



# Fitness

## Physical Fitness Tests

### 1. Curl Up

Abdominal strength  
Muscular endurance

### 2. Mile Run & Pacer

Cardio respiratory endurance  
Aerobic Capacity

### 3. Push-up

Upper body strength  
Muscular endurance

### 4. Shoulder Stretch

Joint Flexibility

### 5. Body Mass Index

Body Composition

### 6. Trunk Extension

Lower Back Flexibility

### 7. Sit and Reach

Lower Back Flexibility  
Upper Leg Flexibility



## Components of Physical Fitness

### Health-Related Physical Fitness

- **Cardiovascular Fitness:** The ability of the heart, the blood vessels, and the respiratory system to deliver oxygen efficiently over an extended period of time. At least 60 minutes of moderate to vigorous aerobic activity should be accumulated daily.

**Examples:** \_\_\_\_\_

- **Body Composition:** Body Composition is the proportion of body fat to lean body mass.

**Examples:** \_\_\_\_\_

- **Flexibility:** The range of movement through which a joint or sequence of joints can move. Inactive individuals lose flexibility, whereas frequent movement helps retain the range of movement. Through stretching activities, the length of muscles, tendons, and ligaments is increased.

**Examples:** \_\_\_\_\_

- **Muscular Strength:** The ability of muscles to exert force; it is an important fitness component that facilitates learning motor skills.

**Examples:** \_\_\_\_\_

- **Muscular Endurance:** The ability to exert force over an extended period. Endurance postpones the onset of fatigue so that activities can be performed for lengthy periods.

**Examples:** \_\_\_\_\_

### Skill Related Physical Fitness

- **Agility:** Agility is the ability of the body to change position rapidly and accurately while moving. Wrestling and football are examples of sports that require agility.
- **Balance:** Balance refers to the body's ability to maintain a state of equilibrium while remaining stationary or moving. Maintaining balance is essential to all sports but is especially important in the performance of gymnastic activities.
- **Coordination:** Coordination is the ability of the body to smoothly and successfully perform more than one motor task at the same time. Needed for football, baseball, tennis, soccer, and other sports that require hand-eye and foot-eye skills, coordination can be developed by repeatedly practicing the skill to be learned.
- **Power:** Power is the ability to transfer energy explosively into force. To develop power, a person must practice activities that are required to improve strength but at a faster rate involving sudden bursts of energy. Skills requiring power include high jumping, long jumping, shot putting, throwing, and kicking.
- **Speed:** Speed is the ability of the body to perform movement in a short period of time. Usually associated with running forward, speed is essential for the successful performance of most sports and general loco-motor movement skills.
- **Reaction Time:** The amount of time needed to recognize a stimulus and respond accordingly.

## Why be physically fit?

Regular exercise can help you feel good, reduce stress, and work more productively. Physical fitness also helps students achieve greater success in academics. Activity increases the amount of oxygen in the brain and can help a person keep alert when learning new information. By being physically fit risk for disease is minimized, emergencies can be met, and life may be lived to the fullest.

Many physical benefits occur as a result of being physically fit. For instance, there is an increase in the efficiency of the heart and lungs, muscle strength and endurance, as well as an increase in bone strength. Regular exercise can also reduce blood pressure and risk of cardiovascular disease. Looking and feeling better by losing excess body fat and improving appearance may result from exercise, which may also improve your self-image.

## Preparing for Exercise

A good safe exercise program includes three stages: warm-up, workout, and cool down. The **warm-up** helps reduce muscle injury because warm-up and stretches increase muscle length and flexibility. Your heart is also a muscle and a warm-up helps it get ready for more vigorous exercise. A warm-up should last between one and three minutes. The goal is to gradually increase your heart rate.

