



exercise institute

Your Vo2 Max Data

Well done on completing your Vo2 max test. The data from this test gives indication of where your point of maximal oxygen uptake occurs and allows inspection of where your first and second ventilatory thresholds (VT1, VT2) are. Taken together these three metrics: Vo2 max, VT1, VT2 enable us to accurately look at how your body is performing under exercise load and measure incremental gains over time.

Please read below a review from academic Adam Switters (2015) regarding the importance of Vo2 max testing:

"The amount of oxygen that an athlete is maximally able to consume (VO₂max) during exercise is theorized to be a predictor of aerobic performance (Taylor, Buskirk, & Henschel, 1955). Interval training allows athletes to stay at an exercise intensity corresponding to their VO₂max longer than a single continuous bout of exercise, and is thus theorized as a method to increase VO₂max (Christensen, Hedman, & Saltin, 1960). Optimum training for cardiorespiratory fitness is thought to occur at intensities between 90 and 100% VO₂max (Christensen et al., 1960). It appears that through interval training at very high percentages of VO₂max that an athlete will be able to optimally increase their athletic performance. There is an increase in both performance and VO₂max when intervals are structured so that VO₂max is attained during an interval (Hill & Rowell, 1997).

One common interval type that elicits this response for cyclists requires subjects to ride at an intensity corresponding to pVO₂max; the power that minimally elicits VO₂max during a graded exercise test (GXT). As opposed to a set interval duration that is universal among all subjects, an ideal duration is thought to be related to duration that pVO₂max can be maintained, otherwise known as T_{max}. Several studies have found that a duration of 60% of T_{max} is required to minimally elicit VO₂max (Billat, 2001; Esfarjani & Laursen, 2007; Hill & Rowell, 1996; Smith, McNaughton, & Marshall, 1999). In running, the minimal velocity that elicits VO₂max during a GXT is known as vVO₂max. A 2003 study by Smith, Coombes and Geraghty showed an improvement in 3000m running times with a training program consisting of intervals at vVO₂max for 60% T_{max} compared to intervals at 70% T_{max}." Thus, exercise duration AND Intensity can be manipulated for best gains for EVERY individual."

Elite Athletes & Elite performance: *"There is reason to believe that submaximal training will not improve endurance performance once an athlete has reached a VO₂max above 60 ml/kg/min. Londree (1997) completed a meta-analysis comparing the performance increases of both trained and untrained athletes participating in continuous training programs at an intensity corresponding to an athletes ventilatory threshold (VT) or lactate threshold (LT). He found that continuous training at submaximal levels did not elicit increases in endurance performance in highly trained athletes. He did note however that highly trained athletes responded beneficially to high-intensity training."*

References

Switters, (2015). *CHANGES IN TIME TO REACH VO₂MAX IN SUBSEQUENT HIGH-INTENSITY INTERVALS*. Department of Kinesiology California State University, Sacramento. Not Published

Brad Hall takes Vo2 sessions using Pmax and Tmax variables Wednesday and Friday's 6am

Brad Hall

B.Sc. (Psy & Sport Sc.); B.Psy (Hons)

Assoc.MAPS

AMESSA

E: bh@bradhall.com.au

W: www.exerciseinstitute.com.au