

E-TRAKKA[®]

THE FUTURE IS NOW - EVERY BEAT COUNTS



Gai Waterhouse

"The technology is very innovative yet easy to use. I am confident E-TRAKKA[®] will make a significant impact on the racing industry".

Contents

2. How Does E-TRAKKA® Work?
3. Equine Fitness for Trainers
4. What is Fitness?
Relationship of Heart Rate to Speed
5. Understanding E-TRAKKA® Information
7. Using Charts to Identify Good and Bad Workouts
Benefits of Building Profiles
9. Using E-TRAKKA® to Identify Lameness
10. Take Over Target
11. Using E-TRAKKA® Assess Recovery
Success Story with E-TRAKKA®
13. Using E-TRAKKA® to Monitor Fitness Over Time
14. Experience E-TRAKKA® For Yourself
E-TRAKKA® Benefits

Invented by Trainers, for Trainers

E-TRAKKA® was inspired by the needs of thoroughbred racehorse trainers to assess, monitor and remarkably predict the performances of their elite and developing racehorses.

By using state of the art heart rate monitoring and GPS tracking systems, E-TRAKKA® is able to generate charts which informs trainers about their horses' fitness and ability to race.

This revolutionary training tool was invented by Andrew Stuart, an experienced horseman whose credits include being an ex-jockey, assistant foreman for Bart Cummings and racehorse trainer. Andrew's invention recently featured on the popular television program 'The New Inventors' and won an esteemed episode award.

E-TRAKKA® was developed with a view to combine proven basic concepts to empower trainers. By using E-TRAKKA® technology trainers now have the power to combine information on the horse's fitness and racing potential with their invaluable practical skills as experienced horsemen.

The 'cutting-edge' information generated by E-TRAKKA® provides trainers with a simple informative 'snap shot in time' about their horse's fitness, performance and potential that was previously unavailable.

E-TRAKKA® has the potential to improve horse-racing and training capabilities worldwide.

A word from the inventor

"E-TRAKKA® introduces you to a new way of assessing and understanding your horses. You need to fully appreciate the potential of what E-TRAKKA® can provide. The small but invaluable amount of knowledge about equine fitness introduced in this booklet will allow you to read and understand E-TRAKKA® information.

The combination of this understanding and the information that E-TRAKKA® generates will open up a whole new way of looking at your horses.

I urge you to read this booklet and discover for yourself the professional benefits that are now available to you- the trainer."

Kind Regards

Andrew Stuart

Cover: Danny Morton riding 'Scenic Shot' in track work
Reproduced courtesy 'The West Australian'



Andrew Stuart with Senator Judith Adams inspecting the 'Riders Display'

How does E-TRAKKA® Work?

The primary use of E-TRAKKA® is to measure and compare a horse's speed and heart rate. By mapping these measurements over the course of a workout, a trainer can assess a horse's fitness level in relation to its performance. This allows trainers to monitor and train racehorses with more precision enabling the racehorse to perform at their optimum level on race day. E-TRAKKA® **will never replace trainers**. It is a tool aimed at assisting trainers to make more informed training decisions.

E-TRAKKA® monitoring equipment, including a heavy duty GPS tracking system and heart rate monitor, are housed inside the saddle blanket worn under the saddle. The equipment is non-intrusive to the horse or rider.

Information gathered during an exercise is easily downloaded from the blanket to a computer with the press of a button. This data can then be read 'at a glance' by looking at simple charts and information, which will be explained in this booklet.



E-TRAKKA® hardware comprises of a saddle blanket and riders display

The saddle blanket houses the GPS and heart rate equipment. All components are integrated in the blanket and will not interfere with the horse or rider. The saddle blanket stores the heart rate and speed data. After the morning training session the blanket is taken off the horse and the information downloaded onto your computer where the information can be easily viewed. All the mornings workouts are stored by E-TRAKKA® and can be downloaded after track-work.



The riders display (optional extra) is mounted between the ears of the horse on the bridle. It displays heart rate and speed information and assists the rider to ride at the trainers predetermined pace. It can also be used as an early warning system if the heart rate increases abnormally.

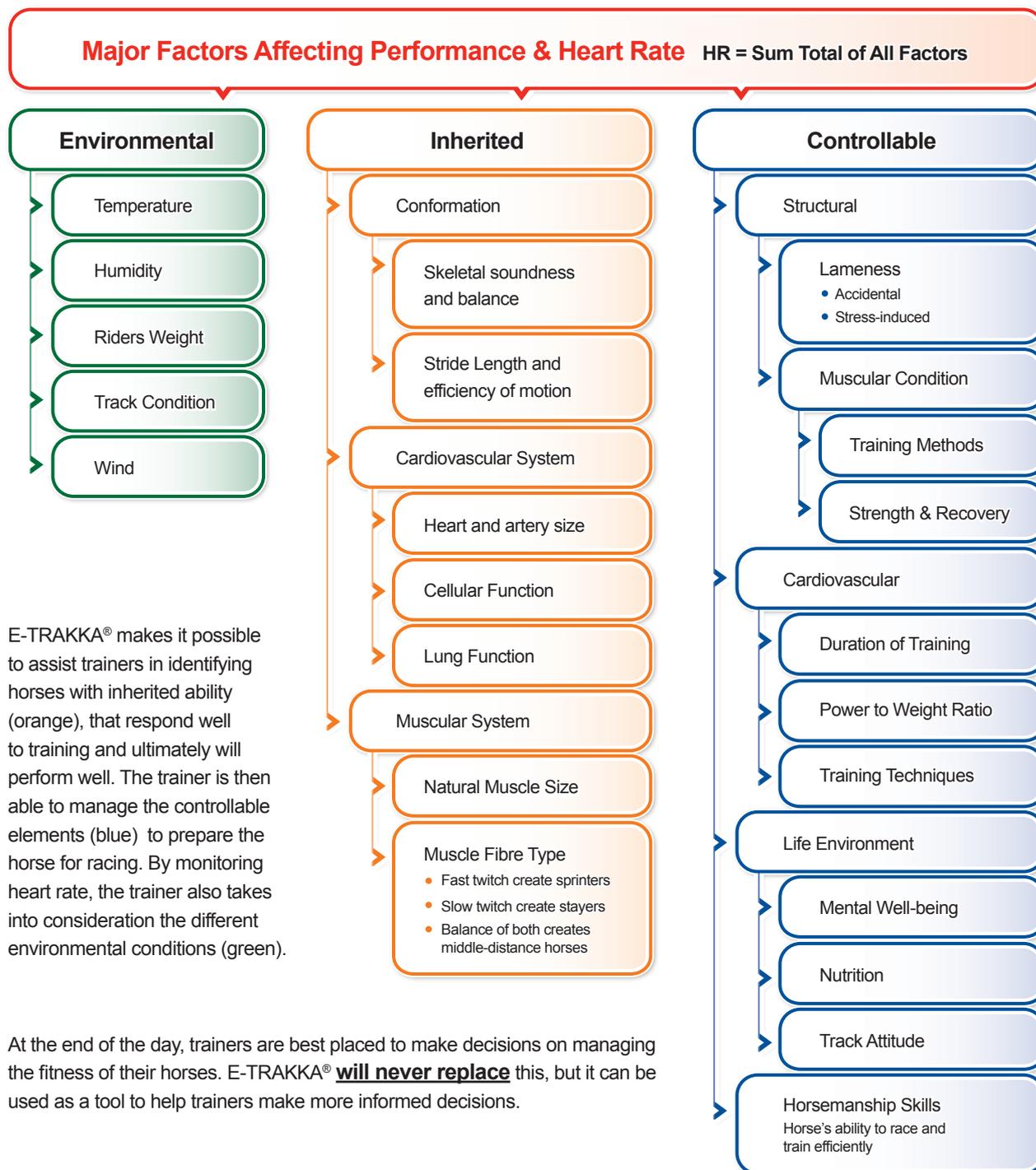
There is also an optional 'Wireless Modem' which allows trainers to remotely download information from multiple E-TRAKKA® saddle blankets.

