is also less invasive than skinfold testing and may be better accepted in some districts that have specific policies against the use of skinfold calipers.

# MUSCULAR STRENGTH, ENDURANCE, AND FLEXIBILITY

Tests of muscular strength, muscular endurance, and flexibility have been combined into one broad fitness category because the primary consideration is determining the functional health status of the musculoskeletal system. It is equally important to have strong muscles that can work forcefully and over a period of time and to be flexible enough to have a full range of motion at the joint. Musculoskeletal injuries are often the result of muscle imbalance at a specific joint; the muscles on one side may be much stronger than the opposing muscles or may not be flexible enough to allow complete motion or sudden motion to occur.

It is important to remember that the specificity of training bears directly on the development of musculoskeletal strength, endurance, and flexibility. The movements included in these test items are only a sampling of the many ways in which the body is required to move and adjust during physical activity.

The upper body and the abdominal/trunk region have been selected as areas for testing because of their perceived relationship to activities of daily living, correct posture, and the development/maintenance of a healthy, well-functioning back. The goals for a healthy back include proper alignment of the vertebrae and pelvis without excessive disc pressure and the ability of the pelvis to rotate forward and backward without strain on the muscles or connective tissue. To accomplish these goals an individual must have sufficient, but not excessive, flexibility of the low back, hamstring, and hip flexor muscles and strong, fatigue-resistant, abdominal and trunk extensor muscles. Although most students will be able to achieve the criterion standards for one or two of the included test items, it is important to educate them regarding the importance of muscular strength, muscular endurance, and flexibility in preventing problems as adults. It is especially important to make students aware of correct postural alignment and body mechanics in the event that they are developing scoliosis, which is a problem for teenage youth. The school nurse, a local physician, or a physical therapist is a good source of information about scoliosis.

***Need Additional Resources?***

For complete information about FITNESSGRAM, visit www.fitnessgram.net. To order the FITNESSGRAM

software and related resources, call Human Kinetics at 800-747-4457, or order online at www.HumanKinetics.com. To review the science behind the assessment, please read the Reference Guide, which is available at no cost at www.fitnessgram.net.

## Abdominal Strength and Endurance

Strength and endurance of the abdominal muscles are important in promoting good posture and correct pelvic alignment. The latter is particularly important in the maintenance of low back health. In testing and training the muscles of this region, it is difficult to isolate the abdominal muscles. The modified sit-up, which is used in many fitness tests, involves the action of the hip flexor muscles in addition to the abdominal muscles. The curl-up assessment used in *FITNESSGRAM* is a safer and more effective test since it does not involve the assistance of the hip flexor muscles and minimizes compression in the spine, when compared to a full sit-up with the feet held. The protocol has been adapted from a version reported by Massicote (1990).

### Curl-Up

⇨ *Recommended*

This section provides information on the curl-up assessment used in *FITNESSGRAM*. The curl-up with knees flexed and feet unanchored has been selected because individually these elements have been shown to a) decrease movement of the fifth lumbar vertebra over the sacral vertebrae, b) minimize the activation of the hip flexors, c) increase the activation of the external and internal obliques and transverse abdominals, and d) maximize abdominal muscle activation of the lower and upper rectus abdominals relative to disc compression (load) when compared with a variety of sit-ups.

Few results are available on the consistency and accuracy of the curl-up. Reliability is higher for college students than for children but the values are acceptable for this type of assessment. Determination of validity has been hampered by the lack of an established criterion measure. Anatomical analysis and electromyographical documentation provide the primary support for the use of the curl-up test to determine abdominal strength and endurance.

#### Test Objective

To complete as many curl-ups as possible up to a maximum of 75 at a specified pace.

#### Equipment and Facilities

Gym mats and a measuring strip for every two students are needed. The measuring strip may be made of cardboard, rubber, smooth wood, or any similar thin, flat material and should be 30 to 35 inches long. Two widths of measuring strip may be needed. The narrower strip should be 3 inches wide and is used to test 5- to 9-year-olds; for older students the strip should be 4.5 inches wide.

#### Test Instructions

Allow students to select a partner. Partner A will perform the curl-ups while partner B counts and watches for form errors.

Partner A lies in a supine position on the mat, knees bent at an angle of approximately 140°, feet flat on the floor, legs slightly apart, arms straight and parallel to the trunk with palms of hands resting on the mat. The fingers are stretched out and the head is in contact with the mat. Make sure students have extended their feet as far as possible from the buttocks while still allowing feet to remain flat on floor. The closer the feet are positioned in relation to the buttocks, the more difficult the movement.

After partner A has assumed the correct position on the mat, partner B places a measuring strip on the mat under partner A's legs so that partner A's fingertips are just resting on the nearest edge of the measuring strip. Partner B then kneels down at partner A's head in a position to count curl-ups and watch for form breaks. Partner B places a piece of paper under partner A's head. The paper will assist partner B in judging if partner A's head touches down on each repetition. The observer should watch for the paper to crinkle each time partner A touches it with his or her head.

Before beginning the curl-up, it is a good practice for partner B to pull on partner A's hands to ensure that the shoulders are relaxed and in a normal resting position. If partner A is allowed to hunch

*( continued )*

Curl-Up *( continued )*

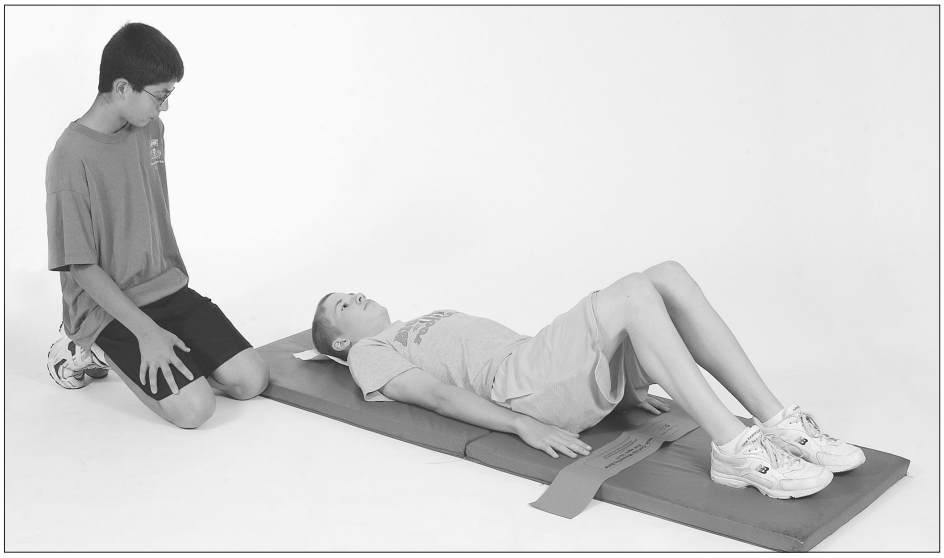


**PHOTO © Human Kinetics.** Starting position for the curl-up test.

**PHOTO © Human Kinetics.** Position of the student in the "up" position for the curl-up test.

*( continued )*

Curl-Up *( continued )*


**PHOTO © Human Kinetics.** Close-up of the fingertips sliding: *(a)* starting position and *(b)* ending position.

the shoulders before beginning the test, he or she may be able to get the fingertips to the other side of the testing strip by merely moving the arms and shoulders up and down. Keeping heels in contact with the mat, partner A curls up slowly, sliding fingers across the measuring strip until fingertips reach the other side; then partner A curls back down until his or her head touches the piece of paper on the mat. Movement should be slow and gauged to the specified cadence of about 20 curl-ups per minute (1 curl every 3 seconds). The teacher should call a cadence or use a prerecorded cadence. A recorded cadence should be used to ensure accurate testing for students. Partner A continues with-out pausing until he or she can no longer continue or has completed 75 curl-ups.

## When to Stop

Students are stopped after completing 75 curl-ups, when the **second** form correction is made, or when they can no longer continue.

## Form Corrections

- Heels must remain in contact with the mat.
- Head must return to the mat on each repetition.
- Pauses and rest periods are not allowed. The movement should be continuous and with the cadence.
- Fingertips must touch the far side of the measuring strip.

## Scoring

The score is the number of curl-ups performed. Curl-ups should be counted when the student's head returns to the mat. For ease in administration, it is permissible to count the first incorrect curl-up. It is important to be consistent with all of the students and classes when determining whether or not you will count the first incorrect curl-up.

## Suggestions for Test Administration

- The student being tested should reposition if the body moves so that the head does not contact the mat at the appropriate spot or if the measuring strip is out of position.
- Movement should start with a flattening of the lower back followed by a slow curling of the upper spine.
- The hands should slide across the measuring strip until the fingertips reach the opposite side (3 or 4.5 inches) and then return to the supine position. The movement is completed when the back of the head touches the paper placed on mat.

*( continued )*

Curl-Up *( continued )*

- The cadence will encourage a steady, continuous movement done in the correct form.
- Students should not forcibly "reach" with their arms and hands but simply let the arms passively move along the floor in response to the action of the trunk and shoulders. Any jerking, kipping, or reaching motion will cause the students to constantly move out of position. When students first begin to use this test item, many will want to "reach" with their arms and hands, especially if they have previously done a timed sit-up test.
- This curl-up protocol is quite different from the one-minute sit-up. **Students will need to learn how to correctly perform this curl-up movement and be allowed time to practice.**

## Trunk Extensor Strength and Flexibility

A test of trunk extensor strength and flexibility is included in *FITNESSGRAM* because of its relationship to low back health, especially proper vertebral alignment. Musculoskeletal fitness of the abdominal muscles, hamstrings, and back extensors works in concert to maintain posture and helps maintain low back health. The item is included in the assessment in part because of the educational value of simply doing the assessment. Students will learn that trunk extensor strength and flexibility is an important aspect of maintaining a healthy back.

## Trunk Lift

⇨ *Recommended*

It is important that attention be given to performance technique during this test. The movement should be performed in a slow and controlled manner. The maximum score on this test is 12 inches. While some flexibility is important, it is not advisable (or safe) to encourage hyperextension.

Test-retest studies of the trunk extension test (done without limiting the lift to 12 inches) have reported high reliability in high school and college aged students. There are no data on the consistency results for younger children.

Research results have shown that isokinetic trunk endurance, torso length, body weight, passive trunk extension, trunk extension endurance, trunk strength, and flexibility all contribute to perfor-mance of the trunk lift. However, as a single repetition, partially body weight limited, restricted range item, this test is a minimal assessment of the components of trunk strength and flexibility. Most school-aged individuals will pass this test easily.

### Test Objective

To lift the upper body off the floor using the muscles of the back and hold the position to allow for the measurement.

### Equipment and Facilities

Gym mats and a measuring device are required to administer this test. A yardstick or 15-inch ruler is preferred; however a 12-inch ruler could be used if care is taken to make certain that the ruler is not placed directly under the student's chin. If students are measuring each other, the "rulers" should be made of some pliable material such as poster board. It is helpful to mark the 6-, 9-, and 12-inch marks with tape. Rope cut to 12 inches with the inch marks taped can also be used as a measuring device.

