

## Fitness Standards

Student's aerobic capacity or  $VO_2$ max score is assigned into one of three levels: in the Healthy Fitness Zone (HFZ), Needs Improvement (NI), or NI – High Risk. The preferred fitness level is the HFZ. A level of NI suggests that the student would gain from workouts designed to improve aerobic capacity. A level of NI – High Risk further points to increased health risks due to the student's aerobic capacity score. The aerobic capacity scores along with the standards for all the *FITNESSGRAM* test options have been set according to gender and age. The latest version of these standards is presented on the California Department of Education (CDE) Web page at <http://www.cde.ca.gov/ta/tg/pf/>.

It is important to keep in mind that a low  $VO_2$ max may be influenced by any of following factors:

- Aerobic capacity level
- Body composition
- Running or walking efficiency
- Motivation level
- Extreme weather
- Pacing skill

Progress in any of these factors may improve a student's  $VO_2$ max. Further,  $VO_2$ max can be improved by taking part in sustained large-muscle group exercise that follows the FITT Principle, which is based on increasing or varying:

- Frequency – number of days
- Intensity – level of effort or exertion
- Time – number of minutes spent exercising
- Type – exercise that target specific muscle groups



## 2011–12 California Physical Fitness Test



PACER



One-Mile Run



Walk Test

Additional information about the California PFT is available on the CDE PFT Web page at <http://www.cde.ca.gov/ta/tg/pf/>. Additional information about the *FITNESSGRAM*, including the philosophy and administration of the fitness tests, is available on the Human Kinetics *FITNESSGRAM* Web page at <http://www.fitnessgram.net/home/> (Outside Source).

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## Parent and Guardian Guide to the Physical Fitness Test and the *FITNESSGRAM*<sup>1</sup>—Aerobic Capacity

<sup>1</sup> The *FITNESSGRAM* and the Healthy Fitness Zones (HFZ) are registered trademarks of The Cooper Institute.

## Background

California *Education Code* Section 60800 requires each local educational agency (LEA) in California to administer a physical fitness test every year to all students in grades five, seven, and nine. The State Board of Education designated the *FITNESSGRAM* as the required Physical Fitness Test (PFT) for California public schools. The primary goal of the *FITNESSGRAM* is to assist students in establishing lifelong habits of regular physical activity.

## *FITNESSGRAM*

The *FITNESSGRAM* tests six main fitness areas that represent three broad components of fitness: (1) Aerobic Capacity, (2) Body Composition, and (3) Muscle Strength, Endurance, and Flexibility. This third component is further divided into four areas: Abdominal Strength and Endurance, Trunk Extensor Strength and Flexibility, Upper Body Strength and Endurance, and Flexibility.

This brochure provides parents and guardians with information about aerobic capacity. Information about the other fitness areas is available in the brochure entitled “Parent and Guardian Guide to the Physical Fitness Test and the *FITNESSGRAM*.”

## Aerobic Capacity

Aerobic capacity is a sign of how well the body uses air or oxygen during a workout or exercise. Active high-energy exercise improves aerobic capacity by strengthening the heart muscle and improving the function of the rest of the cardiorespiratory system. You may recall that at the start of a workout or exercise plan people often tire quickly and breathe hard because their bodies cannot get enough oxygen. As their fitness levels improve, their aerobic capacity improves, allowing them to exercise with less effort and for longer periods of time.

Aerobic capacity may well be the most important physical fitness area, as good aerobic capacity has been connected with a reduced risk of metabolic syndrome. Metabolic syndrome is a group of risk factors that together increase the chance of cardiovascular disease and the risk of diabetes. These risk factors include:

- High fasting glucose
- High waist circumference
- High triglycerides
- Low high-density lipoprotein cholesterol
- High blood pressure

The *FITNESSGRAM* provides the following three options for testing aerobic capacity so that all students, including those with special needs, can take part in the tests.

- PACER (Progressive Aerobic Cardiovascular Endurance Run)
- One-Mile Run
- Walk Test

## Aerobic Capacity Test Options

**One-Mile Run.** The purpose of the One-Mile Run is to walk or run a distance of one mile as fast as possible. The following information is required to calculate aerobic capacity from the One-Mile Run:

- Gender
- Age
- Time (minutes and seconds)
- Height (feet and inches)
- Weight (pounds)

**PACER.** The purpose of the PACER is to run as long as possible, going back and forth across a 15- or 20-meter distance and at a fixed pace that is set to music that gets faster each minute. The following information is required to calculate aerobic capacity from the PACER:

- Gender
- Age
- Number of 20-meter laps completed  
(If the 15-meter PACER is administered, the laps need to be converted to 20-meter laps using a table provided for this purpose.)
- Height (feet and inches)
- Weight (pounds)

**Walk Test.** This test is only for students who are 13 years or older. The purpose of the Walk Test is to walk a distance of one mile as quickly as possible while maintaining a constant walking pace for the entire distance. The heart rate is taken immediately after the walk. The following information is required to estimate aerobic capacity from the Walk Test:

- Gender
- Age
- Time (minutes and seconds)
- Heart Rate (beats per minute)
- Weight (pounds)

## VO<sub>2</sub>max

All three aerobic capacity test options are reported in terms of VO<sub>2</sub>max. VO<sub>2</sub>max refers to the maximum oxygen spent during exercise, where V = volume per time; O<sub>2</sub> = oxygen; and max = maximum.

VO<sub>2</sub>max, or aerobic capacity, is calculated using the student’s gender, age, test result (i.e., laps, time, heart rate), and Body Mass Index (BMI), which is obtained from the student’s height and weight. BMI is believed to be an important factor in predicting a student’s ability to perform aerobically. Estimating VO<sub>2</sub>max without including BMI is not as exact and could result in students being assigned to the wrong fitness level. In general, a student with a higher BMI will need to achieve a faster One-Mile Run time or more PACER laps to overcome the influence of the higher BMI on the estimated VO<sub>2</sub>max score. The formulas used to calculate aerobic capacity are presented in the *PFT Reference Guide* found on the California PFT Resources Web page at <http://www.pftdata.org/resouces.aspx> (Outside Source).