Equine Fitness for Trainers

To maximise the benefits of E-TRAKKA® the basics of equine fitness are explained below.

Know Your Horses - Like humans, all horses are born with differing physical abilities. As any good horseman would know, some horses are born athletes and respond well to training. These horses typically have a lower heart rate in relation to the speed they are travelling. These are the horses that have the potential to win races. Using E-TRAKKA®, winning horses can be detected earlier.

The major factors affecting a horse's heart rate and in turn, performance, have been outlined in this diagram.



E-TRAKKA® makes it possible to assist trainers in identifying horses with inherited ability (orange), that respond well to training and ultimately will perform well. The trainer is then able to manage the controllable elements (blue) to prepare the horse for racing. By monitoring heart rate, the trainer also takes into consideration the different environmental conditions (green).

At the end of the day, trainers are best placed to make decisions on managing the fitness of their horses. E-TRAKKA® **will never replace** this, but it can be used as a tool to help trainers make more informed decisions.

What is Fitness?

Fitness - In general terms, fitness describes a positive state of health, including low heart rate, muscle strength and high aerobic capacity. For the purposes of racing, high aerobic capacity and low heart rate are the most useful indicators of fitness.

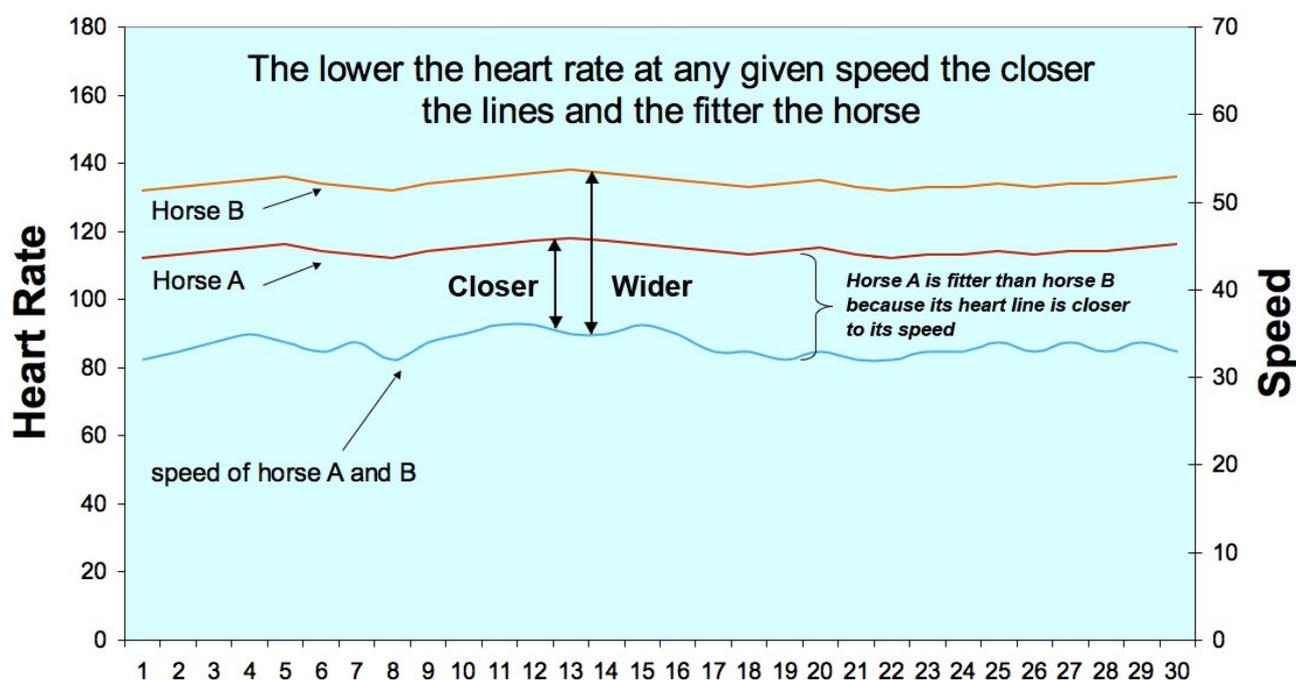
Heart Rate - A horse's heart rate is the speed at which blood is pumped around the horse's body. It is calculated by measuring the number of times the horse's heart beats in one minute. By monitoring changes in heart rate across a workout we can learn about a horse's level of fitness. A fit horse will show a gradual increase in heart rate as the work load increases and has a comparatively lower heart rate than an unfit horse. The speed at which a horse reaches it's maximum heart rate (VHRMax) is of particular importance to the trainer, as this is a proven indicator of a horse's fitness and readiness for racing. The higher the speed at which the maximum heart rate is reached, the fitter and potentially faster the horse. A quick return to resting heart rate after exercise (recovery) is also an excellent indicator of fitness.

Heart Rate is the sum total of the horse's genetics, the environment and training. For example, a horse with a large heart may also have an inefficient gait. Whereas an elite classic galloper scores highly on all the factors affecting performance and heart rate.

Relationship of heart rate to speed using E-TRAKKA®

The chart below demonstrates how the fitter the horse is, the closer the lines are together. By comparing the heart rate and speed lines, the trainer is able to determine at a glance the fitness level of the horse. As a trainer you do not need to analyze charts.