### Test Instructions

The student being tested lies on the mat in a prone position (facedown). Toes are pointed and hands are placed under the thighs. Place a coin or other marker on the floor in line with the student's eyes. During the movement, the student's focus should not move from the coin or marker. The student lifts the upper body off the floor, in a very slow and controlled manner, to a maximum height of 12 inches. The head should be maintained in a neutral (straight) alignment with the spine. The position is held long enough to allow the tester to place the ruler on the floor in front of the student and determine the distance from the floor to the student's chin. The ruler should be

*( continued )*

Trunk Lift *( continued )*

**PHOTO © The Cooper Institute.** Starting position for the trunk lift.

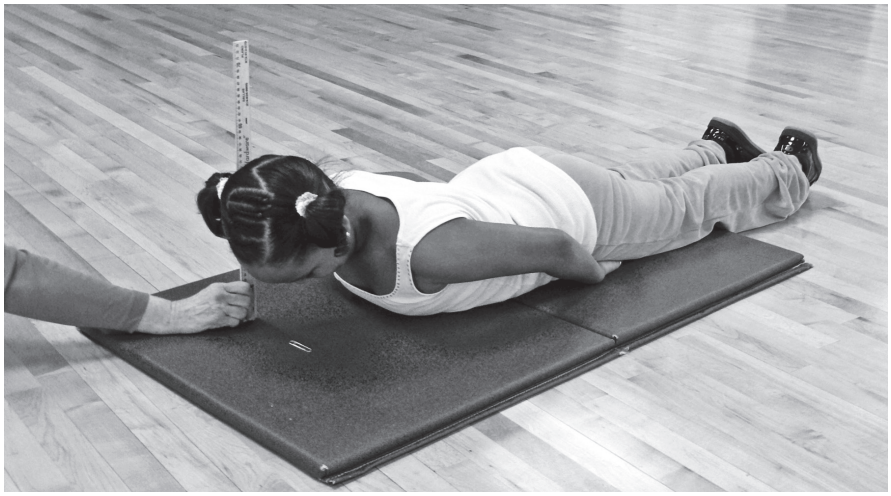


**PHOTO © The Cooper Institute.** Student in the "up" or end position and measurement of the trunk lift.

*( continued )*

Trunk Lift *( continued )*

placed at least an inch to the front of the student's chin and not directly under the chin. Once the measurement has been made, the student returns to the starting position in a controlled manner. Allow two trials, recording the highest score.

### Scoring

The score is recorded in inches. Distances above 12 inches should be recorded as 12 inches.

### Suggestions for Test Administration

- Do not allow students to do ballistic, bouncing movements.
- Do not encourage students to raise higher than 12 inches. The Healthy Fitness Zone ends at 12 inches, and scores beyond 12 inches will not be accepted by the software. Excessive arching of the back may cause compression of the spinal discs.
- Maintaining focus on the spot on the floor should assist in maintaining the head in a neutral position.
- Partner B should make the reading at eye level and, therefore, should assume a squat or lying down position.

## Upper Body Strength and Endurance

Strength and endurance of the muscles in the upper body are important in activities of daily living, maintaining functional health and promoting good posture. The role of upper body strength in maintaining functionality becomes more evident as a person ages. It is important that children and youth learn the importance of upper body strength and endurance as well as methods to use in developing and maintaining this area of fitness. The 90° push-up is the recommended test item. This 90° push-up has been adapted from assessments reported by Massicote (1990). Alternative tests include the modified pull-up, pull-up, and flexed arm hang. It should be noted that although all of these items are intended to measure upper arm and shoulder girdle strength and endurance, they do not all involve the same muscle groups to the same extent and handling body weight is more of a factor in some than others.

### 90° Push-Up

➪ *Recommended*

The 90° push-up to an elbow angle of 90° is the recommended test for upper body strength and endurance. Test administration requires little or no equipment; multiple students may be tested at one time; and few zero scores result. This test also teaches students an activity that can be used throughout life as a conditioning activity as well as in self-testing.

The 90° push-up has generally been shown to produce consistent scores but reliability depends on how it is administered. Lower values have been reported for elementary aged students using partners to count the repetitions. Objectivity, or the ability of different observers to attain the same results, is a factor in this item because of the necessity of judging the 90° angle. Scores from student partners are consistently higher than adult counts because students tend to simply count each attempted 90° push-up and not evaluate whether it was done correctly. As with several of the other neuromuscular fitness items, determining the accuracy of the 90° push-up as a test of upper body strength and endurance is made difficult by the lack of an agreed upon criterion measure. Specific validation data are available for the 90° push-up in only two studies conducted on college age students. Validity coefficients against a 1-RM bench press were the highest when the criterion test was the number of repetitions (endurance) at an absolute, but sex-specific, load.

Before test day, students should be allowed to practice doing 90° push-ups and watching their partner do them. Teachers should make a concerted effort during these practice sessions to correct students who are not achieving the 90° angle. In this manner all students will gain greater skill in knowing what 90° "feels like" and "looks like."

*( continued )*

## Test Objective

To complete as many 90° push-ups as possible at a rhythmic pace. This test item is used for males and females.

## Equipment and Facilities

The only equipment necessary is having the correct cadence. The correct cadence is 20 90° push-ups per minute (1 90° push-up every 3 seconds). A recorded cadence should be used to ensure accurate testing for students. The 90° push-up may be performed on a mat. Squares of cardboard or anything else that has a 90° angle may assist students in judging 90°.

## Test Instructions

The students should be paired; one will perform the test while the other counts 90° push-ups and watches to see that the student being tested bends the elbow to 90° with the upper arm parallel to the floor.

The student being tested assumes a prone position on the mat with hands placed under or slightly wider than the shoulders, fingers stretched out, legs straight and slightly apart, and toes tucked under. The student pushes up off the mat with the arms until arms are straight, keeping the legs and back straight. The back should be kept in a straight line from head to toes throughout the test.

The student then lowers the body using the arms until the elbows bend at a 90° angle and the upper arms are parallel to the floor. This movement is repeated as many times as possible. The student should push up and continue the movement until the arms are straight on each repetition. The rhythm should be approximately 20 90° push-ups per minute or 1 90° push-up every 3 seconds.

## When to Stop

Students are stopped when the second form correction (mistake) is made. Only one form correction is allowed.

## Form Corrections

- Stopping to rest or not maintaining a rhythmic pace
- Not achieving a 90° angle with the elbow on each repetition
- Not maintaining correct body position with a straight back
- Not extending arms fully

## Scoring

The score is the number of 90° push-ups performed. For ease in administration, it is permissible to count the first incorrect 90° push-up. It is important to be consistent with all of the students and classes

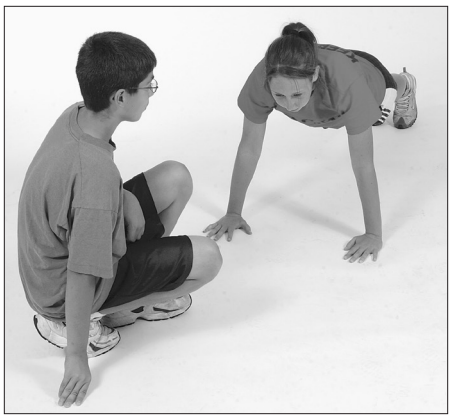


**PHOTO © Human Kinetics.** Starting position for the 90° push-up test.

**PHOTO © Human Kinetics.** Student in the "down" position for the 90° push-up test.

*( continued )*

when determining if you will count the first incorrect push-up.

### Suggestions for Test Administration

- Test should be terminated if the student appears to be in extreme discomfort or pain.
- Cadence should be called or played on a player device or CD.
- Males and females follow the same protocol.
- Find a short cone or other piece of pliable equipment that could be placed under the student's chest. The student must lower to the equipment in order for the 90° push-up to count. The size and height of the equipment that is used may vary depending on the age and size of your students.

## Modified Pull-Up

➩ *Alternative*

The modified pull-up shares the advantage of few zero scores and a wide range of scores with the 90° push-up. However, it does not, as commonly believed, negate the effect of body composition/weight on upper body performance. For schools with access to equipment , and desiring to test students individually, the modified pull-up is a very good test item to use.

The modified pull-up has been found to be a reliable test in primary, middle, and high school students. The modified pull-up has not been validated against a criterion measure but it has logical validity based on anatomical principles.

### Test Objective

To successfully complete as many modified pull-ups as possible.

### Equipment and Facilities

A modified pull-up stand, elastic band, pencil, and score sheet are necessary for administering this test. It is suggested that this assessment be performed on a mat or other soft surface. Modified pull-up stands can be constructed.

### Test Instructions

Position the student on his or her back with shoulders directly under a bar that has been set 1 to 2 inches above the student's reach. Place an elastic band 7 to 8 inches below and parallel to the bar.

The student grasps the bar with an overhand grip (palms away from body). The pull-up begins in this "down" position with arms and legs straight, buttocks off the floor, and only the heels touching the floor. The student then pulls up until the chin is above the elastic band

**PHOTO © Human Kinetics.** Starting position for the modified pull-up test.

*( continued )*

**PHOTO © Human Kinetics.** Student in the "up" position for the modified pull-up test.

The student then lowers the body to the "down" position. Movement continues in a rhythmic manner.

### When to Stop

Students are stopped when the second form correction is made. There is no time limit, but movement should be rhythmical and continuous. Students should not stop and rest.

### Form Corrections

- Stopping to rest or not maintaining a rhythmic pace
- Not lifting the chin above the elastic band
- Not maintaining straight body position with only heels in contact with the floor
- Not fully extending arms in the down position

### Scoring

The score is the number of pull-ups performed. For ease in administration it is permissible to count the first incorrect pull-up. It is important to be consistent with all of the students and classes when determining if you will count the first incorrect pull-up.

### Suggestions for Test Administration

- The test is terminated if the student experiences extreme discomfort or pain.
- Males and females follow the same protocol.

## Pull-Up

➪ *Alternative*

The pull-up test is not the recommended test item for the vast majority of students because many are unable to perform even one pull-up. **This test item should not be used for students who cannot perform one repetition.** However, for those students who are able to perform correct pull-ups this is an item that can be used throughout life as a conditioning activity as well as a self-test.

Reliability of the pull-up has been shown to be acceptable for elementary boys and girls. Attempts at validating the pull-up as a measure of strength against a 1-RM latissimus pull-down have generally not been successful. Validity is equally poor when evaluated against a percentage (50-60% typically) of a 1-RM latissimus pull-down as an indication of upper arm and shoulder girdle endurance, ranging from only .09 to .25. As with the other measures of upper body strength and endurance, at least part of the problem may be the lack of a real criterion test.

### Test Objective

To correctly complete as many pull-ups as possible.

*( continued )*

## Equipment and Facilities

This test uses a horizontal bar at a height that allows the student to hang with arms fully extended and feet clear of the floor. A doorway gym bar may be used.

