



# Monitoring Student Fitness Levels



## [Are you new to the Presidential Youth Fitness Program?](#)

The [Presidential Youth Fitness Program \(PYFP\)](#) provides resources and tools for physical educators to enhance their fitness education process. PYFP adopted FITNESSGRAM® as a tool for schools to assess student health-related fitness.

Some states, school districts, and schools use student fitness assessment results to monitor student fitness levels by combining student data to examine a collective view of fitness in their population.

*The primary purpose of PYFP is to improve fitness education and conduct individual student fitness assessment in the classroom. It is not the goal of PYFP to have schools collect fitness assessment data for states and school districts to monitor the percent of students in their population achieving fitness goals. If states, school districts, or schools choose to expand outside of the PYFP purpose and collect student fitness assessment results to monitor the percent of students in their population achieving fitness goals, they need to follow [safeguards](#).*

This brief describes this practice and provides [safeguards](#) and [considerations](#) for appropriately collecting and interpreting population-level fitness assessment results.

## STUDENT FITNESS ASSESSMENTS

### What is physical fitness?

Physical fitness is “the ability to carry out daily tasks with vigor and alertness, without undue fatigue, and with ample energy to enjoy leisure-time pursuits and respond to emergencies.”(p.53)<sup>1</sup>

Fitness may be either health- or skill-related. PYFP assesses student health-related fitness. Health-related fitness promotes cardiovascular and muscular health and prevents chronic conditions. Health-related fitness may be an indicator of health or health risks in young people.<sup>2</sup> Health-related fitness includes:

- Cardiorespiratory endurance (or aerobic capacity).
- Muscular endurance.
- Muscular strength.
- Flexibility.
- Body composition.

Alternatively, performance or skill-related fitness typically focuses on improving agility, balance, speed, power, coordination, and reaction time.<sup>1</sup>

***A national standard for physical education states that a student demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness.<sup>5</sup>***

**Is physical fitness assessment part of a quality physical education program?**

Yes. A quality physical education program includes four components:

- 1. Curriculum.
- 2. Policies and environment.
- 3. Instruction.
- 4. Student assessment.<sup>3</sup>

Student assessment covers

- Fitness.
- Knowledge.
- Out-of school assignments.
- Motor skills.
- Physical activity.<sup>4</sup>

**What is the purpose of fitness education?**

Fitness education and student fitness assessments offer students an opportunity to assess, track, and improve their fitness level. Physical educators can integrate FITNESSGRAM® into instruction as the link between fitness, health, and physical activity. Sharing individual student assessment results with parents may help increase parental awareness and involvement in a child’s overall health.

PYFP provides instructional strategies on fitness education, ways to recognize students’ fitness and physical activity achievements, and communication tools to promote awareness and understanding of the fitness education and assessment process.

**TESTING TO MONITOR STUDENT FITNESS LEVELS**

Physical educators, schools, school districts, and states may choose to combine their student fitness assessment scores to examine a collective view of student fitness levels in their population. This is referred to as *institutional testing*. These fitness assessment data can help inform curriculum development and revision and improve instruction on fitness skills.<sup>2, 6, 7, 8, 9</sup>

For this purpose, student data is anonymous; however, care must be taken that test protocols are consistent and administered within the same time period. It is recommended that institutional testing only be conducted periodically, such as every 3 years.<sup>10</sup>

**Why monitor student fitness levels?**

Schools, school districts, or states might use this data to identify the percentage of students in the population who are in the Healthy Fitness Zone® and the percentage of students who need improvement on the various fitness components.

**For more information:**  
[Chapter 2: What are Appropriate Practice Guidelines for using Fitness Tests. In: FITNESSGRAM/ACTIVITYGRAM reference guide. 4th ed.](#)  
[SHAPE America Appropriate Uses of Fitness Measurement](#)

**Healthy Fitness Zone®:** The student has a sufficient fitness level to provide important health benefits.  
**Needs Improvement:** The student may be at risk if that level of fitness stays the same over time.<sup>11</sup>

## Monitoring student fitness data can help states, school districts, and schools with the following:

- Identify fitness levels and weight status among students.
- Describe trends in fitness and weight status over time.
- Create awareness among school staff and administrators of the need to improve physical education and take steps to help increase physical activity.
- Provide an impetus to improve policies, practices, and services to improve fitness and promote healthy behaviors among children and adolescents.
- Identify demographic or geographic subgroups that need to improve fitness levels or are at greatest risk of low fitness. This can help practitioners and school staff target programmatic resources.
- Evaluate the effects of local efforts to improve fitness and address obesity.
- Assess progress toward achieving national health objectives.<sup>6, 8, 12</sup>