E-TRAKKA® software produces key indicator figures



Kevin Moses

E-TRAKKA® gives reliable fitness measurements which helps us confirm what we are seeing on the track during training and gives us the confidence that our horses are racing to the best of their abilities. It is also useful in highlighting when the horse may not be 100% and may be suffering from overtraining, lameness or a respiratory condition. E-TRAKKA® is an integral ingredient to our operation”.

Understanding E-TRAKKA® Information

Below is a one page E-TRAKKA® report of Scenic Shot, a four year old gelding that has won over \$500,000 in prize money. The diagram highlights the features of the E-TRAKKA® summary report and explains the information presented. It is important to gain an understanding of these reports as they form the basis of E-TRAKKA®.

This graph was taken from a typical training session. The lines in the chart have been used to show changes in the horse's speed and heart rate during a session. The red line represents the heart rate and the blue line represents the velocity or speed at which the horse was travelling.

4. Session Information

Date 19/10/2006
 Start 5:34 AM
 End 5:50 AM
 Duration 15 mins
 Surface Woodfibre
 Rider
 Conditions Warm and Humid

5. Fitness Measurements

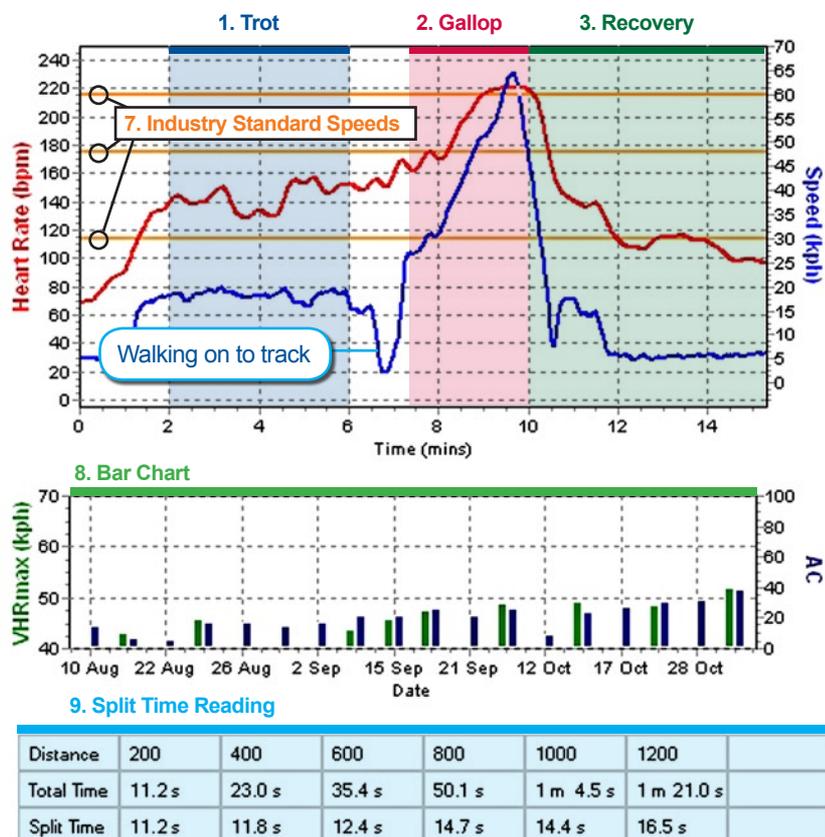
AC 30.2
 VHRmax 48.5 kph
 Peak Speed 64.4 kph

6. Heart Rate Measurements

Max. HR 221 bpm
 HR45 201 bpm
 Trot Av HR 143 bpm
 Canter Av HR 175 bpm
 Gallop Av HR 211 bpm

Notes

Worked well, improving fitness



1. Trot - The early part of the graph shows Scenic Shot trotting during warm up. The heart rate that the horse maintains while trotting indicates the general fitness of the horse. The lower the heart rate, the fitter the horse. Trotting heart rate is a good consistent indicator of a horse's condition.

2. Gallop - This section of the chart describes the horse's performance during the gallop and gives the peak speed/heart rate comparison. This comparison is critical in determining the horse's fitness and readiness for racing. A good performing horse, such as Scenic Shot, has the red line (heart rate) close to the blue line (speed) during the gallop when fit. Elite horses usually do not reach maximum heart rate until the end of the gallop.

3. Recovery - The horse's recovery can be measured directly following the peak speed. A chart showing a steep decline in both the speed (blue line) and heart rate (red line) represents the recovery pattern of a fit horse. This can be seen in Scenic Shot's chart, indicating that he is a fit horse making a good recovery. Where the speed decreases steeply, but the heart rate reduces more gradually, the horse is showing a slower recovery and therefore is less fit.

4. Session Information - Gives a basic description of the workout including when it took place, its duration, who was riding, the conditions of the track, and the weather conditions for the session.

5. Fitness Measurements - **AC** (Aerobic capacity) measures the horse's staying capability. The higher the number, the greater the horse's stamina. **VHRmax** (Velocity heart rate maximum) measures the velocity (or speed) at which the horse's maximum heart rate was reached. The higher the VHRmax the fitter and potentially faster the horse. **Peak Speed** - The fastest speed achieved by the horse during the workout.

6. Heart Rate Measurements - Is a list of the key Heart Rate Measurements.

7. Industry Standard Speeds - The orange lines on the chart represent the racing industry speed standards.

30kph = steady cantering

48kph = 15 to the furlong

60kph = 12 to the furlong

These lines allow the trainer to easily recognise the speed without referring to the scale.



8. Bar Chart - VHRmax and Aerobic Capacity - This bar graph allows the trainer to track a horse's improving fitness level. The VHRmax and aerobic capacity bars for 'Scenic Shot' are gradually increasing with each exercise indicating that he is becoming fitter. These bar graphs are also useful for identifying lameness or over-training over an extended period of time. The bar graph will trend downwards if this happens.

9. Split Time Reading - This chart allows the trainer to compare the horse's times for each 200 metres of a workout. This information tells the trainer the sectional times of the workout, even in poor visibility.



