

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 VO ₂ max (ml/kg/min)			Percent body fat				Body mass index			
	PACER, one-mile run, and walk test			Very Lean	HFZ	NI	NI-Health Risk	Very Lean	HFZ	NI	NI-Health Risk
	NI-Health Risk	NI	HFZ								
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.

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FITNESSGRAM® Standards for Healthy Fitness Zone®

GIRLS											
Age	Aerobic capacity VO ₂ max (ml/kg/min)			Percent body fat				Body mass index			
	PACER, one-mile run, and walk test			Very Lean	HFZ	NI	NI-Health Risk	Very Lean	HFZ	NI	NI-High Risk
	NI-Health Risk	NI	HFZ								
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.

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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

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 reminders 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).

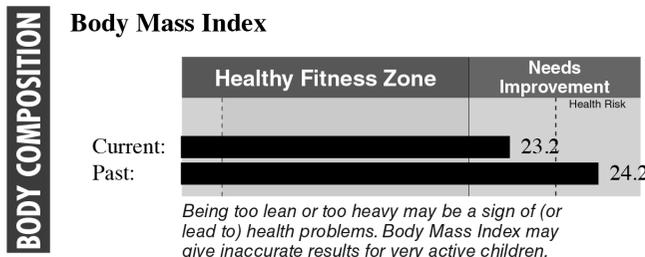
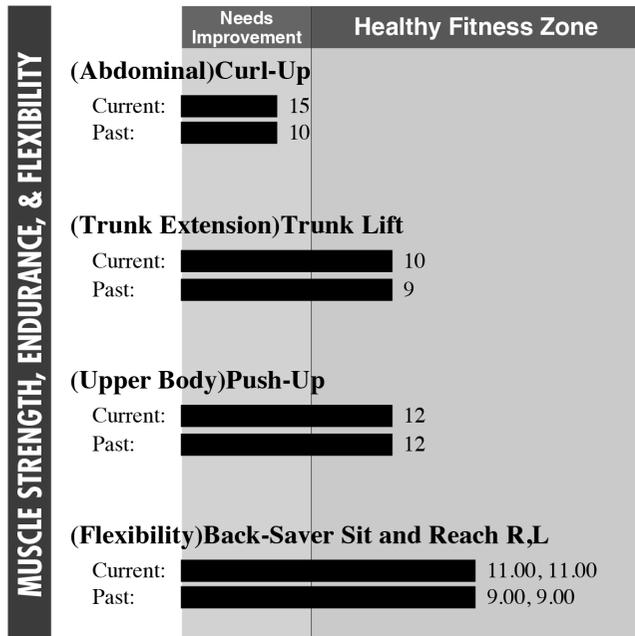
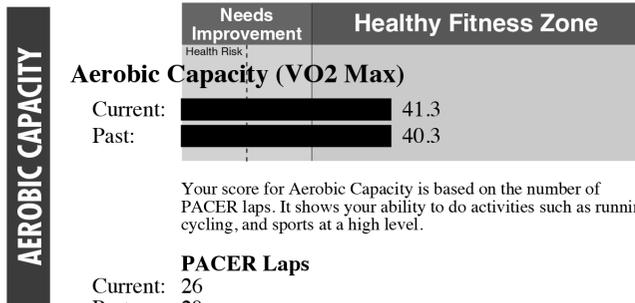
While the assessments in the *FITNESSGRAM* battery have good reliability and validity, the results of the tests should still be used as only rough indicators. A number of factors can influence fitness scores, and most are not within a child's control. As mentioned previously, maturation and development 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.



IN PARTNERSHIP WITH THE NFL MOVEMENT FOR AN ACTIVE GENERATION

Joe Jogger
 Grade: 5 Age: 12
 Washington Middle School
 Instructor(s): **Mary Jones**

	Date	Height	Weight
Current:	5/16/2013	5'1"	123 lbs
Past:	9/17/2012	4'11"	120 lbs



ACTIVITY

Question	Number of Days
On how many of the past 7 days did you participate in physical activity for a total of 30-60 minutes, or more, over the course of the day?	4
On how many of the past 7 days did you do exercises to strengthen or tone your muscles?	4
On how many of the past 7 days did you do exercises to loosen up or relax your muscles?	3

MESSAGES

Your aerobic capacity score is in the Healthy Fitness Zone now, but you could be more physically active. To maintain fitness, participate in physical activities that make you breathe hard for at least 60 minutes each day. BMI also affects aerobic capacity.

Your trunk and upper-body strength are both in the Healthy Fitness Zone. To maintain your fitness, be sure that your strength-training activities include exercises for each of these areas. Trunk exercises should be done 3 to 5 days each week. Strength activities for other areas should be done 3 days.

To improve your abdominal strength, be sure that your strength activities include curl-ups. You may need to do more curl-ups each day or do them more days of the week.

Your flexibility is in the Healthy Fitness Zone. To maintain your fitness, stretch slowly 3 or 4 days each week, holding the stretch 20-30 seconds. Don't forget that you need to stretch all areas of the body.

Body composition at this level may need improvement. Healthy body composition and regular physical activity are important for overall good health. Here are some tips to improve body composition:

- Be active for at least 60 minutes every day.
- Limit time spent watching TV or playing video games.
- Eat a healthy diet including fresh fruits and vegetables.
- Limit your calories from foods with solid fats and added sugars and avoid sugary drinks.

If you are usually very active this could be an incorrect result. Ask your parent or teacher for more information.

Healthy Fitness Zone for 12 year-old boys

- Aerobic Capacity: ≥ 40.3 ml/kg/min
- Curl-Up: ≥ 18 repetitions
- Trunk Lift: 9-12 inches
- Push-Up: ≥ 10 repetitions
- Back-Saver Sit and Reach: At least 8 inches on R & L
- Body Mass Index: 15.3 - 21.3

To be healthy and fit it is important to do some physical activity almost every day. Aerobic exercise is good for your heart and body composition. Strength and flexibility exercises are good for your muscles and joints.

Good job! You are doing some aerobic activity and strength and flexibility exercises. Additional vigorous activity would help to promote higher levels of fitness.

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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_2max 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_2max 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_2max 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_2max 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 fitness 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+) 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.