**FACT:** One in three school-aged youth are overweight and obese.<sup>14</sup> Weight status is one component of fitness assessment and is associated with health, physical activity behaviors, nutrition, and fitness.<sup>4, 15, 16</sup>

Additionally, fitness might influence adult behavior, health, and health care costs and there is growing interest around [fitness and academic performance](#).<sup>13, 17</sup>

## What are the recommendations for collecting fitness assessment data for monitoring student fitness levels?

*It is not the goal of the Presidential Youth Fitness Program (PYFP) to have schools collect fitness assessment data for states and school districts to monitor the percent of students in their population achieving fitness goals. First and foremost, the purpose of PYFP is to provide training and resources for physical educators to ensure the appropriate use and implementation of FITNESSGRAM® into fitness education, as well as student recognition, all within the context of a quality physical education program. PYFP recognizes the value of conducting fitness assessments across an entire state or school district to help institutionalize the practice and emphasize to the school community the importance of fitness as it relates to student health.<sup>8</sup>*



## What are the safeguards for monitoring student fitness levels?

If states, school districts, or schools choose to expand outside of the PYFP purpose and collect student fitness assessment results to monitor the percent of students in their population achieving fitness goals, they need to follow these safeguards on data collection, test administration, and reporting of results.

### Data Collection

- ✓ Comply with state and school district regulations for collecting such data.
- ✓ Have a process in place to receive, house, and analyze the data.
- ✓ Secure funding and personnel to maintain the database, provide professional development, analyze the data, and disseminate the results.
- ✓ Establish an office responsible for overseeing the data collection program.
- ✓ Consider collecting additional data on related health behaviors (e.g., physical activity).

### Test Administration

- ✓ Come to consensus on one standardized test, (i.e. which FITNESSGRAM® tests will be administered).
- ✓ Train physical educators on measuring student fitness and submitting student scores. [PYFP](#) can be a great resource.
- ✓ Ensure promotion of a broad, quality physical education program, beyond just fitness education.

### Reporting of Results

- ✓ Include steps to ensure that individual student fitness assessment results are kept confidential.
- ✓ Identify the intended audience for the results.
- ✓ Present results as the percentage of students achieving the Healthy Fitness Zone® for each individual fitness component.<sup>7, 8, 13</sup>

The measurement does not have to be frequent or annual. The data may be used to establish baselines or state reference points for comparing student scores.<sup>8</sup>

### Fitness assessment data should NOT be used to

- ✗ Evaluate physical educators' performance or effectiveness.
- ✗ Compare physical educators' performance across schools and school districts.
- ✗ Inform high stakes testing that measures teacher or school performance.
- ✗ Make the sole argument for the importance of physical education.
- ✗ Make causal associations to health outcomes, health behaviors, or academic performance.
- ✗ Analyze associations between fitness and other outcomes without considering other variables that influence fitness and the outcome of interest ([Figure 1](#)).<sup>7, 13</sup>



# CONSIDERATIONS FOR MONITORING STUDENT FITNESS LEVELS

## What concerns exist around monitoring student fitness levels?

School-based fitness assessment programs are not rigorous scientific studies, for which researchers train data collectors, use standardized protocol, and have a systematic process for data collection. Therefore, stakeholders should interpret the population data on the percent of students achieving fitness goals with caution. Monitoring this at the state, school district, and school has some of the following limitations.

### Applicability of results

States and localities need to be careful not to assume that fitness results are applicable to the entire student body when the results may only reflect those students who are enrolled in physical education.

### Biased results

Not all high school students are required to take physical education. Some students may self-select into physical education, which may introduce bias. Students who elect to enroll in physical education may be more athletically gifted and have higher fitness levels. Alternatively, students who are required to take physical education may lack motivation to participate in both class and the fitness assessment. An additional consideration is that those students who are exempted from physical education for sports participation may have more favorable fitness levels than those required to participate.

Bias may also be introduced if a state or school district requires all students to take the fitness assessment even when they are not enrolled in physical education. Those students would not be exposed to the same fitness education as students currently enrolled and may be at a disadvantage in their performance.

### Variety of measurement tools

Not all school sites will use the same measurement tool or fitness assessments. For example, student body composition may be measured through skinfold measurement, body mass index, or percent body fat. Therefore, the data will be influenced by the variety of measurement tools used across sites, making it more difficult to compare results within a school, across a school district or state, or over time. This may be especially problematic when examining data at the state-level.