Greg Fox Trainer – Lexington Kentucky USA

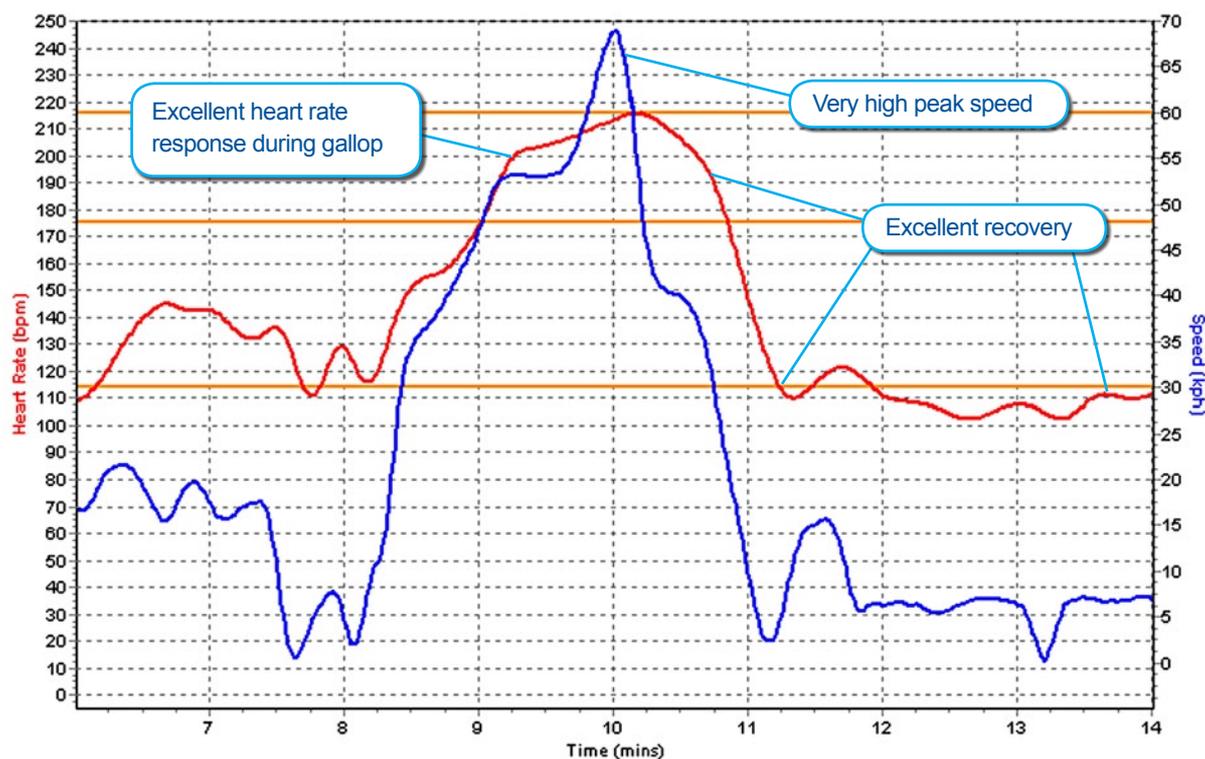
"This impressive system allows the racehorse trainer to monitor with remarkable precision the horse's physiological response to training."

Using E-TRAKKA® charts to identify good and bad workouts

Good Chart - Mare No Questions shows fitness

The speed and heart rate of No Questions during a training session is represented below. It is one of the best readings recorded in Western Australia by E-TRAKKA® and represents a well trained horse with inherited ability. The reading was taken two and a half weeks before she won the group three, 1200m 100K Roma Cup. A very low heart rate during the early gallop, high peak speed and excellent recovery are all characteristics of talented, successful race horses.

On E-TRAKKA® graphs, a low heart rate in relation to speed is typically represented by the lines being close together, indicating a fit horse which has performed well. E-TRAKKA® includes a special 8 minute chart which easily allows the trainer to identify the line relationship. These 8 minute charts are used in this booklet to help understand the benefits of E-TRAKKA® information.



Prominent trainer Trevor Andrews preparing for a training session using E-TRAKKA®.

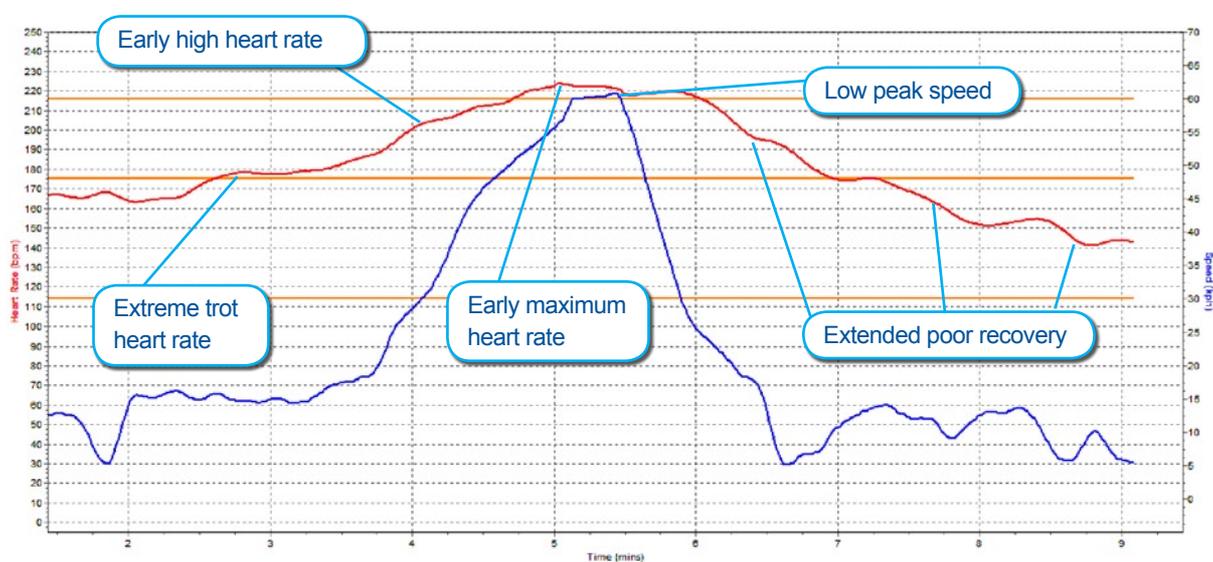
Benefits of Building Profiles with E-TRAKKA®

By comparing graphs over a period of time, the trainer is able to build a profile of the horse's development. Profiles allow the trainer to identify changes in fitness before they can be observed in the horse's race performance, giving the trainer the ability to make good decisions about training and readiness for racing.

Bad Chart - Two year- old unfit for racing

Compare the heart rate line of No Question's chart (left) to the chart of an unfit horse (below). Note the vastly higher trot rate and slower recovery rate in the unfit horse. The speed line (blue) also shows a dramatic difference in peak speed with No Questions reaching a remarkable 68.8kph compared to the unfit horse's reading of barely over 60kph.

Speed and heart rate lines which run closely together as in No Question's chart, are typical of a group horse. Where the lines run more widely apart and the heart rate does not follow the speed line, the horse is generally considered unfit. When the speed lines go over the heart rate, it indicates that the horse is running into oxygen deficiency and using its anaerobic energy system.