## Test Instructions

The student assumes a hanging position on the bar with an overhand grasp (palms facing away from the body). Shorter students may be lifted into the starting position. The student uses the arms to pull the body up until the chin is above the bar and then lowers the body again into the full hanging position. The exercise is repeated as many times as possible. There is no time limit.

## When to Stop

Students are stopped when the second form correction (mistake) is made.

## Form Corrections

- The body should not swing during the movement. If the student starts to swing, the teacher or assistant should hold an arm in front of the student's thighs to prevent swinging. Swinging of the body or excessive movement is a form correction.
- The pull-up must be performed smoothly with no kicking or jerking. Forceful bending of the knees or kipping of the body is not permitted.
- To be counted, a pull-up must result in the chin being lifted over the bar, and the student must return to the full hanging position with elbows fully extended.

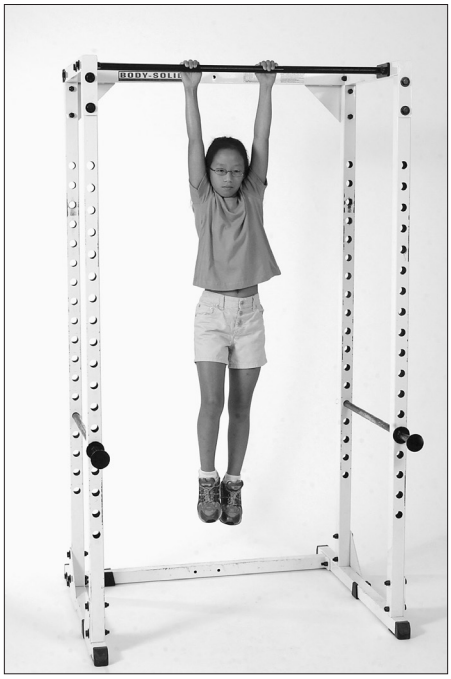


**PHOTO © Human Kinetics.** Starting position for the pull-up test.

**PHOTO © Human Kinetics.** Student in the "up" position for the pull-up test.

*( continued )*

## Scoring

The score is the number of complete pull-ups performed. For ease in administration, it is permissible to count the first incorrect pull-up. It is important to be consistent with all of the students and classes when determining if you will count the first incorrect pull-up.

## Suggestions for Test Administration

- A stack of mats off to the side of the hanging bar may be used to help students grasp the bar.
- The teacher may help the student into position and make certain that the body is in the proper position before beginning the test.

## Flexed Arm Hang

➪ *Alternative*

A third alternative to the recommended 90° push-up is the flexed arm hang. The flexed arm hang is a static test of upper body strength and endurance.

Consistency in times for the flexed arm hang has been shown to be acceptable in both 9- and 10-year-olds and college aged students. Two studies, which have attempted to validate the flexed arm hang against the 1-RM arm curl for endurance have shown weak correlations. Thus, only anatomical logic validates this item, as with most of the other upper body tests.

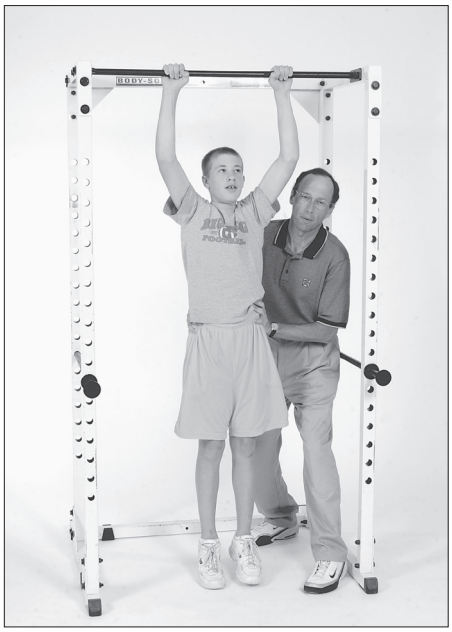


**PHOTO © Human Kinetics.** Starting position for the flexed arm hang test.

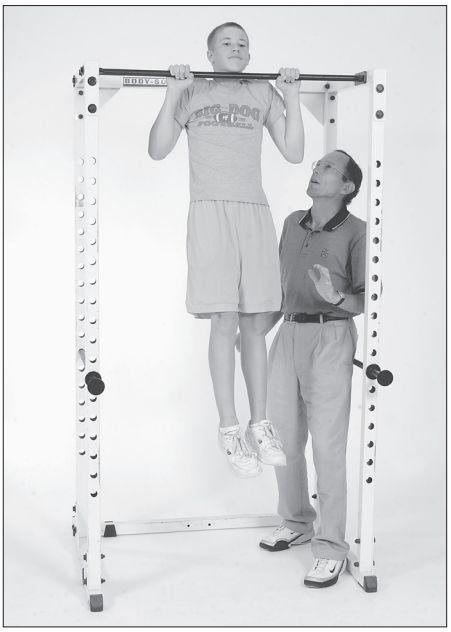


**PHOTO © Human Kinetics.** Student in the "up" position for the flexed arm hang test.

*( continued )*

Flexed Arm Hang *( continued )*

### *Test Objective*

To hang with the chin above the bar as long as possible.

### *Equipment and Facilities*

A horizontal bar, chair or stool (optional), and stopwatch are required to administer this test item.

### *Test Instructions*

The student grasps the bar with an overhand grip (palms facing away). With the assistance of one or more spotters, the student raises the body off the floor to a position in which the chin is above the bar, elbows are flexed, and the chest is close to the bar. A stopwatch is started as soon as the student takes this position. The posi-tion is held as long as possible.

### *When to Stop*

The watch is stopped when one of the following occurs:

- The student's chin touches the bar.
- The student tilts his or her head back to keep the chin above the bar.
- The student's chin falls below the bar.

### *Scoring*

The score is the number of seconds for which the student is able to maintain the correct hanging position.

### *Suggestions for Test Administration*

- The body must not swing during the test. If the student starts to swing, the teacher or assistant should hold an extended arm across the front of the thighs to prevent the swinging motion.
- Only one trial is permitted unless the teacher believes that the pupil has not had a fair opportunity to perform.

## *Flexibility*

Maintaining adequate joint flexibility is important to functional health. However, for young people, decreased flexibility is generally not a problem. Many of your students will easily pass the flexibility item; therefore, the flexibility item has been made optional. If you decide not to administer the flexibility test, remember that you should teach students about flexibility and inform them that maintaining flexibility and range of motion will be important as they age.

### *Back-Saver Sit and Reach*

➪ *Optional*

The back-saver sit and reach is very similar to the traditional sit and reach except that the measurement is performed on one side at a time. By testing one leg at a time a determination can be made of any asymmetry in hamstring flexibility, and hyperextension of both knees is avoided. The sit and reach measures predominantly the flexibility of the hamstring muscles. Normal hamstring flexibility allows rotation of the pelvis in forward bending movements and posterior tilting of the pelvis for proper sitting.

The back-saver sit and reach has been shown to provide extremely consistent scores when administered under standardized conditions. The back-saver sit and reach has also been shown to be a reasonably accurate measure of hamstring flexibility. When compared with criterion measures of hamstring flexibility, the correlations for both right and left legs have been moderate to high. Conversely, the back-saver sit and reach has been shown to correlate poorly with criterion tests

*( continued )*

of low back flexibility. Therefore, the back-saver sit and reach cannot be considered a valid measure of low back flexibility and should not be interpreted as such.

## Test Objective

To be able to reach the specified distance on the right and left sides of the body. The distance required to achieve Healthy Fitness Zone is adjusted for age and gender.

## Equipment and Facilities

This assessment requires a sturdy box approximately 12 inches high. A measuring scale is placed on top of the box with the 9-inch mark parallel to the face of the box against which the student's foot will rest. The "zero" end of the ruler is nearest the student. Instructions for construction of a special measuring apparatus are available. However, a wooden box and yardstick will suffice.

Tape the yardstick to the top of the box with the 9-inch mark at the nearest edge of the box. The "zero" end of the yardstick is nearest the student.

## Test Instructions

The student removes his or her shoes and sits down at the test apparatus. One leg is fully extended with the foot flat against the face of the box. The other knee is bent with the sole of the foot flat on the floor. The instep is placed in line with, and 2 to 3 inches to the side of, the straight knee. The arms are extended forward over the measuring scale with the hands placed one on top of the other. With palms down, the student reaches directly forward (keeping back straight and the head up) with both hands along the scale four times and holds the position of the fourth reach for at least 1 second. After one side has been measured, the student switches the position of the legs and reaches again. The student may allow the bent knee to move to the side as the body moves

**PHOTO © Human Kinetics.** Starting position for measuring the right side.

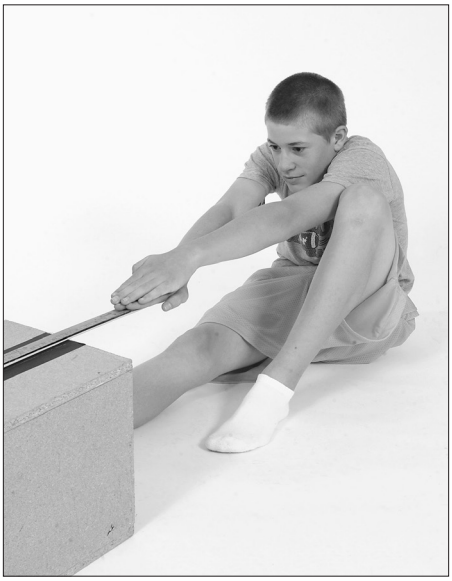


**PHOTO © Human Kinetics.** Back-saver sit and reach stretch for the right side.

*( continued )*

forward if necessary, but the sole of the foot must remain on the floor.

### Scoring

Record the number of inches on each side to the nearest 1/2 inch reached, to a maximum score of 12 inches. Performance is limited to discourage hypermobility. To be in the Healthy Fitness Zone, the student should meet the standard on both the right and the left sides.

### Suggestions for Test Administration

- The bent knee moves to the side, allowing the body to move past it, but the sole of the foot must remain on the floor.
- Keep the back straight and the head up during the forward flexion movement.
- The knee of the extended leg should remain straight. Tester may place one hand above the student's knee to help keep the knee straight.
- Hands should reach forward evenly.
- The trial should be repeated if the hands reach unevenly or the knee bends.
- Hips must remain square to the box. Do not allow the student to turn the hip away from the box while reaching.

## Shoulder Stretch

➪ *Optional*

The shoulder stretch is a simple test of upper arm and shoulder girdle flexibility intended to parallel the strength/endurance assessment of that region. If used alternately with the back-saver sit and reach, it may be useful in educating students that flexibility is specific to each joint and that hamstring flexibility neither represents a total body flexibility nor is the only part of the body where flexibility is important.

**PHOTO © Human Kinetics.** Shoulder stretch on the right side.

**PHOTO © Human Kinetics.** Shoulder stretch on the left side.

*( continued )*

Shoulder Stretch *( continued )*

## *Test Objective*

To be able to touch the fingertips together behind the back by reaching over the shoulder and under the elbow.

## *Equipment and Facilities*

No equipment is necessary to complete this test item.

