

SUBMAXIMAL TALK TEST FOR VT1 PROTOCOL

Equipment:

- ▶ Treadmill, cycle ergometer, elliptical trainer, or arm ergometer
- ▶ Stopwatch
- ▶ Heart rate (HR) monitor with chest strap (optional)
- ▶ Predetermined text that the individual will recite (e.g., alphabet)

Pre-test procedure:

- ▶ As this test involves small, incremental increases in intensity specific to each individual, the testing stages need to be predetermined. The goal is to incrementally increase workload in small quantities to determine the first ventilatory threshold (VT1). Large incremental increases may result in the individual passing through VT1, thereby invalidating the test:
 - Recommended workload increases are approximately 0.5 mph, 1% grade, or 10 to 20 watts.
 - The objective is to increase steady-state HR at each stage by approximately 5 bpm.
 - Plan to complete this test within eight to 16 minutes to ensure that localized muscle fatigue from longer durations of exercise is not an influencing factor.
- ▶ Measure pre-exercise HR and blood pressure (BP) (if necessary), both sitting and standing, and then record the values on the testing form.
- ▶ Describe the purpose of this graded exercise test, review the predetermined protocol, passage to be recited, and allow the client the opportunity to address any questions or concerns. Each stage of the test lasts one to two minutes to achieve steady state HR at each workload.
- ▶ Allow the client to walk on the treadmill or use the ergometer to warm up and get used to the apparatus. If using a treadmill, he or she should avoid holding the handrails. If the client is too unstable without holding onto the rails, consider using another testing modality, as this will invalidate the test results.
- ▶ Take the client through a light warm-up [rating of

perceived exertion (RPE) of 2 to 3 on the 0 to 10 scale] for three to five minutes, maintaining an intensity comfortably below a moderate level.

Test protocol and administration:

- ▶ Once the client has warmed up, adjust the workload intensity so the client is working at a moderate-to-strong intensity level (RPE of 3 to 4 on the 0 to 10 scale).
- ▶ Toward the latter part of each stage (i.e., last 20 to 30 seconds), measure/record the HR and then ask the client to recite the predetermined passage. Upon completion of the recital, ask the client to identify whether he or she felt this task was easy or uncomfortable-to-challenging. *Note:* Conversations with questions and answers are not suggested, as the test needs to evaluate the challenge of talking continuously, not in brief bursts as in conversation. Also, reading as opposed to reciting from memory, is not advised, as it may compromise balance if testing is being performed on a treadmill.
 - The test concludes when the client reports that he or she can speak, but not entirely comfortably.
- ▶ If VT1 is not achieved, progress through the successive stages, repeating the protocol at each stage until VT1 is reached.
- ▶ Once the HR at VT1 is identified, progress to the cool-down phase (matching the warm-up intensity) for three to five minutes.
- ▶ This test should ideally be conducted on two separate occasions with the same exercise modality to determine an average VT1 HR.
 - HR varies between treadmills, bikes, etc., so it is important to conduct the tests with the exercise modality that the client uses most frequently.
 - The VT1 HR will also be noticeably higher if the test is conducted after weight training due to fatigue and increased metabolism. Therefore, clients should be tested before performing muscular-training exercises