### Test administration practices

Test administration might vary across schools, with some sites administering the entire fitness assessment protocol in one day while others administer the assessment across a week or longer. Some schools may choose to assess students at the beginning of the year, while others assess students near the end. Because fitness is affected by age, those older students may perform better. Either of these two scenarios can result in an advantage in performance for some students.<sup>7</sup>

**Figure 1. Fitness is influenced by a number of factors beyond physical activity. These include**

- Heredity.
- Maturation.
- Age.
- Nutrition.
- Environmental conditions (heat, humidity, pollution).
- Access to physical activity opportunities.
- Socioeconomic status.
- Trainability, or the amount a person is physically capable of improving their own fitness.<sup>2,7</sup>

Consistent measurement protocol techniques reduce the likelihood of error and increase the reliability of the results. Researchers studied the accuracy of data collection practices by physical educators across the state of Texas and found that physical educators were consistent in their measurement protocols.<sup>18</sup> The Presidential Youth Fitness Program provides free [professional development](#) resources on proper fitness assessment.



### How many states monitor student fitness levels at the state level?

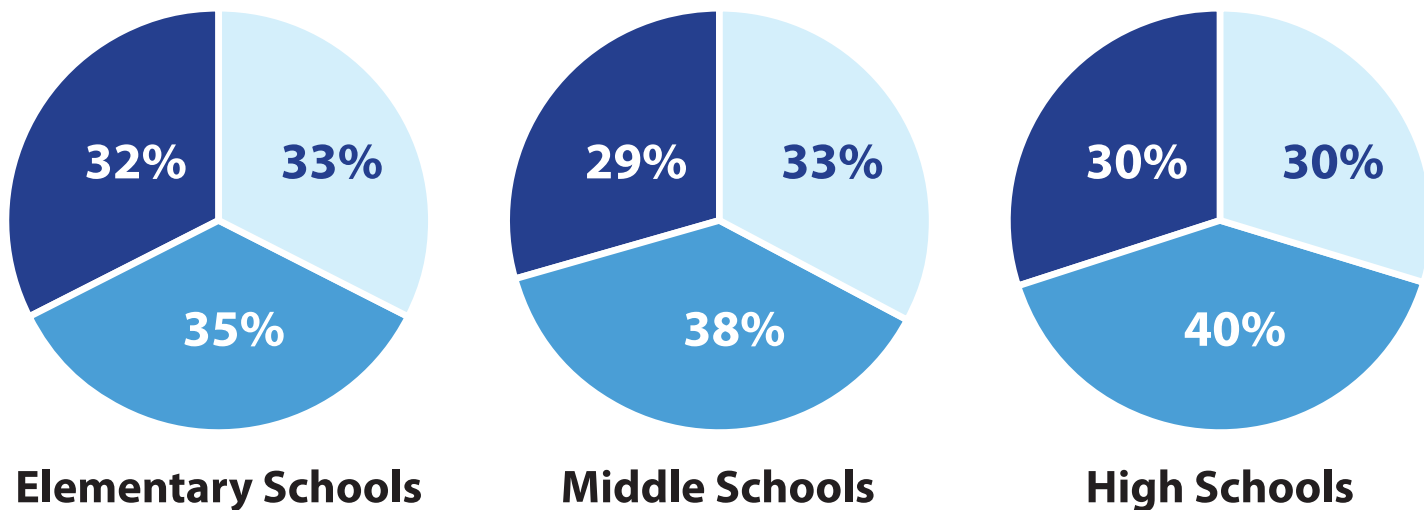
In 2012, 14 states, including the District of Columbia, collected student fitness assessment data at the state level and reported using these data to monitor student fitness levels, monitor student obesity rates, assess student performance in physical education, or help develop or improve policies, standards, or instruction for physical education. Approximately half of these states make the school or school district-level data publicly available, such as posting it on a Web site.<sup>19, 20</sup>

**Figure 2. States in which school districts and schools report fitness test data to the state education agency or state health department.<sup>19</sup>**

#### Fitness testing data are used to:

	Monitor student fitness levels	Monitor student obesity rates	Use fitness test data to assess student performance in physical education	Inform the development or improvement of policies, standards, or instruction for physical education	Make district- and school-level fitness testing data publically available (e.g., post on a Website)
Alabama	✓		✓	✓	✓
Arkansas					
California	✓	✓	✓	✓	✓
Connecticut	✓		✓	✓	✓
DC	✓		✓	✓	✓
Delaware	✓	✓		✓	
Georgia	✓	✓		✓	
Missouri	✓			✓	
South Carolina	✓	✓	✓	✓	
Tennessee	✓	✓		✓	
Texas	✓	✓		✓	✓
Virginia	✓			✓	✓
West Virginia	✓	✓		✓	✓
Wisconsin	✓			✓	

**Figure 3. Percentages of school districts that require or recommend elementary, middle, or high schools test students' fitness levels and require the schools to submit students' fitness test results to the state or school district—SHPPS 2012.<sup>21</sup>**



Require or recommend testing and require schools to submit test results.
  Require or recommend testing but do NOT require schools to submit test results.
  Neither require nor recommend testing.