## *Test Description*

Allow students to select a partner. The partner judges ability to complete the stretch.

To test the right shoulder, partner A reaches with the right hand over the right shoulder and down the back as if to pull up a zipper or scratch between the shoulder blades. At the same time partner A places the left hand behind the back and reaches up, trying to touch the fingers of the right hand. Partner B observes whether the fingers touch.

To test the left shoulder, partner A reaches with the left hand over the left shoulder and down the back as if to pull up a zipper or scratch between the shoulder blades. At the same time partner A places the right hand behind the back and reaches up, trying to touch the fingers of the left hand. Partner B notes whether the fingers touch.

## *Scoring*

If the student is able to touch his or her fingers with the left hand over the shoulder, a "Y" is recorded for the left side; if not, an "N" is recorded. If the student is able to touch the fingers with the right hand over the shoulder, a "Y" is recorded for the right side; otherwise an "N" is recorded. To achieve the Healthy Fitness Zone, a "Y" must be recorded on both the right and left side.

# INTERPRETING FITNESSGRAM RESULTS

*FITNESSGRAM* uses criterion-referenced standards to evaluate fitness performance. These standards have been established to represent a level of fitness that offers some degree of protection against "hypokinetic" diseases (i.e., conditions that result from sedentary living). Performance is classified in two general areas: Healthy Fitness Zone (HFZ) and the "Needs Improvement" zone. Attaining the HFZ for a test indicates that the child has a sufficient fitness level to provide important health benefits. The "Needs Improvement" zone should be interpreted as an indication that the child may be at risk if that level of fitness stays the same over time. For the body composition item, a third Very Low area is designated within the HFZ. Scores falling in this area deserve special attention to determine why the student's score is very low.

This chapter explains how the criterion-referenced standards are established for the different assessments, how maturation and development can influence fitness results, and how to specifically interpret results from the different dimensions of fitness.

## Derivation of Criterion-Referenced Standards

To help children understand and interpret these results, it is important to have a basic understanding of how the standards are established. Unlike the percentile-based standards that are used in some fitness batteries, the criterion-referenced standards used in *FITNESSGRAM* are anchored to an outcome that has inherent meaning and importance. Several slight adjustments have been made in the $\dot{V}O_2$max, PACER, and body composition standards since this manual was first published. Detailed information on the derivation of the criterion-referenced standards is available in the *FITNESSGRAM Reference Guide*—see the chapter "Physical Fitness Standards for Children" by Morrow and Falls. The following paragraphs provide brief descriptions of the basis for the standards.

The aerobic fitness standards were established with the use of nationally representative data from the National Health and Nutrition Examination

Survey (NHANES). Data on levels of aerobic capacity (measured with a submaximal clinical exercise test) were associated with the presence of metabolic syndrome, which is a collection of factors that are associated with an increased risk for diabetes and cardiovascular disease (including high triglycerides, high blood pressure, and high levels of circulating insulin). Numerous studies have documented that physical fitness provides protection against health risks, even among overweight youth. Studies have also shown that the benefits of physical fitness may be independent of physical activity. These findings support the importance of evaluating potential health risks that result from low levels of fitness.

The aerobic fitness standards establish three zones based on potential risks for future health problems. The Healthy Fitness Zone was established by determining the level of fitness required for a low risk for future health problems. The Needs Improvement—Health Risk zone defines levels of fitness that indicate potential health risks (current or future risks). Youth between the two zones are classified in an intermediate zone referred to as Needs Improvement.

The aerobic fitness standards are based on estimated aerobic capacity. Each of the primary assessments provides estimates of aerobic capacity, but differences in the tests and the associated prediction equations can lead to differences in fitness classification (depending on what test is used). To minimize misclassification, the PACER test score is equated to a corresponding mile run time to determine estimated aerobic capacity. This improves the classification agreement between the two assessments. Detailed information on the derivation of these standards is available in the chapter Aerobic Capacity Assessments in the *FITNESSGRAM Reference Guide*.

The body composition standards were established with the use of nationally representative data from the National Health and Nutrition Examination Survey (NHANES). Data on body fat were associated with the presence of metabolic syndrome, a collection of risk factors that are associated with an increased risk for diabetes and cardiovascular disease (including high triglycerides, high blood pressure, and high levels of circulating insulin). Evidence from numerous epidemiological studies has documented that body fat levels and associated risk factors track throughout adolescence and into adulthood. It is important to identify youth who may be at increased risk so that preventive or treatment programs can be initiated.

The body composition standards establish three zones based on potential risks for future health problems. The Healthy Fitness Zone was established by determining body fat values that indicate a low risk for potential health problems. The Needs Improvement—Health Risk zone, in contrast, defines levels of body fatness that indicate a clear or substantial risk for future health problems. Youth between the two zones are classified into an intermediate zone referred to as Needs Improvement. These youth are not considered to be at high risk but should be encouraged to keep working to reduce body fat until they reach the Healthy Fitness Zone.

The body fat standards were then equated to corresponding BMI values to ensure good classification agreement between the body fat standards and BMI standards. The two assessments are very different and can't be expected to have perfect agreement. However, the BMI standards can be interpreted in a similar way as the body fat standards described previously. The widely accepted CDC growth charts have proven useful in identifying potential health risk, but these are based on percentile norms rather than health-related standards. These standards are useful for population tracking and surveillance, but the FITNESSGRAM BMI standards provide more specific information about individual health risks. Detailed information on the derivation of the body fat and BMI standards is available in the chapter Body Composition Assessment in the *FITNESSGRAM Reference Guide*.

Criterion-referenced standards for the musculoskeletal fitness assessments are more difficult to establish than those for aerobic capacity or body composition. The reason is that there are few immediate health risks associated with poor musculoskeletal fitness. Lack of strength, muscle endurance, and flexibility may increase the risk of injuries and back problems later in life, but children are not as susceptible to these health problems. This delayed risk makes it more difficult to determine how much fitness is needed to provide important health benefits in this dimension of fitness. The approach for most of these test items is to utilize a "contrasting group methodology" to determine the amount of fitness in each of the tests that would be possible with a reasonable amount of training. By comparing a "trained" group to an "untrained" group it is possible to establish cut-points that are empirically based and anchored to training responses from exercise rather than health outcomes.

The Healthy Fitness Zone standards for boys and girls (following pages) provides a list of standards that define the HFZ for each of the assessments. All students should strive to achieve a score that places them inside the HFZ. It is possible for some students to score above the HFZ. *FITNESSGRAM* acknowledges performances above the HFZ but

## *FITNESSGRAM*® Standards for Healthy Fitness Zone®

**BOYS**

| Age | Aerobic capacity $\dot{V}O_2$max (ml/kg/min) PACER, one-mile run, and walk test | | | Percent body fat | | | | Body mass index | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | NI-Health Risk | NI | HFZ | Very Lean | HFZ | NI | NI-Health Risk | Very Lean | HFZ | NI | NI-Health Risk |
| 5 | Completion of test. Lap count or time standards not recommended. | | | ≤8.8 | 8.9-18.8 | 18.9 | ≥27.0 | ≤13.8 | 13.9-16.8 | 16.9 | ≥18.1 |
| 6 | | | | ≤8.4 | 8.5-18.8 | 18.9 | ≥27.0 | ≤13.7 | 13.8-17.1 | 17.2 | ≥18.8 |
| 7 | | | | ≤8.2 | 8.3-18.8 | 18.9 | ≥27.0 | ≤13.7 | 13.8-17.6 | 17.7 | ≥19.6 |
| 8 | | | | ≤8.3 | 8.4-18.8 | 18.9 | ≥27.0 | ≤13.9 | 14.0-18.2 | 18.3 | ≥20.6 |
| 9 | | | | ≤8.6 | 8.7-20.6 | 20.7 | ≥30.1 | ≤14.1 | 14.2-18.9 | 19.0 | ≥21.6 |
| 10 | ≤37.3 | 37.4-40.1 | ≥40.2 | ≤8.8 | 8.9-22.4 | 22.5 | ≥33.2 | ≤14.4 | 14.5-19.7 | 19.8 | ≥22.7 |
| 11 | ≤37.3 | 37.4-40.1 | ≥40.2 | ≤8.7 | 8.8-23.6 | 23.7 | ≥35.4 | ≤14.8 | 14.9-20.5 | 20.6 | ≥23.7 |
| 12 | ≤37.6 | 37.7-40.2 | ≥40.3 | ≤8.3 | 8.4-23.6 | 23.7 | ≥35.9 | ≤15.2 | 15.3-21.3 | 21.4 | ≥24.7 |
| 13 | ≤38.6 | 38.7-41.0 | ≥41.1 | ≤7.7 | 7.8-22.8 | 22.9 | ≥35.0 | ≤15.7 | 15.8-22.2 | 22.3 | ≥25.6 |
| 14 | ≤39.6 | 39.7-42.4 | ≥42.5 | ≤7.0 | 7.1-21.3 | 21.4 | ≥33.2 | ≤16.3 | 16.4-23.0 | 23.1 | ≥26.5 |
| 15 | ≤40.6 | 40.7-43.5 | ≥43.6 | ≤6.5 | 6.6-20.1 | 20.2 | ≥31.5 | ≤16.8 | 16.9-23.7 | 23.8 | ≥27.2 |
| 16 | ≤41.0 | 41.1-44.0 | ≥44.1 | ≤6.4 | 6.5-20.1 | 20.2 | ≥31.6 | ≤17.4 | 17.5-24.5 | 24.6 | ≥27.9 |
| 17 | ≤41.2 | 41.3-44.1 | ≥44.2 | ≤6.6 | 6.7-20.9 | 21.0 | ≥33.0 | ≤18.0 | 18.1-24.9 | 25.0 | ≥28.6 |
| >17 | ≤41.2 | 41.3-44.2 | ≥44.3 | ≤6.9 | 7.0-22.2 | 22.3 | ≥35.1 | ≤18.5 | 18.6-24.9 | 25.0 | ≥29.3 |

| Age | Curl-up (no. completed) | Trunk lift (inches) | 90° push-up (no. completed) | Modified pull-up (no. completed) | Flexed arm hang (seconds) | Back-saver sit and reach* (inches) | Shoulder stretch |
|---|---|---|---|---|---|---|---|
| 5 | ≥2 | 6-12 | ≥3 | ≥2 | ≥2 | 8 | Healthy Fitness Zone = touching fingertips together behind the back on both the right and left sides. |
| 6 | ≥2 | 6-12 | ≥3 | ≥2 | ≥2 | 8 | |
| 7 | ≥4 | 6-12 | ≥4 | ≥3 | ≥3 | 8 | |
| 8 | ≥6 | 6-12 | ≥5 | ≥4 | ≥3 | 8 | |
| 9 | ≥9 | 6-12 | ≥6 | ≥5 | ≥4 | 8 | |
| 10 | ≥12 | 9-12 | ≥7 | ≥5 | ≥4 | 8 | |
| 11 | ≥15 | 9-12 | ≥8 | ≥6 | ≥6 | 8 | |
| 12 | ≥18 | 9-12 | ≥10 | ≥7 | ≥10 | 8 | |
| 13 | ≥21 | 9-12 | ≥12 | ≥8 | ≥12 | 8 | |
| 14 | ≥24 | 9-12 | ≥14 | ≥9 | ≥15 | 8 | |
| 15 | ≥24 | 9-12 | ≥16 | ≥10 | ≥15 | 8 | |
| 16 | ≥24 | 9-12 | ≥18 | ≥12 | ≥15 | 8 | |
| 17 | ≥24 | 9-12 | ≥18 | ≥14 | ≥15 | 8 | |
| >17 | ≥24 | 9-12 | ≥18 | ≥14 | ≥15 | 8 | |

*Test scored Yes/No; must reach this distance on each side to achieve the HFZ.

