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VO_2max - Probably the strongest indicator of health

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What is Cardiorespiratory Fitness?

Cardiorespiratory fitness, quantified by VO2max, represents the body's maximum ability to absorb oxygen, and is a measure of your physical ability. A high VO2max score is better than a low score. The ranges of a ‘high’, ‘moderate’ and ‘low’ VO2max score are dependent on your age and gender and is also affected by the body weight.

Why is it important to know your score?

The VO2max score tells you about your body’s general health. That is why the American Heart Association (AHA) sees VO2max as a more important health indicator than other known risk factors. A recent study among 750.000 Americans has just confirmed the importance of VO2max, where VO2max is a stronger risk indicator than for example known heart diseases, high blood pressure, diabetes and obesity. Furthermore, the study shows that moderate physical activity improves the VO2max and will have a significant impact on the prognosis.

Why is it smart to estimate with Seismofit®?

A true VO2max is measured by biking on an ergometer bike, while wearing a mask over nose and mouth that then measures the amount of oxygen the body can absorb. To complete this test, you will have to push the body to its maximum. The test is time-demanding and costly, which is why you often see a less precise ‘sub-maximal’ ergometer test being used, without use of the mask and the measurement of oxygen intake.

However, the variability in this test is quite large, and it will therefore not give a precise estimate of the VO2max. With VentriJect's Seismofit® you would just need to relax and lie down for a maximum of 3 minutes. The Seismofit® measures the efficacy of the heart, which is translated into a VO2max estimate that shows a strong correlation to the true VO2max test measurement. The test with Seismofit® does not require any form of physical activity and is therefore able to be used by anyone. The test is especially good for testing in an office-setting, since it can be done without the need for changing clothes and taking a shower after the test.

The Unseen Risk

While traditional health checks offer valuable insights, they often overlook a critical indicator of overall health and longevity: Cardiorespiratory fitness.

The American Heart Association and extensive research recognize VO_2max as:

> *"Probably the strongest indicator of health"*

Omitting this biomarker potentially means your employees are missing out on early warning signs of health risks, hindering their ability to proactively start implementing potentially important lifestyle changes.



Consequences:

Lost productivity:

Low VO_2max is linked to increased absenteeism and presenteeism (working while unwell).
Without VO_2max insights, you risk decreased productivity and potentially harm your company's bottom line.

Missed opportunities for early intervention:

VO_2max provides a clear picture of an individual's overall health and fitness. Failing to measure it means missing opportunities for early intervention and lifestyle modifications, possibly allowing health issues to worsen over time.

Employee dissatisfaction:

A comprehensive health & wellness program demonstrates your genuine commitment to employee well-being. Neglecting a crucial health indicator could lead to employee dissatisfaction and a negative impact on retention

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The value of including VO_2max:

- **Reduced absenteeism:**
  Healthier employees mean fewer sick days and a more robust workforce.
- **Enhanced productivity:**
  Improved CRF leads to increased energy levels, focus, and overall performance.
- **Strengthened ESG profile:** Prioritizing employee health is a key component of Environmental, Social, and Governance (ESG) initiatives, enhancing your company's reputation and attracting top talent

Don't leave your employees' health to chance. Upgrade your corporate health checks with VO_2max assessment and empower your workforce to achieve optimal well-being.

How can VO_2max be measured?

Historically, measuring VO_2max has required a so-called bicycle test or other physical test, where the person being tested has to push themselves to the limit. A tough test that requires changing clothes, major physical exertion, and typically takes 15-30 minutes.

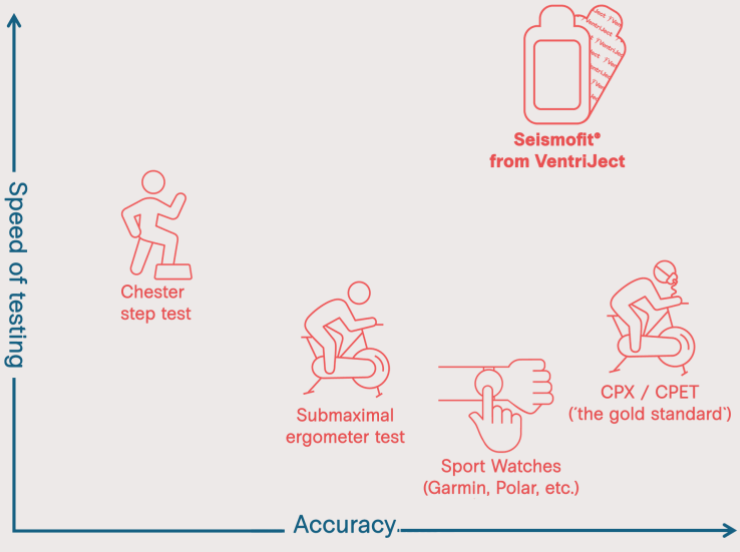
But with the Danish groundbreaking technology Seismofit® from VentriJect, it has now become much simpler and much faster to estimate VO_2max.