**What percentages of school districts nationwide require or recommend schools to conduct fitness assessments?**

In 2012, the majority of school districts required or recommended that schools test students' fitness levels. Among those school districts, nearly half of them required schools to submit students' fitness test results to the state or school district.<sup>20</sup>

**What additional data can be collected to understand the connection between fitness and health?**

Data on physical activity.<sup>8</sup> Increased physical activity levels in young people are related to achievement of Healthy Fitness Zones®,<sup>22</sup> lower body fatness, stronger bones, reduced symptoms of anxiety and depression, and lower risk of developing risk factors for chronic diseases.<sup>1</sup> [ACTIVITYGRAM®](#), a complement to [FITNESSGRAM®](#), is a physical activity assessment tool that allows individuals to assess if they are meeting the recommendation of 60 minutes or more of daily physical activity.<sup>1</sup> The President's Challenge program also offers the [Presidential Active Lifestyle Award \(PALA+\)](#) to help young people and adults assess their physical activity and eating habits.

# STUDENT FITNESS DATA AND ACADEMIC PERFORMANCE

## What is academic performance?

Academic performance can be defined as

- Student cognitive skills and attitudes (e.g., attention, memory, comprehension).
- Academic behaviors (e.g., organization, attendance, impulse control).
- Academic achievement (e.g., standardized test scores, GPAs).<sup>17</sup>

Academic performance is linked to a number of factors including socioeconomic status, parent involvement, attendance, demographics, and student overall health and health behaviors.<sup>23, 24</sup>

## How is student fitness data related with academic performance outcomes?

Research has found a relationship between fitness and academic performance.<sup>24</sup> Additionally, youth physical activity, and specifically physical activity at school, may be associated with some aspects of academic performance.<sup>17, 23-25</sup> The results have spurred renewed interest at the local and state level in examining the relationship between fitness and academic performance.<sup>24, 26-29</sup> Of the 14 states (including DC) that reported collecting student fitness assessment data (Figure 2), 4 states (California, Delaware, Texas, West Virginia) published reports examining the relationship between student fitness scores and student academic performance.<sup>19, 27, 29-32</sup>

Fitness is a health outcome, whereas physical activity is a health behavior. Fitness is influenced by physical activity, along with other modifiable and fixed factors (Figure 1). Therefore, associations between fitness and academic performance might be the result of physical activity participation, nutrition, environment, and heredity, as opposed to fitness by itself. The Institute of Medicine reviewed the existing literature on the topic and concluded that the association between fitness and academic performance is driven by aerobic fitness, most likely a result of physical activity participation.<sup>24</sup>

### CAUTION

Use caution when interpreting results between fitness and academic performance. While one benefit of a school physical activity program might be improved academic performance, this is not the primary reason for starting or sustaining these programs. If associations between fitness and academic performance are not found, stakeholders may risk losing support for school physical activity programs.<sup>8</sup> Instead, stakeholders should present a comprehensive perspective of the benefits of physical education, physical activity, and fitness on health and academics as well as their effect on growth and development into adulthood.

In addition, results from analyses between fitness and academic performance may stigmatize students with low fitness, labeling them as poor performers in academics and potentially stunting academic potential. This rationale also applies to comparing individual fitness components, such as body composition, with academic performance.

## Should states, school districts, or schools examine the relationship between student fitness and academic performance outcomes?

*It is not the intent of the Presidential Youth Fitness Program (PYFP) to have schools collect student fitness assessment data for the purpose of examining the data with academic performance outcomes.* Research has established this relationship,<sup>24, 26-32</sup> and this activity may not be the most effective use of school resources.



## CONCLUSION

The [Presidential Youth Fitness Program \(PYFP\)](#) offers schools, school districts, and states an opportunity to improve fitness education and assessment within a comprehensive, quality physical education program. By offering FITNESSGRAM®, instructional strategies for physical educators, communication tools, and student recognition opportunities, PYFP can help students understand and measure their health-related fitness and learn how to improve it.

*It is not the goal of PYFP to have schools collect fitness assessment data for states and school districts to monitor the percent of students in their population achieving fitness goals. If researchers, decision makers, physical educators, and other stakeholders are considering using student fitness assessment results for purposes outside of fitness education, such as monitoring student fitness levels in their population, they should understand and [consider](#) both the opportunities and limits for using these data.*

If states, school districts, or schools choose to collect student fitness assessment results to monitor student fitness levels, they need to follow [safeguards](#).



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