The chart of the unfit horse was taken from a very unfit two year old doing far more work than it was capable of. If a trainer were presented with this information, it would be advisable to reduce the work load, revise the horse's training regime and increase the work load slowly in order to first develop its fitness. The trainer's prior knowledge and observations of the horse are essential for interpreting the E-TRAKKA® chart accurately.

Jill Belford – Racing Manager Gerry Harvey

"The E-TRAKKA® system has been an invaluable tool in helping assess the fitness levels of our horses. The E-TRAKKA® has been used on horses like multiple group 1 winners Lotteria, Fashion Afield, and Teranaka. Overall we find E-TRAKKA® a valuable training tool."

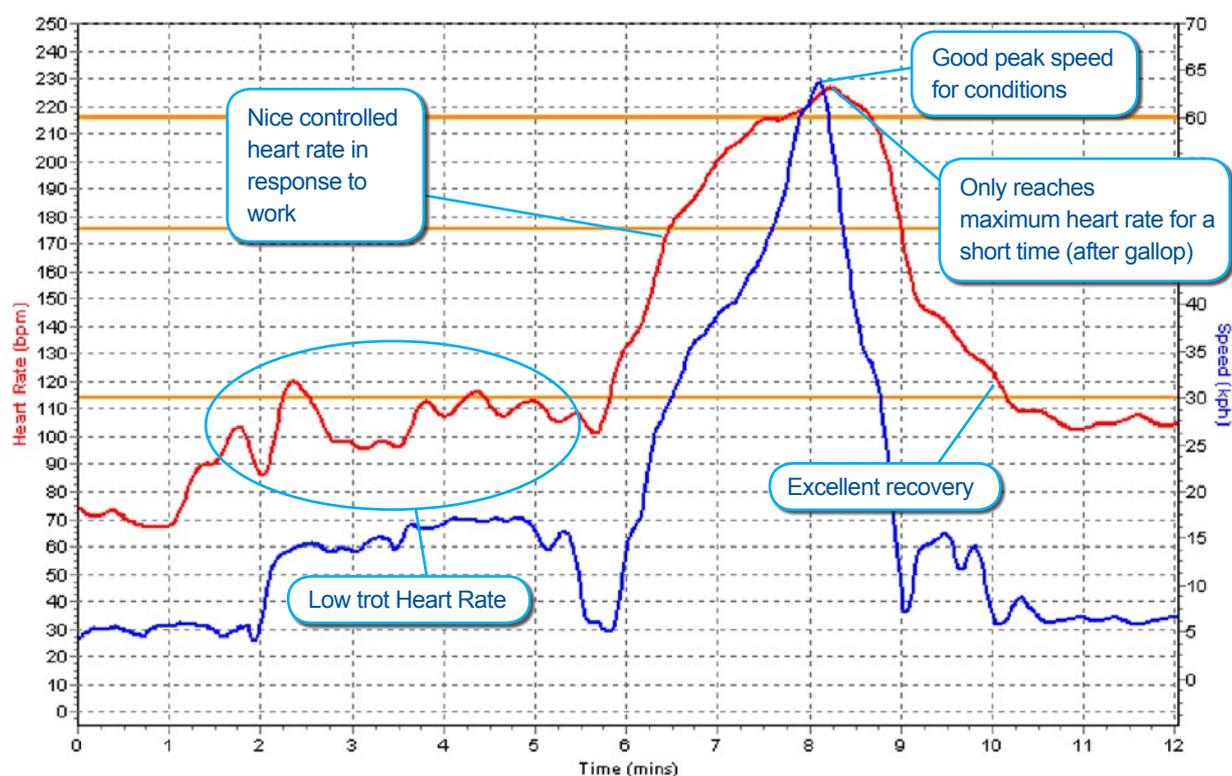
Steve Wallace Trainer– Pinjarra WA

"If the horses fitness readings from E-TRAKKA® are not good enough before the race, I scratch my horses."

Using E-TRAKKA® to Identify Lameness

The horse examined in this case study is a two year old showing a great deal of promise. It was placed in the city in its first start in a race, and shortly after competed respectfully in a top class race. The horse was then spelled with inflamed joints. In spite of this, the owners and trainers felt confident that with rest, the horse promised to have a very successful future.

Below is the horse's first E-TRAKKA® reading. The graph shows the horse trotting with a low heart rate and working efficiently through the gallop, reaching a speed the trainer knew he easily achieved on heavy sand. The chart then shows the horse recovering well, indicating that even at this early stage it has above average athletic ability. For a two year old having only a short period of work the reading was considered above normal and therefore indicated that the horse had responded well to training and showed potential.



Three months later, after the horse had been spelled and had then been in work for four weeks, a change in the horse's chart was detected. The horse had begun to struggle due to warm joints indicated by a higher heart rate during trotting. But at this point the horse was not lame. The trainer decided despite the worrying E-TRAKKA® information to persevere with the horse, as they hoped a horse with so much potential would be able to work through the problems.

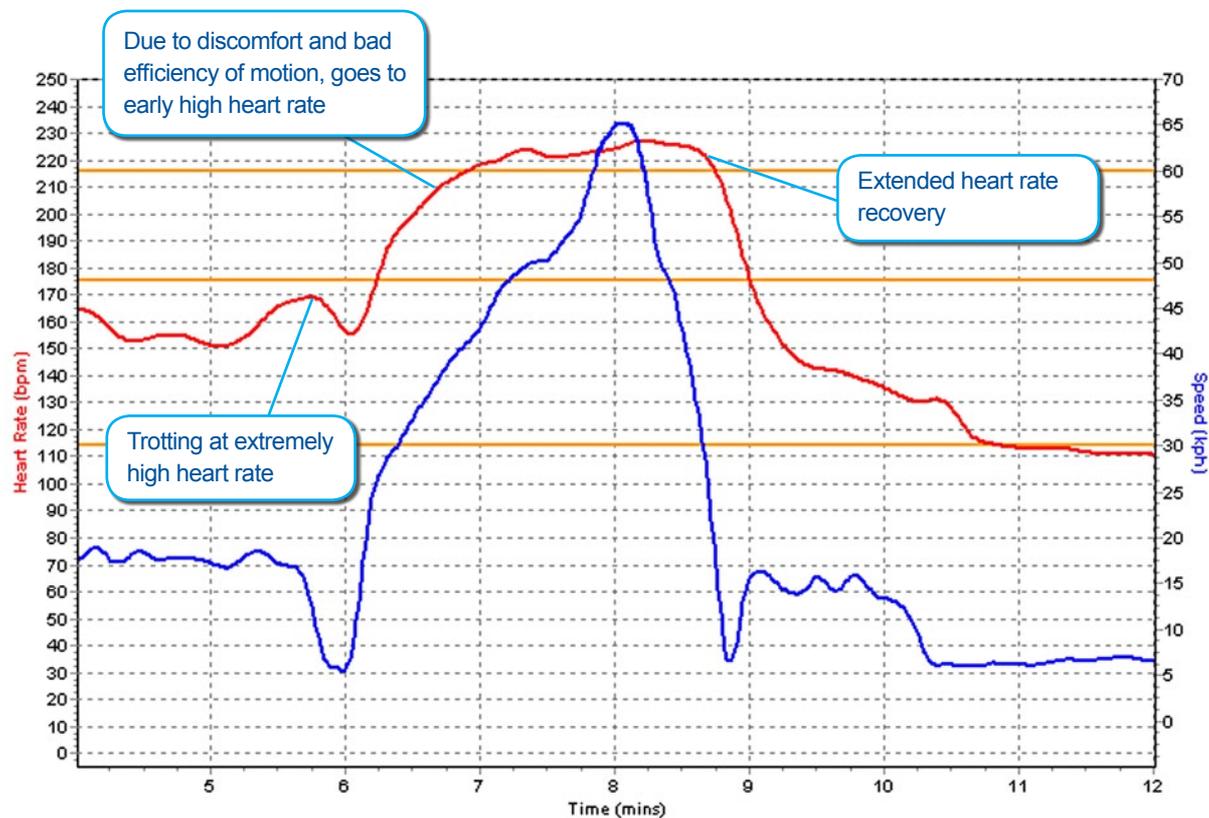
Brett Bellamy Trainer– Clarendon Lodge Coffs Harbour

