

Measuring Your Horse's Fitness

V₂₀₀ Test

Part III

Enough of the V₂₀₀ theory, let's now look at some practical 'real-life' examples of how V₂₀₀ can be calculated in the field. The following examples look at the calculation of V₂₀₀ for a Thoroughbred, Standardbred and Endurance horse.

Thoroughbred – “Lovestad”

The test was conducted at the local racetrack after other trainers had finished training their horses. This was necessary, as we didn't want other horses around during the test for the following reasons:

- ❖ Lovestad had to complete 4 x 1000-m intervals at a variety of speeds. Between each interval we wanted Lovestad to stay on the track and to trot and walk while recovering for the next interval. This would have obviously been inconvenient and dangerous if other horses were training at the track.
- ❖ A horse's heart rate can be affected by a variety of factors, including the presence of other galloping horses. As we wanted to standardize the test conditions, we thought it best to conduct the test without other horses on the track.

The test was conducted at 9.00 am under cool conditions (17 degrees Celsius). There was no wind present and the track was rated as good. Lovestad completed a light training session the day before and had not eaten 3 hours before the test. All these conditions were recorded for future testing sessions.

Lovestad was given a 15 min warm-up consisting of a walk, trot, canter and slow gallop. For each 1000-m interval, Lovestad ran the following times and recorded the following heart rates, as presented in Table I.

Interval No.	Speed (Seconds / furlong)	Speed (kph)	Heart Rate (bpm)
1	23.4	30.7	160
2	21.0	34.3	168
3	19.0	37.9	177
4	16.5	43.6	189

Table I Data collected from the racetrack for Lovestad's V_{200} calculation

During each interval, the jockey was asked to complete the 1000-m as close as possible to the prescribed time, e.g., 19 second per furlong. A stopwatch was used to record the exact time while a POLAR Accurex Plus Horse Monitor was used to measure and record Lovestad's heart rate. A three-minute rest period was taken between each 1000-m work interval. This heart rate information was downloaded to a computer, which provided a printout depicted in Figure 5.

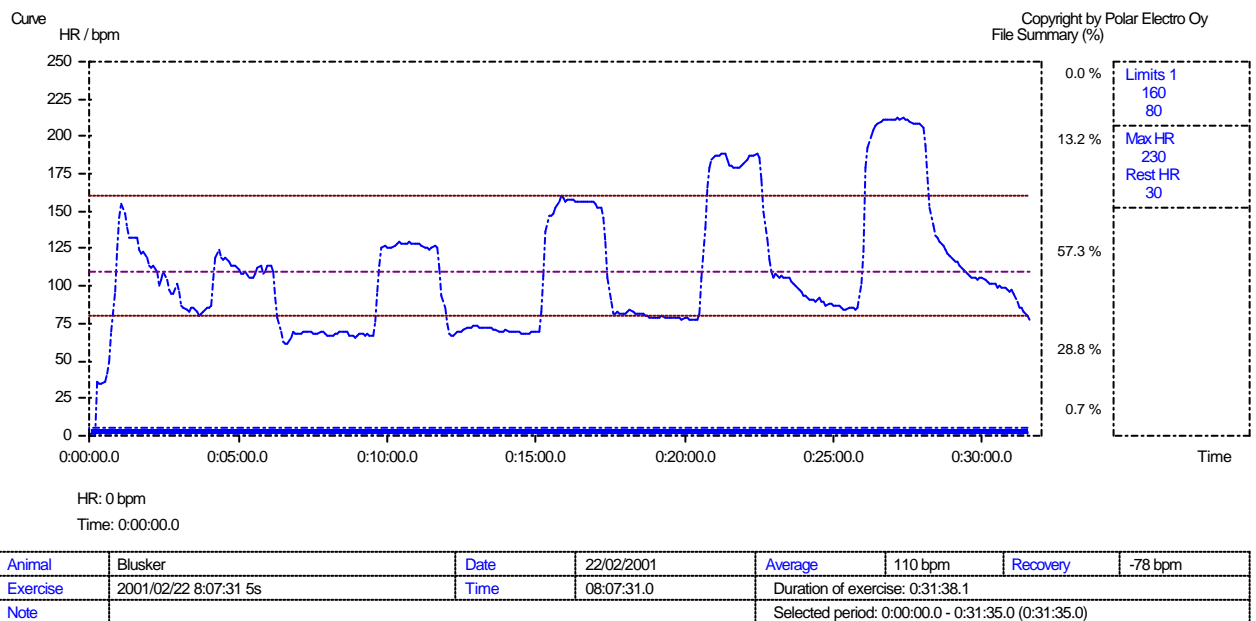


Figure 5 Typical heart rate response of a horse undergoing a V_{200} field test

After Lovestad had completed the test, his heart rate and running speed information were plotted on graph paper as indicated in Figure 6.