The **workout** is the vigorous part of your exercise program. A fitness program should include an aerobic component. An **aerobic activity** is a steady exercise in which the heart rate is elevated for an extended period of time, allowing the heart to supply the muscles with all needed oxygen. Examples of aerobic exercise include jogging, cycling, walking and swimming. Activities performed in short, fast bursts are **anaerobic** because the heart cannot supply blood and oxygen to muscles as quickly as necessary. The 100 yard dash, basketball and handball are examples of anaerobic exercises. Anaerobic activities may be included in a workout program along with aerobic exercise. Your body needs to gradually **cool down** to recover from vigorous exercise. There must be a heart cool down and a muscle cool down and stretch. To relieve muscle cramps or soreness, stretch the muscles slowly (no bounce).

Your heart and blood vessels recover more efficiently if you move rather than sit or lie down after exercising. This cool down also helps keep you from becoming dizzy or even fainting. After the exercise, be sure to walk and not collapse in order to give your body the proper opportunity to cool down. Set aside a regular time to exercise. It takes between three and six weeks for a person who is exercising regularly (3 to 5 times per week for at least 20 minutes each time) to accomplish some specific fitness goals

## F. I. T. T. Principle

**Frequency:** how often a person performs the targeted health-related physical activity. For each component of health-related fitness, a safe frequency is three to five times a week.

**Intensity:** how hard a person exercises during a physical activity period. Intensity can be measured in different ways, depending on the health-related component. For example monitoring heart rate is one way to gauge intensity during aerobic endurance activities, but gives no indication of intensity during flexibility activities.

**Time:** the length of the physical activity. Time varies depending on the health-related fitness component targeted.

**Type:** type or specificity, refers to the specific physical activity chosen to improve a component of health-related fitness.

## Calculating Body Mass Index (BMI)

The imperial BMI formula accepts weight measurements in pounds & height measurements in feet.

*1 foot = 12 inches*

$$\text{BMI} = \frac{(\text{weight in pounds} \times 703)}{(\text{height in inches}^2)}$$

$$\text{BMI} = \frac{(\text{___ lbs.} \times 703)}{(\text{___ in.} \times \text{___ in.})}$$

## Cardiovascular System

The **heart** is a muscle that is oval-shaped and about the size of a fist. It weighs less than one pound. You can feel your heart at work by taking your **pulse**. Your pulse is a measure of the number of times your heart beats each minute. It can be taken on your wrist at your radial artery or on your neck at your carotid artery.

The heart and all the blood vessels in your body make up the **circulatory system**. The main job of the circulatory system is transportation. You might think of your blood as a vehicle for transporting oxygen, nutrients, and waste throughout your body. Blood travels through blood vessels, which are called **arteries** if they carry blood away from your heart and **veins** if they are carrying blood toward your heart.

The “average child” has 8 cups of blood in their body. The average adult has almost 3 times that amount (approx. 24 cups)! With every beat of your heart, all that blood is pumped throughout your entire body. Your heart works constantly, and doesn't take breaks.

As you can see, the heart accomplishes a tremendous task. A weak heart has difficulty getting the job done. Without the heart pumping blood throughout your body, the blood would just sit there, and your cells would scream for nutrients and oxygen (and for garbage pick-up)! Eventually, your Body's cells would die.

An **aerobic workout** is quite important because it strengthens the heart muscle and makes it work more efficiently (getting more done with less effort). A strong heart is able to pump more blood with each beat, and therefore does not have to pump as often.

## Exercise Specifics

The Surgeon General in the United States has determined that lack of physical activity is detrimental to your health. But how do we determine how much physical activity is enough to achieve good health? The simplest means of determining how much is to listen to your own body, listen to your heart -learn how fast it is beating. Good cardiovascular exercise depends on keeping our heart rate in the target zone for your age.

For general activities, a target heart rate zone of 70 - 85% of maximum heart rate has a positive effect on the heart and the circulatory system without being too strenuous. The level of strain is aerobic, that is, the intake of oxygen by the lungs and consumption of oxygen by the muscles are in balance.