"I am glad that I have persevered with E-TRAKKA® because I now appreciate the valuable data generated by this simple to use technology. I would be happy to recommend E-TRAKKA® to any trainer who wishes to improve their training and importantly, get more winners."

Michael Robinson (BVSc, PhD) Vet – Randwick Equine Centre

"The E-TRAKKA® is an innovative system that I firmly believe will become an essential component of any serious competitive stable. I believe that within the next decade most professional trainers looking for a competitive edge will own one or more E-TRAKKA®s."

Two months later, another reading (below) clearly showed the horse was struggling with fitness indicated by the high trot heart rate. Due to joint soreness the horse had developed an inefficient running style which increased its heart rate, dramatically forcing the horse to use high levels of energy. The owners persevered with the horse because of the potential he had shown earlier and their desire to run him in classic races. With a reading as poor as this chart the horse should have been instantly spelled. However he did race and ran last resulting in the horse being retired prematurely due to lameness.



Takeover Target showed greatness before being sold

Takeover Target was bought by hobby trainer Joe Janiak for just \$1400 in 2003 as a tried horse. At the time this and many other horses had taken part in the testing program run by the E-TRAKKA® development team. During these early stages of the product's development the software for identifying outstanding horses was still in its infancy. With hindsight we now see that the reading taken back in 2003 for Takeover Target showed not only that he performed like a group one horse, but that his extremely high VHRMax reading, (now widely known by E-TRAKKA® developers and users as the key to identifying horses with race winning potential), singled him out as a potential 'super horse'.

As you can imagine, the E-TRAKKA® team look back and cry 'If only...'. Had the technology that is available today been available in 2003, they could have picked up this outstanding horse for a song. **Note the close lines relationship.**



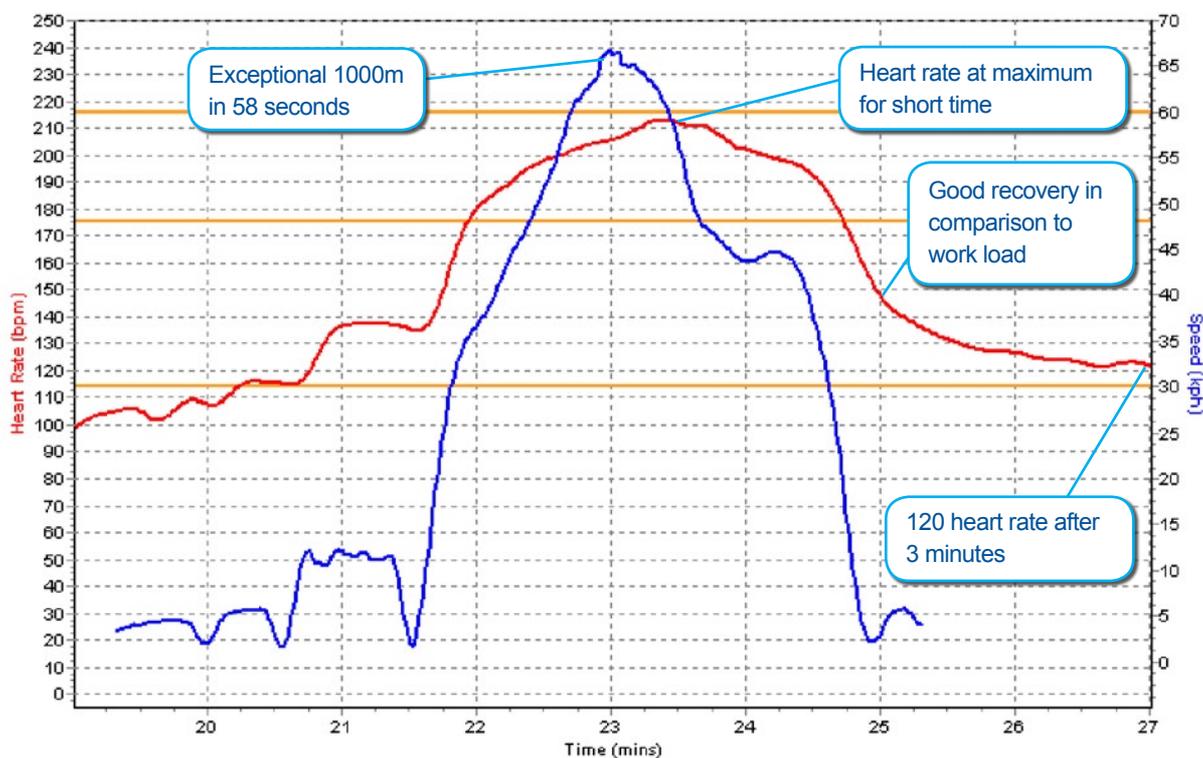
True to E-TRAKKA® predictions Takeover Target has gone on to be a proven multiple Group 1 performer in Australia and Japan. He has also won the Group 2 King's Stand Stakes at Royal Ascot and as a result won the Global Sprint Challenge.

Using E-TRAKKA® to Assess Recovery

Comparison of two horses both working 1000 metres in 58 seconds

This case study illustrates how the rate of recovery after a workout helps to identify a horse's fitness level and consequently, its ability to perform competitively. Recovery is compared to the amount of work the horse completes. Exceptional horses, ready to race competitively perform a heavy workout with great recovery.

