



Coach-Athlete Q&A

A look at some coach-replies to common questions by topic.

The 30-30 VO2max session

.....using vVO2max and tlimvVO2max

Veronique Billat, a professor of Sport Sciences at the University of Lille, has shown that in a single training session it is possible to improve the [lactate threshold](#), [VO2max](#) and [economy](#). To understand Billat's work we need to be aware of two new variables - vVO2max and tlimvVO2max.

What are they?

vVO2max is the minimal running velocity which produces VO2max [*i.e. causes your muscular system to utilize oxygen at its highest possible rate*], and tlimvVO2max is the amount of time you can exercise at vVO2max.

VO2max on its own is a poor predictor of performance **but using the velocity (vVO2max) and duration (tlimvVO2max) that an athlete can operate at their VO2max will provide a better indication of performance.**

Billat conducted a four week trial with a group of athletes. The athletes had 6 training sessions a week - 4 easy sessions, **one vVO2max session**, and one lactate threshold workout. At the end of the trial vVO2max increased by 3% and running economy increased by 6%.

Why the big improvement in economy?

Running at vVO2max increases leg muscle strength and power, and enhanced strength tends to improve [economy](#) (muscle cells are stronger, fewer needed to run at a particular pace, thus the energy expenditure is lower). vVO2max effort boosts neuromuscular responsiveness and coordination which reduces energy expenditure

How do you determine your vVO2max?

Take yourself down to the track, run as hard as you can for six minutes and record the distance covered. Calculate your velocity in metres/second to determine your vVO2max. Let us assume you manage 1800 metres then vVO2max is $1800 \div 360 = 5$ metres/second. It is recommended that you repeat the test 48 hours later and use the highest velocity in your training sessions.

Remember to repeat the six minute test every 4 to 6 weeks to determine your new vVO2max..

The 30-30 work out

Billat has developed a new vVO2max session which comprises of:

- 30 seconds at 100% of vVO2max
- 30 seconds recover at 50% of vVO2max

This cycle is repeated for as long as the 30 seconds at 100% vVO2max can be sustained.

The 30 seconds at 100% vVO2max is important as this is the element from which the gains in fitness will be achieved. The recoveries need to be run slowly and reasonably close to 50% vVO2 max.

Example

If you complete 1800 metres in the 6 minute test then your vVO2max would be 300 metres/minute ($1800 \div 6$).



The classic workout would be 5 x 900 metres in three minutes with 3 minutes recovery. The new 30-30 workout would comprise of 150 metres in 30 seconds followed by 75 metres in 30 seconds, 150 metres in the next 30 seconds and so on until you are unable to maintain the 150 metres in 30 seconds.

What sort of vVO2max sessions should you do?

Ballet recommends using the 30-30 session early in the season as an excellent, easily tolerated way to kick start improvements in Vo2max, vVO2max, lactate threshold and running economy.

In the 4 to 6 weeks before a major competition conduct one session a week of five three minute repetitions at your calculated vVO2max speed with three minute recoveries between each repetition.

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