When you exercise efficiently (within the target heart rate zone) physiological changes occur in relation to your heart. These changes include the following:

- Your heart becomes stronger
- Your resting heart rate will be lower
- Your heart's contraction capacity improves
- Your muscle's capacity to use oxygen improves
- Your body's oxygen intake improves
- The blood's capacity to transport oxygen improves



### Calculate target heart rate zone

$$220 - \text{____}(\text{age}) = \text{____}(\text{max HR})$$

$$\text{____}(\text{max HR}) \times .70 = \text{____}$$

$$\text{____}(\text{max HR}) \times .85 = \text{____}$$



**TABLE 9.2 FITNESSGRAM Standards for Healthy Fitness Zone**

		GIRLS					
Age	$\dot{V}O_{2\max}$ ( $\text{ml} \cdot \text{kg}^{-1} \cdot \text{min}^{-1}$ )	20-meter PACER (Enter # laps in software) <sup>†</sup>	15-meter PACER (Use conversion chart; enter in software) <sup>†</sup>	One-mile run (min:sec)	Walk test ( $\dot{V}O_{2\max}$ )	Percent fat	Body mass index
5		Participation in run.	Participation in run.	Completion of distance.		32	17
6		Lap count standards not recommended.	Lap count standards not recommended.	Time standards not recommended.		32	17
7						32	17
8						32	13
9						32	13
10	39	7	41	9	54	32	13
11	38	15	41	19	54	32	13
12	37	15	41	19	54	32	13
13	36	44	23	51	30	36	44
14	35	43	23	51	30	35	43
15	35	43	32	51	42	35	43
16	35	43	32	61	42	35	43
17	35	43	41	61	54	35	43
17+	35	43	41	72	54	35	43

Age	Curf-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	10	6	12	3	8	2
6	2	10	6	12	3	8	2
7	4	14	6	12	4	10	3
8	6	20	6	12	5	13	4
9	9	22	6	12	6	15	4
10	12	26	9	12	7	15	4
11	15	29	9	12	7	15	4
12	18	32	9	12	7	15	4
13	18	32	9	12	7	15	4
14	18	32	9	12	7	15	4
15	18	35	9	12	7	15	4
16	18	35	9	12	7	15	4
17	18	35	9	12	7	15	4
17+	18	35	9	12	7	15	4

Number on left is lower end of HFZ; number on right is upper end of HFZ.

\*Test scored Pass/Fail; must reach this distance to pass.

†Conversion chart on page 94.

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**TABLE 9.1 FITNESSGRAM Standards for Healthy Fitness Zone**

		BOYS					
Age	$\dot{V}O_{2\max}$ ( $\text{ml} \cdot \text{kg}^{-1} \cdot \text{min}^{-1}$ )	20-meter PACER (Enter # laps in software) <sup>†</sup>	15-meter PACER (Use conversion chart; enter in software) <sup>†</sup>	One-mile run (min:sec)	Walk test ( $\dot{V}O_{2\max}$ )	Percent fat	Body mass index
5		Participation in run.	Participation in run.	Completion of distance.		25	10
6		Lap count standards not recommended.	Lap count standards not recommended.	Time standards not recommended.		25	10
7						25	10
8						25	10
9						25	7
10	42	52	23	61	30	80	11:30
11	42	52	23	72	30	94	11:00
12	42	52	32	72	42	94	10:30
13	42	52	41	83	54	108	10:00
14	42	52	41	83	54	108	9:30
15	42	52	51	94	67	123	9:00
16	42	52	61	94	80	123	8:30
17	42	52	61	106	80	138	8:30
17+	42	52	72	106	94	138	8:30

Age	Curf-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	10	6	12	3	8	2
6	2	10	6	12	3	8	2
7	4	14	6	12	4	10	3
8	6	20	6	12	5	13	4
9	9	24	6	12	6	15	5
10	12	24	9	12	7	20	5
11	15	28	9	12	8	20	6
12	18	36	9	12	10	20	7
13	21	40	9	12	12	25	8
14	24	45	9	12	14	30	9
15	24	47	9	12	16	35	10
16	24	47	9	12	18	35	12
17	24	47	9	12	18	35	14
17+	24	47	9	12	18	35	14

Number on left is lower end of HFZ; number on right is upper end of HFZ.

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