The first chart shows a reading from a group two horse working 1000m in 58 seconds. Most trainers would agree 1000m in 58 seconds is a brilliant workout. What stands out in this chart is that the horse recovers exceptionally well from the workout. This can be seen by the sudden drop in the heart rate line as soon as the horse's speed begins to slow. A chart like this indicates that the horse will race very competitively. At his next start, this horse ran second in a group two race.



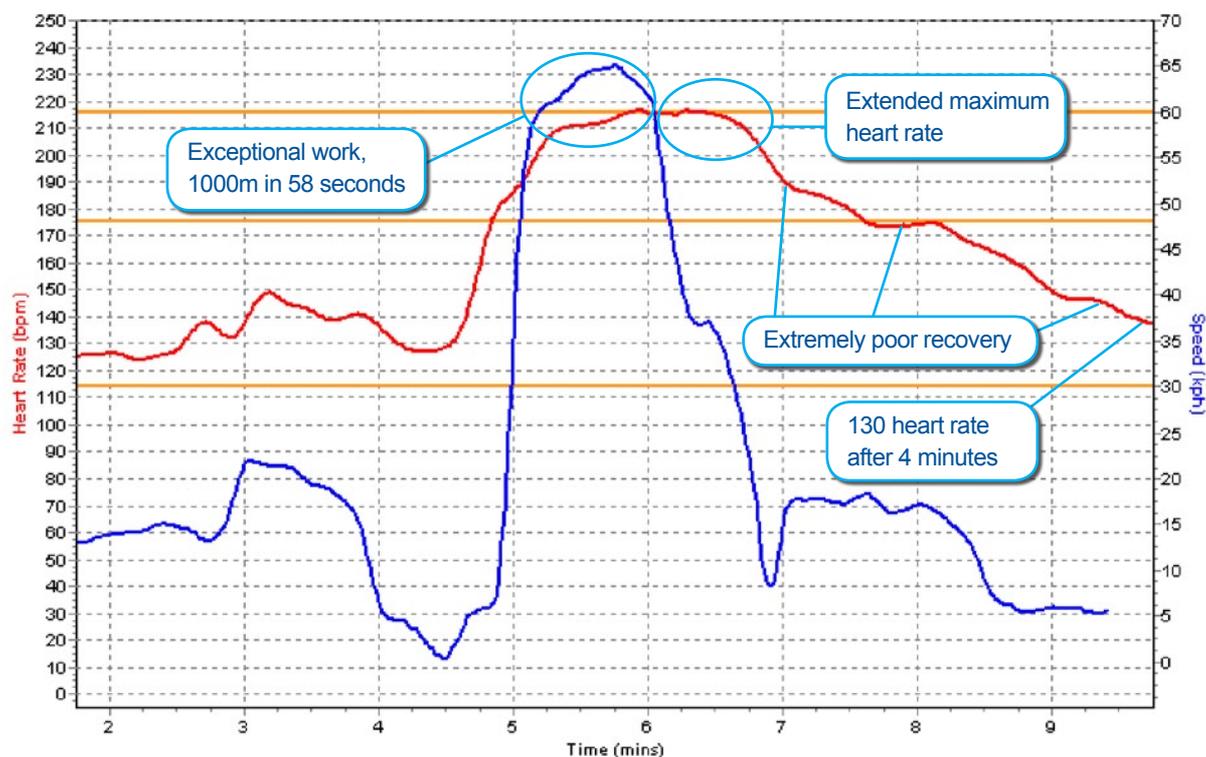
Success Story with E-TRAKKA®

Clarry Connors is a typical trainer who has achieved great success with a hands on approach. In 2006, as a part of the development of E-TRAKKA® Mirror Mirror, a horse he trained for owners John Singleton and Gerry Rose, ran and won Conrad Jupiter's Magic Millions 2 year old Classic at a staggering 50-1. Though this was a surprise to most punters, ETRAKKA® charts had provided him with an exact level of fitness which, with a fair idea about how she compared to most other quality horses, allowed him to go into the race with confidence.

The photo (right) of Clarry Connors, is an excellent example of the sort of trainer who, although traditional, has seen the potential and proof of E-TRAKKA®. His Magic Millions result with Mirror Mirror is testimony that anyone can use ETRAKKA® with brilliant results.