Seismofit® utilizes a technology called seismocardiography which makes a detailed reading of the heart's strength, and coupled with an advanced algorithm, it can calculate the person's VO_2max in under three minutes. All this happens without the person having to do anything other than lie still with the sensor on their chest.

Benefits of using Seismofit®

- Done in just 3 minutes
- No physical activity required
- High accuracy, validated by several universities

This technology offers your employees to easily obtain and continuously track their cardiorespiratory fitness (VO_2max)



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The hidden costs of night work: Don’t let your health pay the price

Working nights takes its toll. It’s not just about losing sleep.
Research highlights, among other things, the following consequences of night work:

Sleep disruption:
Night work can disrupt sleep patterns, which can lead to poorer sleep quality and duration. Poor sleep can negatively impact overall physical fitness and recovery, which can indirectly affect the body’s physical condition.

Lifestyle factors: Night workers often face challenges in maintaining regular exercise routines and healthy eating habits due to their irregular schedules. These lifestyle factors can affect fitness and health.

Stress and fatigue:
Working at night can increase stress and fatigue levels, which can also affect physical performance and fitness levels.

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Take care of your health

Especially for night workers, regular health checks are important to prevent their health from deteriorating. However, there is a marker that is often overlooked or omitted: VO_2max.

This is an expression of your cardiorespiratory fitness - how good your body is at utilizing oxygen. Research and, among others, the American Heart Association recognize this marker as a strong indicator of general health and thus the ability to counteract the negative effects of night work.



Why VO_2max is important

Studies show that a high VO_2max is associated with:

- Reduced risk of chronic diseases, such as:
  - heart disease
  - Diabetes
  - Certain forms of cancer
- Reduced mortality
- Reduced risk of depression
- Lower risk of sick days
- Improved physical performance and endurance
- Increased energy and reduced fatigue
- Better mental well-being and mood
- Stronger immune system

At the same time, data shows that even small improvements in your VO_2max can mean significant improvements in your overall health.

About the Seismofit® technology

The Seismofit® solution by the Danish company, VentriJect, uses highly sensitive accelerometers to record chest wall vibrations that stem from heartbeats.

This recording, known as a seismocardiogram, is then analysed using sophisticated AI algorithms to estimate VO_2max accurately. All done without the use of exercise and in less than 3 minutes.

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How to improve your VO_2max

Knowing your VO_2max provides you with a good starting point to determine if or how you decide to work from here.

Here are some simple yet effective ways to boost your cardiorespiratory fitness:

- **Regular exercise:** Incorporate aerobic activities into your daily routine, it can be running, cycling, or swimming. And remember walking or taking the stairs instead of the elevator all make a difference. Just 30 minutes of moderate activity most days of the week can make a significant difference.
- **Healthy eating:** A balanced diet rich in fruits, vegetables, and whole grains provides your body with the nutrients it needs for optimal performance.
- **Adequate sleep:** Quality sleep is crucial for recovery and muscle growth, which in turn will help you feel more energized and thus find it easier to do your daily exercise.

Resources

Here is a short list of resources to serve as inspiration to get started with improving your VO_2max:

Apps	Exercise	Diet	Sleep

Next steps

We encourage you to discuss your test results with your doctor or a qualified health professional to get personalized recommendations for improving your fitness.

Remember:

Every step towards a better VO_2max is a step towards a healthier, happier, and more fulfilling life.

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VO_2max as a powerful predictor of health and disease risk

Low VO_2max is strongly associated with an increased risk of various chronic diseases, including:

- **Cardiovascular disease:** Heart disease and stroke remain leading causes of death and disability, and low VO_2max is a significant risk factor
- **Metabolic disorders:** Low VO_2max is linked to an increased risk of type 2 diabetes, metabolic syndrome, and obesity
- **Mental health:** Studies show a correlation between low VO_2max and an increased risk of depression and anxiety
- **Cancer:** Research suggests that higher VO_2max may be associated with a reduced risk of certain cancers, including breast and prostate cancer
- **Musculoskeletal health:** Low VO_2max can contribute to decreased bone density, muscle weakness, and increased risk of falls.

Conclusion

Incorporating VO_2max estimation in preventive health measures represents a proactive and cost-effective strategy for improving population health and reducing the burden of chronic diseases.

The evidence clearly supports the value of VO_2max as a powerful predictor of health and a valuable tool for guiding personalized interventions.

Sources: All studies on VO_2max can be found on VentriJect's website (www.ventriject.com).

Contact us today to discuss incorporating VO_2max into your program

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