## *FITNESSGRAM*® Standards for Healthy Fitness Zone®

**GIRLS**

| Age | Aerobic capacity $\dot{V}O_2$max (ml/kg/min) | | | Percent body fat | | | | Body mass index | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | PACER, one-mile run, and walk test | | | | | | | | | | |
| | NI-Health Risk | NI | HFZ | Very Lean | HFZ | NI | NI-Health Risk | Very Lean | HFZ | NI | NI-High Risk |
| 5 | Completion of test. Lap count or time standards not recommended. | | | ≤9.7 | 9.8-20.8 | 20.9 | ≥28.4 | ≤13.5 | 13.6-16.8 | 16.9 | ≥18.5 |
| 6 | | | | ≤9.8 | 9.9-20.8 | 20.9 | ≥28.4 | ≤13.4 | 13.5-17.2 | 17.3 | ≥19.2 |
| 7 | | | | ≤10.0 | 10.1-20.8 | 20.9 | ≥28.4 | ≤13.5 | 13.6-17.9 | 18.0 | ≥20.2 |
| 8 | | | | ≤10.4 | 10.5-20.8 | 20.9 | ≥28.4 | ≤13.6 | 13.7-18.6 | 18.7 | ≥21.2 |
| 9 | | | | ≤10.9 | 11.0-22.6 | 22.7 | ≥30.8 | ≤13.9 | 14.0-19.4 | 19.5 | ≥22.4 |
| 10 | ≤37.3 | 37.4-40.1 | ≥40.2 | ≤11.5 | 11.6-24.3 | 24.4 | ≥33.0 | ≤14.2 | 14.3-20.3 | 20.4 | ≥23.6 |
| 11 | ≤37.3 | 37.4-40.1 | ≥40.2 | ≤12.1 | 12.2-25.7 | 25.8 | ≥34.5 | ≤14.6 | 14.7-21.2 | 21.3 | ≥24.7 |
| 12 | ≤37.0 | 37.1-40.0 | ≥40.1 | ≤12.6 | 12.7-26.7 | 26.8 | ≥35.5 | ≤15.1 | 15.2-22.1 | 22.2 | ≥25.8 |
| 13 | ≤36.6 | 36.7-39.6 | ≥39.7 | ≤13.3 | 13.4-27.7 | 27.8 | ≥36.3 | ≤15.6 | 15.7-22.9 | 23.0 | ≥26.8 |
| 14 | ≤36.3 | 36.4-39.3 | ≥39.4 | ≤13.9 | 14.0-28.5 | 28.6 | ≥36.8 | ≤16.1 | 16.2-23.6 | 23.7 | ≥27.7 |
| 15 | ≤36.0 | 36.1-39.0 | ≥39.1 | ≤14.5 | 14.6-29.1 | 29.2 | ≥37.1 | ≤16.6 | 16.7-24.3 | 24.4 | ≥28.5 |
| 16 | ≤35.8 | 35.9-38.8 | ≥38.9 | ≤15.2 | 15.3-29.7 | 29.8 | ≥37.4 | ≤17.0 | 17.1-24.8 | 24.9 | ≥29.3 |
| 17 | ≤35.7 | 35.8-38.7 | ≥38.8 | ≤15.8 | 15.9-30.4 | 30.5 | ≥37.9 | ≤17.4 | 17.5-24.9 | 25.0 | ≥30.0 |
| >17 | ≤35.3 | 35.4-38.5 | ≥38.6 | ≤16.4 | 16.5-31.3 | 31.4 | ≥38.6 | ≤17.7 | 17.8-24.9 | 25.0 | ≥30.0 |

| Age | Curl-up (no. completed) | Trunk lift (inches) | 90° push-up (no. completed) | Modified pull-up (no. completed) | Flexed arm hang (seconds) | Back-saver sit and reach* (inches) | Shoulder stretch |
|---|---|---|---|---|---|---|---|
| 5 | ≥2 | 6-12 | ≥3 | ≥2 | ≥2 | 9 | Healthy Fitness Zone = touching fingertips together behind the back on both the right and left sides. |
| 6 | ≥2 | 6-12 | ≥3 | ≥2 | ≥2 | 9 | |
| 7 | ≥4 | 6-12 | ≥4 | ≥3 | ≥3 | 9 | |
| 8 | ≥6 | 6-12 | ≥5 | ≥4 | ≥3 | 9 | |
| 9 | ≥9 | 6-12 | ≥6 | ≥4 | ≥4 | 9 | |
| 10 | ≥12 | 9-12 | ≥7 | ≥4 | ≥4 | 9 | |
| 11 | ≥15 | 9-12 | ≥7 | ≥4 | ≥6 | 10 | |
| 12 | ≥18 | 9-12 | ≥7 | ≥4 | ≥7 | 10 | |
| 13 | ≥18 | 9-12 | ≥7 | ≥4 | ≥8 | 10 | |
| 14 | ≥18 | 9-12 | ≥7 | ≥4 | ≥8 | 10 | |
| 15 | ≥18 | 9-12 | ≥7 | ≥4 | ≥8 | 12 | |
| 16 | ≥18 | 9-12 | ≥7 | ≥4 | ≥8 | 12 | |
| 17 | ≥18 | 9-12 | ≥7 | ≥4 | ≥8 | 12 | |
| >17 | ≥18 | 9-12 | ≥7 | ≥4 | ≥8 | 12 | |

*Test scored Yes/No; must reach this distance on each side to achieve the HFZ.

does not recommend this level of performance as an appropriate goal level for all students. However, students who desire to achieve a high level of athletic performance may need to consider setting goals beyond the HFZ. Students, especially younger students, may need assistance in setting realistic goals.

## Influence of Body Size and Maturity on Fitness

Body size (height and weight) is to some extent related to physical fitness as measured by a combination of tests. Although there is much variability among individuals, the influence of body size on fitness is especially apparent in two ways:

1. Excess weight associated with fatness tends to have a negative influence on aerobic capacity and on test items in which the body must be lifted or moved (e.g., upper body strength items).
2. Variation in body size associated with maturity can influence fitness around the time of the adolescent growth spurt and sexual maturation. There is considerable variation among individuals in the timing of this maturation period. In adequately nourished children, the timing is largely determined by genetics. Within a given age group of early-adolescent children, there will be great variation in the maturation level.

Changes in body fatness and body size can have major effects on fitness test performance. Boys show a clear growth spurt in muscle mass, strength, power, and endurance and a decrease in subcutaneous fat on the arms and legs. Girls show considerably smaller growth spurts in strength, power, and endurance and tend to accumulate body fat compared to boys. During periods of rapid maturational change, children may experience an increase or decrease in their abilities to perform on certain test items completely independent of their levels of physical activity.

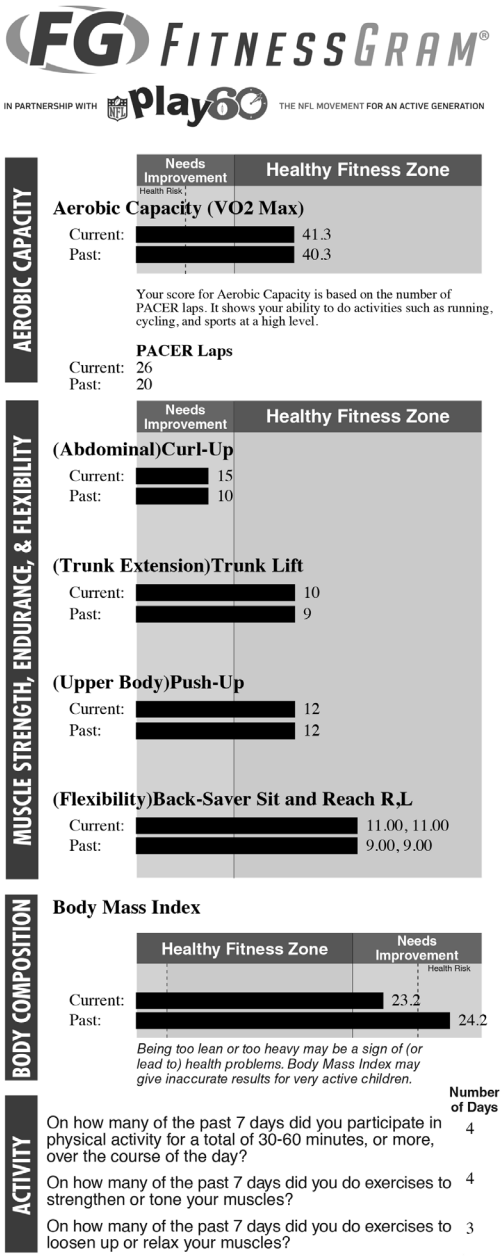
## Interpreting Performance on Physical Fitness Assessments

The *FITNESSGRAM* report provides personalized feedback that can help a child (and parent) become more informed about levels of health-related fitness. A sample report is shown on the next page to highlight some of the features. As is evident in the report, it uses easy-to-read bar charts to indicate fitness levels for each of the completed tests. Comparisons between the past and the current tests allow for some indication of trends over time. Personalized feedback messages that appear in the text blocks help provide individualized feedback to the students. The feedback is processed using internal algorithms in the software that take into account a child's overall fitness profile. Students with favorable scores on the assessments (i.e., those reaching the HFZ) receive congratulatory messages and remind-ers to maintain their involvement in physical activity. Students with less favorable scores (i.e., those in the "Needs Improvement" zone) receive supportive messages and prescriptive feedback about how to be more active and how to improve their scores.

If scores for more than one assessment in a fitness area are entered in the software, the following guidelines are used to determine which result will be printed:

- If one performance is in the HFZ and the other is not, the better performance will be printed.
- If the performances on all assessments are in the HFZ or are not in the HFZ, the default item will print (PACER, percent body fat, 90° push-up, back-saver sit and reach).

While the assessments in the *FITNESSGRAM* battery have good reliability and validity, the results of the tests should still be used as only rough indicators. A number of factors can influence fitness scores, and most are not within a child's control. As mentioned previously, maturation and development can have a major impact on a child's fitness scores. A child's fitness level and response to training are also determined to a great degree by their genetics. Some children will improve performance more rapidly than others. Some children will be able to perform at a much higher level than others regardless of training levels. Rather than emphasizing a child's fitness scores, it is more important to emphasize involvement in regular physical activity. Good physical fitness levels will not be of much value if they are not maintained through continued involvement in physical activity.