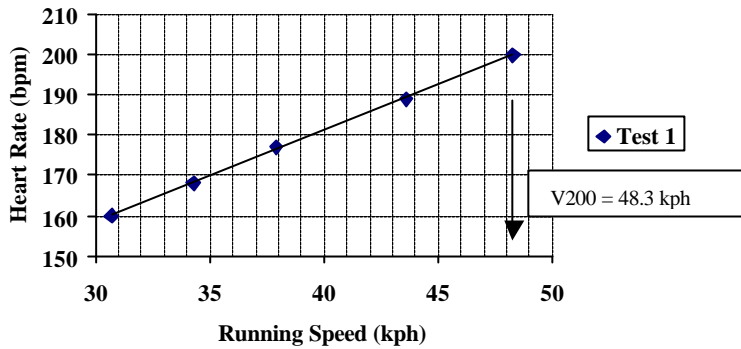


Figure 7 Graphing of data from V_{200} field test.

After plotting the graph, use a ruler to draw a ‘line of best fit’ through the four points and extend the line until it reaches the 200-bpm grid line. When we ‘drop’ a line down to the X-axis we can see that V_{200} occurs at 48.3 kph or 14.9 seconds per furlong. The heart rate of 200 bpm is 92% of Lovestad’s maximum heart rate (218 bpm), which was determined during a 1200-m barrier trial.

Note: If you have access to a computer spreadsheet software program (such as Excel or Lotus) you will find the computer will compute and draw this ‘line of best fit’ for you.

Standardbred – “Polar Market”

Polar Market completed a similar test to Lovestad with the only differences being

- ❖ The test was conducted on a 1200-m training track with a typical pacing track surface
- ❖ Being a standardbred, Polar Market obviously used a pacing gait and was harnessed in a training sulky

For each 1200-m interval, Polar Market ran the following times and recorded the following heart rates, as presented in Table 2.

Interval No.	Speed (Seconds / 400-m)	Speed (kph)	Heart Rate (bpm)
1	51.8	27.8	147
2	46.3	31.1	158
3	41.7	34.5	187
4	40.0	36.0	197

Table 2 Data collected from the training track for Polar Market’s V_{200} calculation

Using the same graphing and calculation methods described for Lovestad, Polar Market's V_{200} speed was 36.7 kph or 39.2 per 400-m. His 200-bpm heart rate was 89% of his maximum heart rate (225 bpm) as determined during a 2400-m time trial.

Endurance – “Maggy’s Choice”

Maggie’s Choice completed a similar test to Lovestad and Polar Market with the only differences being

- ❖ The test was conducted on an 800-m training track on a slightly undulating grass surface. The owner of the horse lived a considerable distance from a racetrack, so decided to conduct the test in his ‘own back yard’

For each 800-m interval, Maggie’s Choice ran the following times and recorded the following heart rates, as presented in Table 3.

Interval No.	Speed (Seconds / Furlong)	Speed (kph)	Heart Rate (bpm)
1	51.8	25.8	125
2	46.3	28.7	149
3	41.7	32.3	168
4	40.0	34.1	184

Table 3 Data collected from the training track for Maggie’s Choice V_{200} calculation

Once again, when we use the same graphing and calculation methods described for Lovestad and Polar Market, Maggie’s Choice’s V_{200} speed was 36.6 kph or 19.7 second per furlong. Her 200-bpm heart rate was 87% of her maximum heart rate (230 bpm) as determined during a 600-m hill ‘climb’.

Immediately you can see that Lovestad’s V_{200} speed is significantly different to Maggie’s Choice’s V_{200} speed. Fitness levels, age and testing conditions could cause such a difference.

Summary

Irrespective to whether you are working with Thoroughbred, Standardbred or Endurance horses, the V_{200} test can be easily incorporated into your program. The simple V_{200} field heart rate test enables trainers and owners to compare their subjective or ‘gut feeling’ with more objective data when it comes to assessing the progress and health status of their horse(s). Combined experienced

'gut feeling' and 'science' make a powerful weapon. Try the test, make your own personal adjustments (speeds, distances, how often you test, etc) and we are sure you will get some extremely beneficial information regarding your horses and their response to training.