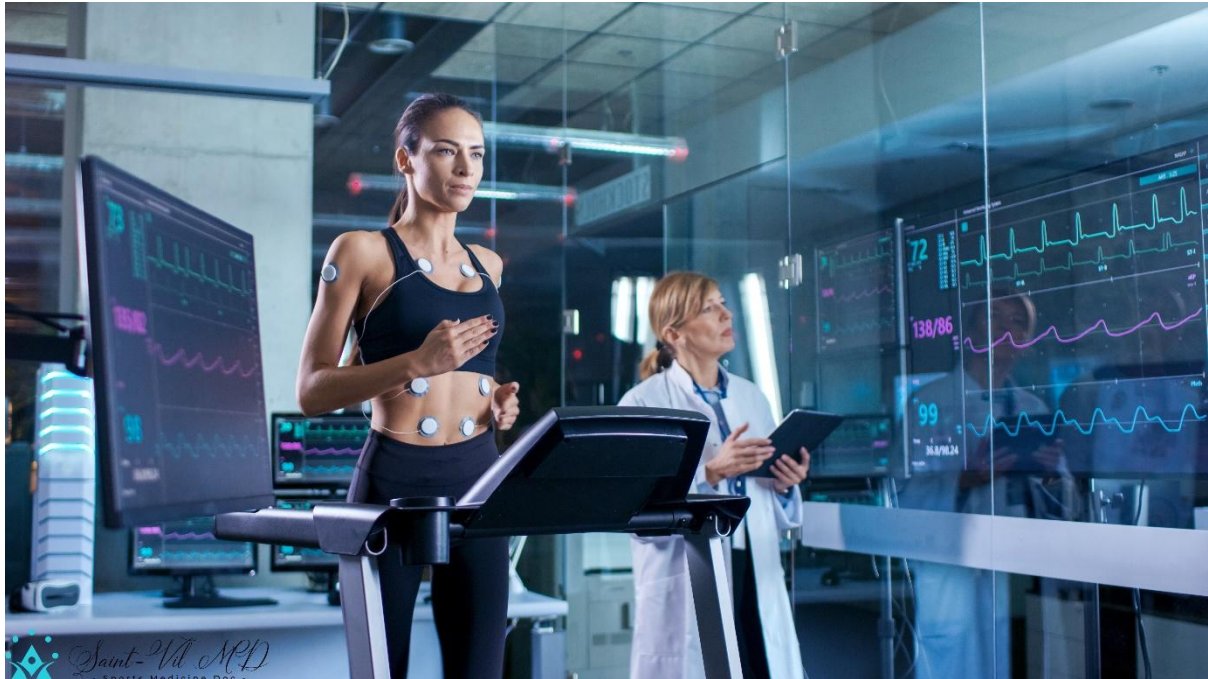


# VO2 max: An overview – Everything you need to know

Author: Wisler Saint-Vil, MD



Measuring muscle mass or strength is relatively simple. However, measuring the endurance of sportspeople is much more challenging. Without any reliable way to measure endurance, it would not be easy to keep track of the effectiveness of physical training.

Thus, [VO2 max is one of the most effective ways to measure the endurance or aerobic capacity](#) of the body. It is the measure of the ability of the body to utilize oxygen during exercise.

Aerobic energy is the only way to provide the body with a prolonged and sustained energy supply or ATP. However, anaerobic capacity can only help in the short term, generally for a few minutes, as it causes rapid fatigue due to lactic acid production.

## What is VO2 max?

"V" here stands for volume, and "O2" for oxygen. Thus, VO2 max is the maximum amount/volume of oxygen that an athlete's body can use in a given time. It is often measured as an ml/min/kg.

The higher the body's ability to use oxygen in a minute, the greater the endurance or aerobic capacity. Therefore, VO2 max is one of the reliable ways to measure athletes' endurance.

The human body inhales oxygen and then uses it to burn glucose and produce usable energy in the form of adenosine triphosphate (ATP).

How well and how long an athlete can perform, thus, depends on the body's ability to produce ATP consistently. Although there is no way to reliably measure ATP production in various muscles, measuring VO<sub>2</sub> max may provide a reliable indicator.

Measuring VO<sub>2</sub> max could be especially useful for those in endurance sports like swimming, running, cycling, and so on.

It could also be regarded as the measure of cardiovascular and respiratory system capacity. After all, the amount of oxygen absorbed by the body depends on how well the heart pumps the blood and the lungs' capacity. [Increasing cardiorespiratory functionality](#) is the primary goal of endurance training.

#### How is VO<sub>2</sub> max measured?

Specialized labs can reliably measure the VO<sub>2</sub> of people. However, it is also possible to measure it in controlled tests done in sports clinics and even training centers, though the results of such a test would be slightly less reliable. Nevertheless, it would provide a good overview of a person's aerobic capacity.

Generally, a specialist would ask a person to run on a treadmill or cycle wearing a mask to measure inhaled oxygen and exhaled air in the test. Additionally, an electrocardiogram helps measure cardiac function. Then sports physicians would use specific equations considering total body weight, age, and gender.

Generally, an average and sedentary person would have a VO<sub>2</sub> max of about 35 to 40 ml/kg/min, whereas elite athletes could have a VO<sub>2</sub> max of as high as 70 to 85 ml/kg/min.

#### Increasing VO<sub>2</sub> max is a secret of high endurance

Thus, all in endurance sports should keep track of their VO<sub>2</sub> max and aim to boost their VO<sub>2</sub> max capacity.



Needless to say, athletes can enhance VO2 max through prolonged and extensive training. In addition, the training sessions that put adequate stress on the cardiorespiratory apparatus can help. Thus, one would often need to push to limits when training.

Building VO2 max is similar to muscle building in the way that without pushing to limits, progress would not occur. Thus, for example, training sessions may include running at maximum capacity or as fast as one can run for a minute, followed by jogging slowly for a couple of minutes and repeating it several times.

### Final thoughts

VO2 max is the most reliable measure of endurance. It can help athletes to keep track of their progress. It measures how much oxygen a body can absorb and thus produce energy in a given amount of time. In addition, it indicates the level of cardiorespiratory conditioning of athletes. Therefore, anyone in endurance sports must get tested for it from time to time.



Written by **Wisler Saint-Vil, MD**  
*Sports Medicine Physician*  
*Marietta Memorial Sports Medicine*  
*Department medical director*

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