Sample *FITNESSGRAM* computer report. Information on the FITNESSGRAM software is available at www.fitnessgram.net. For information on the PYFP funding opportunity, which provides the software and other elements, please visit www.pyfp.org.

Because the different dimensions of fitness are influenced by different factors, the following sections provide specific information to help summarize how each dimension of fitness should be interpreted and how each can be improved.

## Aerobic Capacity

Aerobic capacity indicates the ability of the respiratory, cardiovascular, and muscular systems to take up, transport, and utilize oxygen during exercise and activity. A laboratory measure of $VO_2$max is generally the best measure of aerobic capacity. *FITNESSGRAM* output for this area of fitness is now the calculated score for aerobic capacity. This calculated score on aerobic capacity may be used in comparing performance from one test date to another or among different test items. A low score on the aerobic field test may be influenced by many factors:

- Actual aerobic capacity level
- Body composition
- Running and walking efficiency and economy
- Motivation level during the actual testing experience
- Extreme environmental conditions
- Ability to pace on the one-mile run and the walk test
- Genetics and innate ability

Changes in any of these factors may influence the test score.

Aerobic capacity can be improved substantially in an unconditioned person who participates regularly in sustained activities involving large muscle groups. The amount of improvement is related to the beginning level of fitness and to the intensity, duration, and frequency of the training. The major part of the improvement will occur during the first six months. Thereafter, improvement will be much slower. Boys and girls who are overfat may expect an improvement in the aerobic capacity measure with a reduction in body fat.

Changes caused by maturation can influence results on the tests. For boys, aerobic capacity in relation to body weight stays relatively constant during the growing years. For girls, aerobic capacity tends to remain constant between ages 5 and 10 years but decreases after age 10 due to increasing sex-specific essential fat. Running economy, however, also exerts an influence on absolute performance. In boys, for example, one-mile run test scores tend to improve progressively with age, even though $VO_2$max expressed relative to body weight tends to remain constant, because running economy improves. In 10- to 12-year-old girls, these field test scores also tend to improve as the result of improved running economy; but between ages 12 and 18, scores tend to remain relatively constant because improved running economy is offset by declining $VO_2$max expressed relative to body weight. The differences in age-related changes in the relation of the one-mile run or PACER test scores to running economy are taken into account when the scores are converted to estimated $VO_2$max by equations in the FITNESS-GRAM program software and in the online FITNESSGRAM score sheet provided free of charge on www.pyfp.org.

## Body Composition

Body composition standards have been established for both percent body fat calculated from triceps and calf skinfold measurements (for college students, abdominal skinfold is also included) and for BMI calculated from measurements of weight and height. The HFZ standards fall between the Very Lean category and the Needs Improvement categories. Scores that fall either below or above the HFZ should receive attention, because those students have greater potential than others to develop health problems related to their level of fatness or leanness.

The Healthy Fitness Zone standards for boys and girls indicate the HFZ for both percent fat and BMI as well as the Needs Improvement, Needs Improvement—Health Risk, and the Very Lean categories. Ideally, students should strive to be within the HFZ. A score in the Needs Improvement category indicates that the student is either overfat or the student's weight is too high for his or her height. However, students who are extremely muscular may have a BMI in the Needs Improvement area but may not have excess fat. Students in the Needs Improvement category should work to move into the HFZ because their level of body composition puts them at some risk of developing health problems. Students in the Needs Improvement—Health Risk category must be strongly encouraged to modify their activity and eating behaviors to begin reducing their weight. Students in this Health Risk category have a great possibility of developing health problems now and in the future if their body composition does not change.

When interpreting body composition scores, remember the following:

- Skinfold measurements provide an estimate of body fatness.
- A 3% to 5% error in body fat measurement is associated with the skinfold method.
- Body mass index provides an estimate of the appropriateness of the weight for the height.
- Body mass index may falsely identify a very muscular lean person as overfat (too heavy for height) or a lightweight person with little muscular development and a large percentage of fat as being in the HFZ when the person is actually overfat.

In general, students who score in the Needs Improvement category should be encouraged to work toward the HFZ by slowly changing their body weight through increased physical activity and decreased consumption of high-calorie, low-nutrient foods. Changing dietary habits and exercise habits can be very difficult. Students with severe obesity or eating disorders may need professional assistance in their attempts to modify their behaviors. Evidence in adults clearly indicates that participation in regular physical activity moderates the health risks associated with obesity. Because this relationship likely holds true for children as well, emphasis for overweight children should be on being physically active and not on absolute weight or fat loss.

It is important to remember when interpreting body composition results that most students who are overfat may also have performances in other test areas that are outside the HFZ. An improvement in body composition will generally result in an improved performance in aerobic capacity and also muscular strength and endurance, especially in the upper body, due to a reduction in excess weight.

*FITNESSGRAM* also identifies students who are exceptionally lean. Students in this range (designated as very lean) receive a message indicating that being this lean may not be best for health. A score in the Very Lean category is treated as being in the HFZ with respect to the output on the *FITNESSGRAM* report.

Parents and teachers should notice students who are categorized as very lean and should consider factors that may be responsible for their low level of body fat. Many students may naturally be very lean, whereas others may have inappropriate nutritional patterns. A few students may have eating disorders. A factor to consider is whether the student's level of fat has suddenly changed from within the optimal range to a level identified as very lean. Severe changes may signal a potential problem. Creating awareness of a child's current status is the primary purpose in identifying lean students. Changes in status should be monitored.

*FITNESSGRAM* results can be very helpful in allowing students to follow changes in their levels of body fat over time. Obesity is a health problem for both children and adults, and results of tracking studies reveal that overweight and obesity track through the life span. To reduce problems with weight later in life, it is important

to address the problem earlier, before the lifestyle patterns and physiological changes are firmly established.

### Muscular Strength, Endurance, and Flexibility

Students who score poorly in one or more areas of muscle strength, endurance, and flexibility should be encouraged to participate in calisthenics and other strengthening and stretching activities that will develop those areas. However, it is essential to remember that physical fitness training is very specific and that the areas of the body being tested represent only a fraction of the total body.

To focus on activities that develop the extensors of the arms without equal attention to the flexors of the arms will not accomplish the important objective, which is to develop an overall healthy musculoskeletal system. Remember, you must have strength and flexibility in the muscles on both sides of every joint. A useful activity for all students is to identify exercises to strengthen and stretch the muscles at every major joint of the trunk, upper body, and lower body.

Poor performance on the measures of abdominal strength and trunk extensor strength and flexibility may merit special attention. Gaining strength and flexibility in these areas may help prevent low back pain, which affects millions of people, young and old.

## Summary of Fitness Testing Principles

In interpreting performance on physical fitness assessments, it is most important to remember the following:

- The physical fitness experience should always be fun and enjoyable.
- Physical fitness testing should not become a competitive sport.
- The performance of one student should not be compared to that of another student.
- The primary reason for testing is to provide the student with personal information that may be used in planning a personal fitness program.
- The performance level on fitness tests should not be used as a basis for grading.

The FITNESSGRAM program strongly encourages the use of process-based recognition based on physical activity. Performance recognition is also acceptable but generally should not be used to the exclusion of recognition for being regularly active. The Presidential Active Lifestyle Award (PALA+), described later in this manual, is an alternative award that may be used in addition to, or in place of, the Presidential Youth Fitness Award. The awards and recognition component of the Presidential Youth Fitness Program can reward youth for maintaining or improving levels of fitness needed for good health.

To further enhance communication with parents, the FITNESSGRAM software offers a report written specifically for parents.

This report will give parents a better understanding of the fitness assessment process, which may help them to assist their children in being physically active. It is very important that parents play a supportive role in their children's physical activity and fitness program.

# Effective Ways of Using Assessment Results

*Provided by SHAPE America for the Presidential Youth Fitness Program*

## Philosophy

Combining fitness measurement and instruction is an appropriate instructional strategy for physical education and should be the main reason for measuring fitness. Measurement without a plan for using the data does little to serve students' needs and is not an educationally sound practice.

According to Meredith and Welk (2007), "The ultimate long-term objective of a physical education program is to teach students the physical and behavioral skills they need to be active for life." (1) Learning physical skills is essential and provides students with the opportunity to experience and enjoy a variety of physical activities. Developing a health-enhancing level of fitness and competence in a variety of skills will make it easier for students to learn sports and activities that they can perform to be physically active throughout their lives. Students also need behavioral skills to help them understand the intrinsic rewards associated with daily physical activity. Students need to learn to self-assess their personal fitness levels, analyze the data, develop personal fitness plans, and, ultimately, motivate themselves to remain physically active for a lifetime.

No matter what students aspire to become, they will live happier, more productive lives if they are healthy. Maintaining appropriate levels of physical fitness is vital to overall health, so the connection between maintaining personal fitness and overall health is a strong one.

## Normative-Referenced Versus Criterion-Referenced Measurement

Fitness measurement can be divided into two types: norm-referenced and criterion-referenced.

Norm-referenced measurement compares a large sampling of student performances to determine fitness standards relative to each other.

Criterion-referenced measurement, on the other hand, compares student scores to a set standard of health-related fitness that will indicate the level of fitness necessary for good health regardless of other students' scores. Criterion-referenced measurements are based on a large sample of individuals' scores, which are analyzed with those individuals' risk factors for chronic diseases that affect long-term wellness. Scoring in this fashion places more focus on achieving health-related fitness.

## Guidelines for Measurement Administration

Physical educators are placing more emphasis on health- related fitness. Using a pretest assessment allows students to establish baseline data for fitness and the foundation for developing personal fitness plans, setting goals, and evaluating progress toward those goals. Maintaining personal physical activity and nutrition logs are an integral part of the process, because they encourage students to focus on the process of improving fitness and not just an analysis of one-time scores.

Linking fitness measurement to the established curriculum and encouraging students to assume responsibility for their own health and wellness is the goal of all fitness measurement.

With proper measurement administration, the following appropriate practices support this belief.

- Use valid, reliable, and objective measures for all fitness measurement.
- Follow specific protocols for each measurement item. If using peer assessment, allow adequate time for instruction in the measurement administration.
- Ensure adequate instruction and ample practice time before formal measurement. Provide two to three weeks of instruction and preparation, for example, before measuring for aerobic capacity for items such as the Progressive Aerobic Cardiovascular Endurance Run (PACER) test or mile run.
- Use a research-based set of standards or criteria for evaluating data.
- Keep student fitness scores confidential; do not post them.
- Consider administering fitness measurement in a small-group or station setting. Avoid administering the measurement items in a format that may embarrass or humiliate students.
- Allow for the monitoring of personal fitness and activity goals by ensuring that measurement administration is ongoing.
- Conduct no formal measuring for fitness in grades K-3. Instead, place emphasis on physical activity and instruction in the health-related fitness components.
- Establish a positive and motivating measurement environment for students.

## Uses for Fitness Data

Fitness measurement can enhance teaching and learning in physical education when the key guidelines provided here are followed. These guidelines ensure the proper use of fitness measurement in relation to national standards and developmentally appropriate instruction.