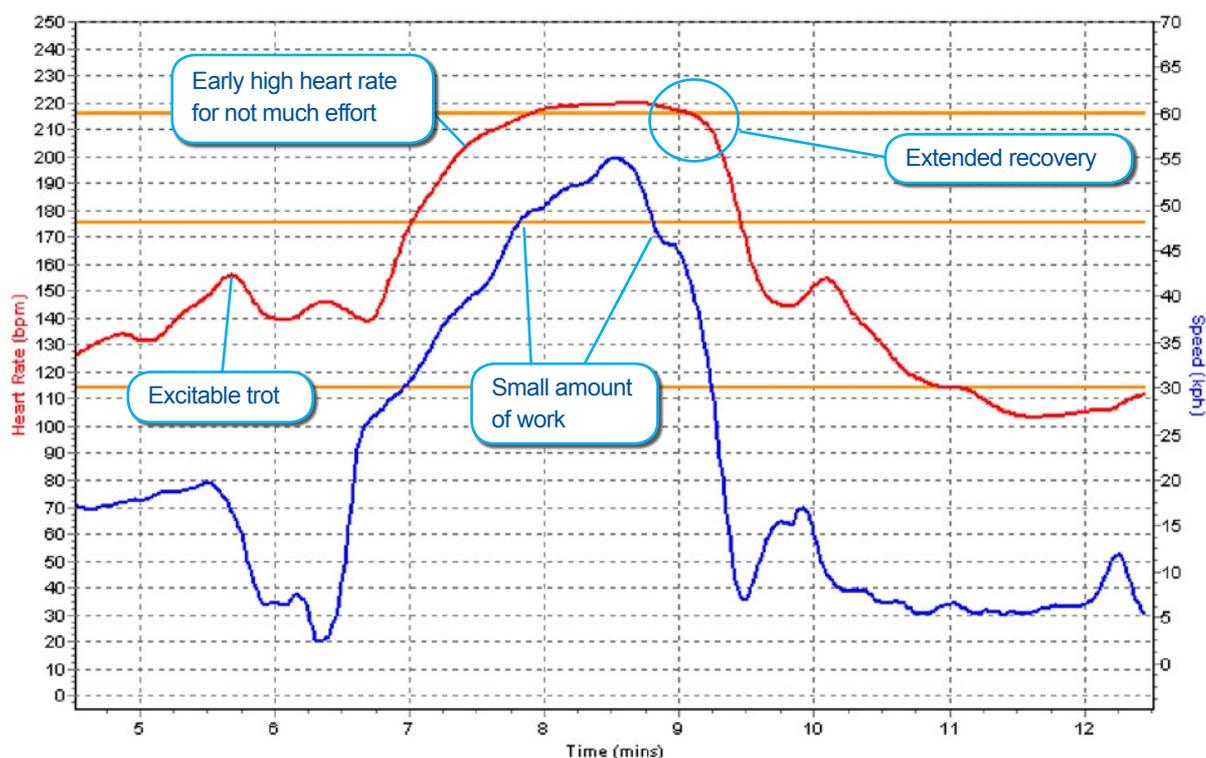


The second chart below is from a group one sprinter being prepared for a major group one sprint race. Like the first horse, it also worked 1000m in 58 seconds. However, the chart shows that his recovery is very poor for this amount of work, indicating that when he races he may not be able to compete at group one level. As predicted, when he raced in the group one race shortly after this reading, he ran sixth against horses he would normally have outperformed. As shown in the E-TRAKKA® chart, the horse was not fit enough to win in a competitive group one race.

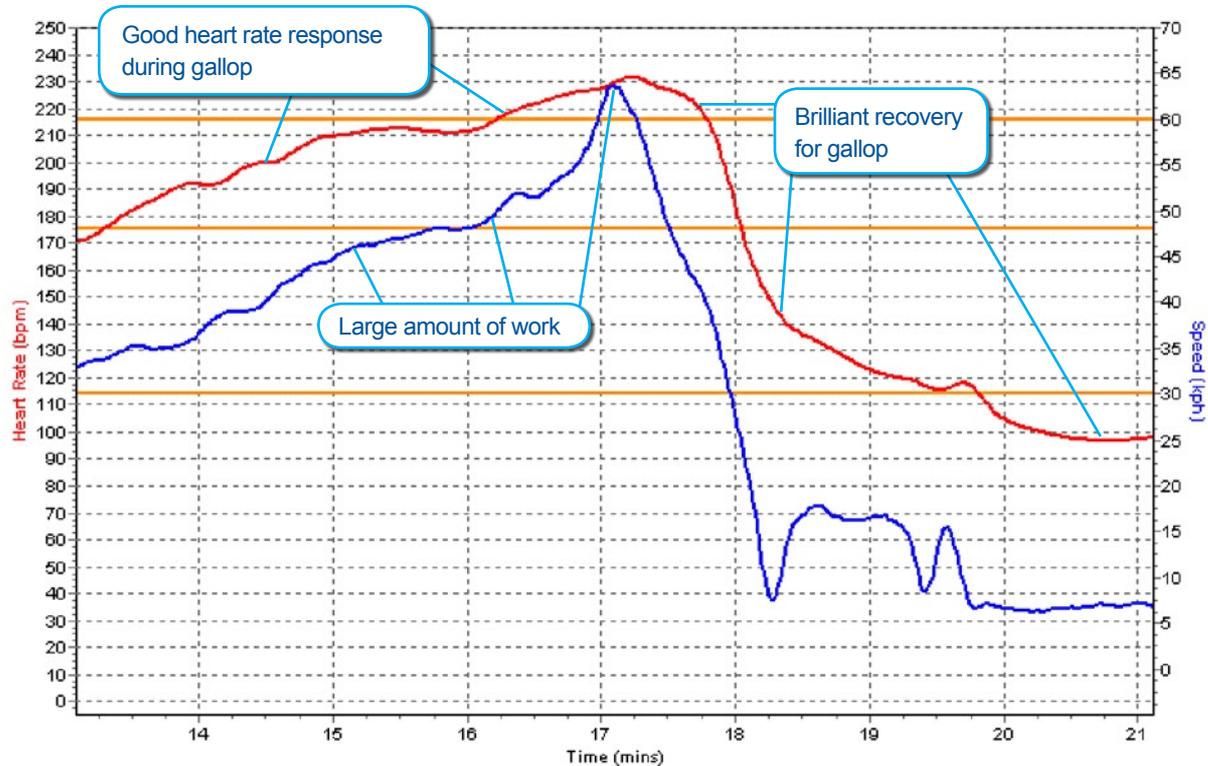


Using E-TRAKKA® to Monitor Fitness Over Time

Scenic Shot is an excellent example of how building an E-TRAKKA® profile on a horse allows us to monitor improving fitness. At the start of the profile, Scenic Shot was returning from a spell after running third in the group one WA Derby. In the first chart (below), we see the heart rate while trotting is noticeably elevated. This is a normal reading for a fresh horse and is also a normal characteristic of an excitable Gelding such as Scenic Shot. Because he has only had five weeks of work, he has a comparatively low level of fitness. Therefore, a small amount of work has caused him to perform with a very early maximum heart rate.



After four and a half months of work, Scenic Shot produced a far different profile. Good athletes respond to training and continually show improved profiles. Scenic Shot demonstrated this characteristic and responded extremely well to training. He had an exceptional campaign winning two Welters, placed 4th in the Group One Railway Stakes, second in a group two 1800m race, and then won the 2400m lead up to the Perth Cup. It was uncertain whether to run a four year old in a two mile race after such an arduous campaign. But Scenic Shot's chart, taken two days before the Perth Cup, was exceptional, showing signs of fitness improvement. With the knowledge E-TRAKKA® profiling provided, combined with the trainer's expertise and instinct, it was decided that Scenic Shot would run. He ran a very game unlucky fourth, but more importantly he was competitively fit.



Experience the E-TRAKKA® for yourself...

With a basic knowledge of equine fitness and how it relates to your horse's training, the role of E-TRAKKA® begins to become obvious for trainers. By comparing the chart and noting the variations between them we can begin to understand the importance of what monitoring your horse's heart rate and speed can tell us.

The case studies presented in this booklet were selected to illustrate a few of the practical ways E-TRAKKA® is currently helping trainers in the horse racing industry. These case studies reinforce the benefits of using E-TRAKKA® in conjunction with the expertise of the trainer to create a complete picture of a horse, its fitness and its potential for racing.

E-TRAKKA® Benefits...

- ✓ More fit and 'race ready' horses
- ✓ Improved win rates
- ✓ Identification of talented horses
- ✓ Early identification of health problems
- ✓ Tailored training programs for individual horses
- ✓ Removal of some of the guesswork
- ✓ Portraying professionalism to owners



Prominent Trainer Danny Morton in preparation for a training session using E-TRAKKA®

“Nothing in the world is so powerful as an idea whose time has come”

Victor Hugo - 18th century poet

E-TRAKKA[®]

Equitronics Pty Ltd
Ph: +61 8 9315 4570
Mobile: +61 0 422 868 181
Email: andrew@etrakka.com
Web site: www.etrakka.com