

# Calculating Your VO<sub>2</sub> Max without a Treadmill

Fitness experts recognize cardio-respiratory endurance as the primary component of physical fitness because its improvement enhances energy output, promotes longer life, and positively influences the development of strength, muscle endurance, flexibility and body composition.

Each year, we are becoming more sedentary. Currently, three out of four Americans do not get enough physical activity to maintain a healthy lifestyle. Is it a coincidence that diabetes rates are skyrocketing or that obesity is at an all-time high? America is gaining 200 million pounds per year. Yankee Stadium used to seat 67,000 people – until 1976 when it was renovated with seats that were 4” wider to accommodate the growth of the rear ends of the fans! Now Yankee Stadium seats only 57,000!

There are many ways to measure one’s level of physical activity. One of the simplest, most meaningful measures can be obtained by looking at how much time it takes you to walk one mile. The main purpose of this lab is to determine your level of cardio-respiratory endurance. This will be done through walking a mile very briskly and recording your time and 10-sec heart rate.

Maximal Oxygen Consumption reflects the fitness level of the cardiovascular and respiratory systems. A good score reflects an energy level that can add greatly to a person’s quality of life. Measured in milliliters of oxygen per kilogram of body weight per minute, an oxygen consumption level of about 43ml/kg/min for young men and about 36ml/kg/min for young women would place a person in the upper 50th percentile and is a worthy goal. Maximal Oxygen Consumption (VO<sub>2</sub>max) is the body’s ability to transport and use oxygen while removing carbon dioxide.

## Walk a Mile Procedure

1. Walk the measured 1.0-mile course **AS FAST AS POSSIBLE**. Walk with an energy-efficient arm-swing. Pace well with good, relaxing breathing.
2. Record your total walking time: \_\_\_\_\_ minutes and \_\_\_\_\_ seconds.
3. Immediately take your pulse for 10 seconds at the carotid or radial artery and record: \_\_\_\_\_
4. Multiply your pulse by 6 to obtain your exercise HR (bpm). \_\_\_\_\_ X 6 = \_\_\_\_\_ bpm
5. Convert your time from min:sec to **min:fractions of a min** by dividing the seconds by 60.

(ie: if walking time is 13:20, then 20 sec/60 sec = .33 min, yielding a total of 13.33 min)

Total Walking Time in Minutes: \_\_\_\_\_

Using the information above, use the following formula to estimate your VO<sub>2</sub> max in ml/kg/min.

$$\text{VO}_2 \text{ max} = 88.768 - (0.0957 \times \text{Wt}) + (8.892 \times \text{G}) - (1.4537 \times \text{Tt}) - (0.1194 \times \text{HR})$$

Where *Wt* = body weight (lbs), *G* = gender (0 = female, 1 = male), *Tt* = total time to walk one mile (min:fraction of min), and *HR* = 60 second heart rate at the end of the test.