### Appropriate Uses

Fitness measurement facilitates the process of fitness education. Students are made aware of the components of health-related fitness and how to evaluate their personal levels of fitness through self-measurement.

Teaching self-measurement is an important objective because it provides the tools and experiences for students to learn how to measure themselves and develop personal fitness plans throughout life. Teachers should assure each student that his or her fitness information will be kept confidential and will not be shared with peers, unless the student desires it.

The main goal for fitness measurement is making students – and their parents – aware of the benefits of fitness. Students can use the personalized reports as a means to determine their own fitness levels and to take steps toward maintaining or improving their personal fitness levels. By providing personalized reports for the parents, including information about a student's level of health-related fitness, teachers can enhance parental involvement in promoting physical activity.

Reporting can take place through parent/teacher conferences or by sending reports via mail or email. *Note:* It's important to help parents interpret the results of the fitness measurement and suggest strategies for how to maintain or improve their student's fitness levels.

Students can use fitness data to explore types of activities that will lead to improving their personal fitness. Examining fitness data and the procedure for developing fitness plans can motivate students to make changes in their personal fitness levels.

The sequence of fitness plan development should include:

- Fitness data analysis
- Goal-setting based on test results
- Linking physical activities to personal goals
- Developing logs and journals and other physical activity measures

All of those strategies can be included as part of personal fitness portfolios that students create from year to year, as well as with annual student fitness results. Schools also can use fitness measurement to examine their instructional programs.

By analyzing school data, schools can determine areas of concentration and begin the discussion of how to make instruction- related changes in the physical education program to address areas of student need. Analyzing the data may show the need for more professional development, for example, to improve various aspects of health-related fitness, and it may reinforce the need for curriculum development within a school or school system.

**Inappropriate Uses**

Inappropriate uses of fitness measurement include grading students and evaluating teacher effectiveness.

*Grading Students*

Because students differ in terms of interests and ability, teachers should not use student scores to evaluate individual students within K-12 physical education. Grading students on fitness may constitute holding them accountable for results that are beyond their control.

Likewise, posting fitness results can create a situation that fosters negative attitudes toward physical activity. Recognizing and posting students' fitness scores for fitness can create a feeling of frustration among students who struggle with their personal fitness levels.

Instead, recognizing student success in improving fitness levels can provide a more positive way to acknowledge student achievement. Rather than posting names of students who have attained a high level of fitness, recognizing students who have improved fitness scores over time from year to year may be a better strategy.

Also, posting names of students who are participating in the appropriate activities to improve or maintain their fitness can serve as an effective way of recognizing appropriate practices for improving fitness.

Exempting students from physical education based on high fitness test scores also constitutes an inappropriate practice related to fitness scores. Attaining a high level of fitness performance doesn't mean that a student will have the knowledge, skills, and motivation to be fit and active for a lifetime.

Standards-based grading should reflect students' knowledge of activities and concepts related to fitness education, including their understanding of fitness concepts, their ability to plan a fitness program by using appropriate activities, their maintaining a physical activity or nutrition log, and their developing personal portfolios related to fitness.

*Evaluating Teacher Effectiveness*

Teachers can be effective at helping students develop and maintain fitness and still have students not perform well on fitness measurements. A better way to assess teacher effectiveness is to assess whether students understand the process for fitness improvement. Examining students' knowledge of the steps needed for developing a fitness plan provides a more accurate evaluation of teacher effectiveness. All teachers should strive to assess the "process, not the product" for fitness improvement.

## Evaluating Physical Education Programs Overall

Promoting physical fitness is only one part of quality physical education programs. Other aspects include:

- competency in motor skill and movement patterns
- understanding of movement concepts, principles and tactics
- cooperation and conflict resolution as part of personal and social behavior
- valuing physical activity

## Summary

Current concerns about the health and wellness of our youth have generated widespread interest in fitness measurement. Many states have begun the process of instituting statewide or districtwide fitness measurement.

It's important to remember that fitness measurement alone will not make students more fit. Instead, helping them value physical education and physical activity will serve as the foundation for improving personal health. Students' health-related fitness will improve only by using sound instruction practices and providing students with the knowledge and skills they need to be physically active for a lifetime.

# The Vision: Active and Fit Youth

(Reprinted excerpts from the *Physical Activity Guidelines Midcourse Report: Strategies to Increase Physical Activity Among Youth*[2])

Regular physical activity in children and adolescents promotes health and fitness. Compared to those who are inactive, physically active youth have

- higher levels of cardiorespiratory fitness and stronger muscles
- lower body fatness
- stronger bones
- reduced symptoms of anxiety and depression

Youth who are regularly active also have a better chance of a healthy adulthood. In the past, chronic diseases, such as heart disease, hypertension, or type 2 diabetes were rare in youth. However, a growing literature is showing that the incidence of these chronic diseases and their risk factors are now increasing among children and adolescents.

Regular physical activity makes it less likely that these risk factors and resulting chronic diseases will develop and more likely that our kids will remain healthy as adults.

## Current Levels of Physical Activity among Youth

Despite the importance of regular physical activity in promoting lifelong health and well-being, current evidence shows that levels of physical activity among youth remain low, and that levels of physical activity decline dramatically during adolescence.

Opportunities for regular physical activity are limited in many schools. Daily PE is provided in only 4 percent of elementary schools, 8 percent of middle schools, and 2 percent of high schools.

In addition, the 2011 National Youth Risk Behavior Survey (YRBS), which collects self-reported physical activity data from high school students across the United States, found that many youth are not meeting the recommended 60 minutes of physical activity each day:

- 29 percent of high school students participated in at least 60 minutes per day of physical activity on each of the 7 days before the survey. Boys were more than twice as likely as girls to meet the guidelines (38 percent vs. 19 percent).
- 14 percent of high school students did not participate in 60 or more minutes of any kind of physical activity on any day during the 7 days before the survey.

A separate study of U.S. youth used accelerometers to objectively measure physical activity. This study found that 42 percent of children and only 8 percent of adolescents engaged in moderate- to vigorous-intensity activity on 5 of the past 7 days for at least 60 minutes each day.

In 2008, the U.S. Department of Health and Human Services (HHS) issued the first comprehensive guidelines on physical activity for individuals ages 6 and older. The 2008 Physical Activity Guidelines for Americans provide information on the amount, types, and intensity of physical activity needed to achieve health benefits across the lifespan.

2. Physical Activity Guidelines for Americans Midcourse Report Subcommittee of the President's Council on Fitness, Sports & Nutrition. *Physical Activity Guidelines for Americans Midcourse Report: Strategies to Increase Physical Activity among Youth.* Washington, D.C.: U.S. Department of Health and Human Services, 2012.

The guidelines provide physical activity guidance for youth ages 6 to 17 and focus on physical activity beyond the light-intensity activities of daily life, such as walking slowly or lifting light objects. As described in the guidelines, youth can achieve substantial health benefits by doing moderate- and vigorous-intensity physical activity for periods of time that add up to 60 minutes or more each day. This activity should include aerobic activity as well as age-appropriate muscle- and bone-strengthening activities (see Key Guidelines box).

Current science suggests that as with adults, the total amount of physical activity is more important in helping youth achieve health benefits than is any one component (frequency, intensity, or duration) or specific mix of activities (aerobic [e.g., tag, bike riding], muscle-strengthening [e.g., push-ups, climbing trees], or bone strengthening [e.g., hopscotch, tennis]).

Parents and other adults who work with or care for youth should be familiar with the guidelines, as adults play an important role in providing age-appropriate opportunities for physical activity. They need to foster active play in children and encourage sustained and structured activity in adolescents. In doing so, adults help lay an important foundation for lifelong health, for youth who grow up being physically active are more likely to be active adults.

## Key Guidelines for Children and Adolescents

Children and adolescents should do 60 minutes (1 hour) or more of physical activity daily.

- Aerobic: Most of the 60 or more minutes a day should be either moderate- or vigorous-intensity aerobic physical activity and should include vigorous-intensity physical activity at least 3 days a week.
- Muscle-strengthening: As part of their 60 or more minutes of daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least 3 days of the week.
- Bone-strengthening: As part of their 60 or more minutes of daily physical activity, children and adolescents should include bone-strengthening physical activity on at least 3 days of the week.

It is important to encourage young people to participate in physical activities that are appropriate for their age, that are enjoyable, and that offer variety.

## Role of Schools

More than 55 million children were expected to attend public or private school in the fall of 2012 and a typical school day lasts approximately 6 to 7 hours, making schools an ideal setting to provide physical activity to students. School-based physical activity can provide a substantial amount of students' daily physical activity as well as engage them in opportunities to enhance their motor skill development, fitness, and decision making, cooperation, and conflict resolution skills.

Promoting physical activity in schools has traditionally been a part of the U.S. education system, and schools continue to play a critical role in promoting physical activity. This can occur in a variety of ways, such as through encouraging participation in physical education (PE) classes, recess, or other activity breaks during the school day, active transport to and from school, sports clubs, intramural and interscholastic programs, and afterschool programs.

Schools are a key setting for physical activity interventions also because of a growing body of research focusing on the association between physical activity and academic achievement. These studies indicate that school-based physical activity can improve grades, standardized test scores, cognitive skills, concentration, and attention.

## A Closer Look at Opportunities to Increase Physical Activity through Physical Education

PE provides students the opportunity to obtain the knowledge and skills needed to establish and maintain a physically active lifestyle through childhood and adolescence and into adulthood. PE can enhance students' knowledge and skills about why and how they should be physically active, increase participation in physical activity, and increase fitness.

Traditionally, PE has been characterized by sports- and performance-based curriculum and instruction. A newer approach—enhanced PE—is characterized by a focus on increasing overall physical activity, particularly moderate-to-vigorous intensity physical activity during PE class.

## Enhanced PE

Enhanced PE can increase the amount of time students are active during PE classes as well as increase students' physical fitness levels. Enhanced PE is characterized by the following components:

- Increasing the amount of time students spend in moderate-to-vigorous intensity physical activity during PE lessons.
- Adding more physical education classes to the school curriculum.
- Lengthening the time of existing physical education classes.
- Meeting the physical activity needs of all students, including those with disabilities.
- Including activities that are enjoyable for students while emphasizing knowledge and skills that can be used for a lifetime.

## Conclusion

School settings hold a realistic and evidence-based opportunity to increase physical activity among youth and should be a key part of a national strategy to increase physical activity.

# Presidential Active Lifestyle Award (PALA+)

The promotion and adoption of physical activity is at the heart of the Presidential Youth Fitness Program. The President's Challenge—the premier program of the President's Council on Fitness, Sports & Nutrition—offers PALA+ as a tool to encourage physical activity and healthy lifestyles. PALA+ is designed to motivate anyone aged 6 and older to make physical activity and healthy eating part of everyday life.

The physical activity requirements for PALA+ are 60 minutes/day for youth (ages 6-17), 30 minutes/day for adults, five days a week for six out of eight weeks. There are daily step equivalents for boys and girls and adults to allow for easier tracking with a pedometer. The nutrition component requires participants to add a weekly healthy eating goal and build upon those goals throughout the same six-week period. This helps participants make gradual changes that, when combined with regular physical activity, can improve overall health and well-being.

Participation in PALA+ is one way to meet the recommendations of the 2008 Physical Activity Guidelines for Americans. The healthy eating goals are based on the consumer messages from the Dietary Guidelines for Americans, 2010.

The healthy eating goals of PALA+ are:

- I made half my plate fruits and vegetables
- At least half of the grains that I ate were whole grains
- I chose fat-free or low-fat (1%) milk, yogurt, or cheese
- I drank water instead of sugary drinks
- I chose lean sources of protein
- I compared sodium (salt) in foods like soup and frozen meals and chose foods with less sodium
- I ate seafood this week
- I ate smaller portions

Once a participant meets his or her goals and earns the PALA+, he or she can receive a certificate signed by the co-chairs of the President's Council on Fitness, Sports and Nutrition or order other recognition items available from the President's Challenge at www.presidentschallenge.org.

The next two pages are provided by The President's Challenge. These can be copied and given to students, staff and parents who may be participating in PALA+.


## Presidential Active Lifestyle Award: Activity + Nutrition (PALA+)

PALA+ promotes physical activity AND good nutrition, because it takes both to lead a healthy lifestyle. Sign up for the six-week program to help you maintain or improve your health. Anyone age 6 and older can earn their PALA+ today – sign up at **www.presidentschallenge.org** or use the log on the reverse side.

**PHYSICAL ACTIVITY** A healthy life is an active life. Youth (6-17 years old) need to be active at least 60 minutes a day (or 11,000 steps for girls and 13,000 steps for boys). Adults (18 and older), 30 minutes (or 8500 steps). So, take a walk with friends, bike ride after dinner, garden, or play a game of basketball at the park. Get your heart pumping and your muscles moving. When you've logged six weeks of physical activity, congratulations. You've started a regular routine for a more active lifestyle.

**GOOD NUTRITION**
Start eating healthy. It's easier than you think! Take it one step at a time. Commit to one new healthy eating goal this week, and circle it on your weekly PALA+ log. The following week add a different goal – but make sure you continue to maintain your healthy eating goal(s) from the week(s) before. Focus on your healthy eating goals every week and remember, the more often you incorporate them into your lifestyle, the better you will feel. When you've achieved six different healthy eating goals, congratulations. You've started a routine for a healthier lifestyle.

### Tips for Healthy Eating:

**Make half your plate fruit and vegetables.**
Keep it simple by filling half your plate with fruits and vegetables at meal time. The more colorful you make your plate; the more likely you are to get the vitamins, minerals, and fiber your body needs to be healthy. Remember that all forms count – fresh, frozen, canned (fruit in water or 100% juice), dried, or 100% juice.

**Make half the grains you eat whole grains.**
An easy way to eat more whole grains is to switch from a refined grain food to a whole-grain food. For example, eat whole-wheat bread instead of white bread, brown rice instead of white rice, and low-fat popcorn instead of snack chips. Read the ingredients list and choose products that list a whole-grain ingredient first. Look for things like: "whole wheat," "brown rice," "bulgur," "buckwheat," "oatmeal," "rolled oats," "quinoa," or "wild rice."

**Choose fat-free or low-fat (1%) milk, yogurt, or cheese.**
To help build your bones and keep them strong, dairy products should be a key part of your diet because they provide calcium, vitamin D, and many other nutrients your bones need.

**Drink water instead of sugary drinks.**
Regular soda and other sweet drinks such as fruit drinks and energy drinks are high in calories because they have a lot of added sugar. Instead, reach for a tall glass of water. Try adding a slice of lemon, lime or watermelon or a splash of 100% juice to your glass of water if you want some flavor.

**Choose lean sources of protein.**
Meat, poultry, seafood, dry beans or peas, eggs, nuts, and seeds are considered part of the protein foods group. Select leaner cuts of ground beef (label says 90% lean or higher), turkey breast, or chicken breast. Grill, roast, poach, or boil meat, poultry, or seafood instead of frying. Include beans or peas in main dishes such as chili, stews, casseroles, salads, tacos, enchiladas, and burritos.

**Compare sodium in foods like soup and frozen meals and choose foods with less sodium.**
Read the Nutrition Facts label to compare sodium in foods like soup, bread, canned vegetables, and frozen meals – and choose the foods with lower amounts. Look for "low sodium," "reduced sodium," and "no salt added" on food packages.

**Eat some seafood.**
Seafood includes fish (such as salmon, tuna, and trout) and shellfish (such as crab, mussels, and oysters). Seafood has protein, minerals, and omega-3 fatty acids (heart healthy fat). Adults should try to eat at least 8 ounces a week of a variety of seafood. Children can eat smaller amounts of seafood too.

**Pay attention to portion size.**
Check to see what the recommended portion sizes of foods you eat look like in the bowls, plates, and glasses you use at home. For example – check 3/4 cup cereal, 3 ounces cooked chicken, 1 cup milk, 1/2 cup of juice. When dining out avoid "supersizing" your meal or buying "combo" meal deals that often include large size menu items. Choose small size items instead or ask for a "take home" bag and wrap up half of your meal to take home before you even start to eat.

PRESIDENTIAL YOUTH FITNESS PROGRAM

# PALA+ activity+nutrition

PRESIDENTIAL ACTIVE LIFESTYLE AWARD

PRESIDENT'S CHALLENGE PROGRAM

PRESIDENT'S COUNCIL ON FITNESS, SPORTS & NUTRITION

www.presidentschallenge.org

Participant Name _____ Age _____ Date Started _____

Group ID (if applicable) _____ Date Completed _____

**Week 1**

| Day | Physical Activities | # of Minutes or Pedometer Steps |
|---|---|---|
| Mon | | |
| Tues | | |
| Wed | | |
| Thurs | | |
| Fri | | |
| Sat | | |
| Sun | | |

Healthy Eating—Select a goal for this week.

**Week 2**

| Day | Physical Activities | # of Minutes or Pedometer Steps |
|---|---|---|
| Mon | | |
| Tues | | |
| Wed | | |
| Thurs | | |
| Fri | | |
| Sat | | |
| Sun | | |

Healthy Eating—Circle and continue with last week's goal, and add a new goal.

**Week 3**

| Day | Physical Activities | # of Minutes or Pedometer Steps |
|---|---|---|
| Mon | | |
| Tues | | |
| Wed | | |
| Thurs | | |
| Fri | | |
| Sat | | |
| Sun | | |

Healthy Eating—Circle and continue with previous goals, and add a new goal.

**Week 4**

| Day | Physical Activities | # of Minutes or Pedometer Steps |
|---|---|---|
| Mon | | |
| Tues | | |
| Wed | | |
| Thurs | | |
| Fri | | |
| Sat | | |
| Sun | | |

Healthy Eating—Circle and continue with previous goals, and add a new goal.

**Week 5**

| Day | Physical Activities | # of Minutes or Pedometer Steps |
|---|---|---|
| Mon | | |
| Tues | | |
| Wed | | |
| Thurs | | |
| Fri | | |
| Sat | | |
| Sun | | |

Healthy Eating—Circle and continue with previous goals, and add a new goal.

**Week 6**

| Day | Physical Activities | # of Minutes or Pedometer Steps |
|---|---|---|
| Mon | | |
| Tues | | |
| Wed | | |
| Thurs | | |
| Fri | | |
| Sat | | |
| Sun | | |

Healthy Eating—Circle and continue with previous goals, and add a new goal.

## Healthy Eating Goals

- I made half my plate fruits and vegetables
- At least half of the grains that I ate were whole grains
- I chose fat-free or low fat (1%) milk, yogurt, or cheese
- I drank water instead of sugary drinks
- I chose lean sources of protein
- I compared sodium in foods like soup and frozen meals and chose foods with less sodium
- I ate seafood
- I ate smaller portions

**INSTRUCTIONS:** **Online:** Create an online account at www.presidentschallenge.org. Participate as an individual or join a group (ID at the top of page if applicable). Once you achieve PALA, you're eligible to receive a certificate! **Paper:** Use this hard copy log to track your progress. Once completed, report your accomplishment and receive your certificate at www.presidentschallenge.org! Or, if part of a group, make sure to return it to your group administrator to get recognized.

# Recognition

## Show Your Students That Little Work Goes a Long Way

Because only modest amounts of physical activity are needed to obtain health benefits, most students who participate in physical activity almost every day will be able to achieve a score that will place them in the Healthy Fitness Zone® and earn them an opportunity to be recognized.

## Students in Grades 4–12: The Presidential Youth Fitness Award

The Presidential Youth Fitness Award is encouraged for use on students in grades 4-12. To be eligible to receive a Presidential Youth Fitness Award, a student must score in the Healthy Fitness Zone® in at least five test categories of the FITNESSGRAM® assessment. The test categories are:

- Aerobic capacity
- Body composition
- Abdominal strength and endurance
- Trunk extensor strength and flexibility
- Upper body strength and endurance
- Flexibility

Schools not assessing in one category, such as trunk extensor strength and flexibility (trunk lift), still have the opportunity to recognize students as long as they assess in the five remaining categories.

Like all youth, students with disabilities will benefit from lifelong engagement in physical activity and should have the opportunity to receive recognition for their achievements. In some cases, students not presently capable of participating in a particular FITNESSGRAM test may qualify for the Presidential Youth Fitness Award by participating in a test and achieving a standard from the Brockport Physical Fitness Test or through an exemption from a particular test item. Physical educators may decide that other students without identified disabilities, such as those with asthma, also need modifications in one or more of the test categories or for award qualification. We rely on your professional judgment to make those determinations. You know your students best.


## Additional Recognition Options

Some educators may prefer to recognize students for developing and maintaining healthy levels of physical activity and good nutrition habits. The Presidential Active Lifestyle Award (PALA+) is a great option to use in place of or in conjunction with the Presidential Youth Fitness Award or PYFP Fitness Club.

Physical educators or others wishing to recognize a student or students are not required to report scores or show proof of achievement of the award criteria. Recognition items may be ordered directly from the President's Challenge website, www.presidentschallenge.org or by calling the toll-free number: 1.800.258.8146.

### Students in Grades K–3: PYFP Fitness Club

Developed to reinforce the purpose of assessing students' health-related fitness in grades K–3, the PYFP Fitness Club puts the FUN in fitness. In order to "join" the club, students must show they can properly perform the designated FITNESSGRAM tests items. Award items include a fun classroom poster for students to track their progress and a certificate when they reach their goal.

## Recognize your participation in THE national fitness assessment program

To start celebrating your school's involvement in the Presidential Youth Fitness Program, make sure you download your free school recognition certificate. Display it prominently for all to see.

Don't forget to share your program successes with your community, too. Be proud of all you are doing to develop healthier, more physically active youth. Let others know how the valuable assessment information you are gathering is being used to inform programming in physical education and throughout the school day.

What happens in physical education shouldn't stay in physical education. The only way anyone—parents, administrators, or a possible local business partner is going to know about your valuable work is if you tell them.