Powering your Body by Drinking Oxygenated Water

Oxynegated Water Test

By Roger Young

Content

Aquadraat® -The Energetic Cell Refresher

Aquadraat is one of the most unique waters on the planet. Through a revolutionary electrolytic process, pure water is vitalized in a proprietary 24 hr. process. This process changes the potentiality of the water. The result is Aquadraat, a "slender" water, rapidly absorbed into the body's cells and carrying extra oxygen in a bio-available form. Studies have shown Aquadraat to have a decrease in viscosity, which may account for it's increased absorption. Aquadraat enhances cellular respiration and supports the body's ability to meet sustained demands for increases in energy production. The body's physical performance and cellular functions are increased when oxygen is readily available and utilized more efficiently.

Aquadraat has been shown to increase exercise capacity and to stimulate an overall feeling of well-being.

The need for Aquadraat®

The body is about 70% water. Water is the key fluid medium of all cells and is essential for the body to perform all it's life sustaining biological processes. Water and oxygen are necessary to transport and metabolize nutrients, for the rehydration of muscle tissue, the lubrication of joints, and removal of waste products from the body - a clean body is a flexible body. Oxygen works as one of nature's main detoxifiers. A decrease in oxygen utilization and cellular hydration are observed in disease and aging, and during times of stress. When water intake and blood-oxygen are balanced, cell regulation is optimized.

Drinking Aquadraat has been shown to boost cell performance by increasing cellular oxidation and decreasing lactate levels. Combined with regular exercise and a healthy diet, Aquadraat works to support the immune system, to stabilize metabolism, to reduce the effects of stress and fatigue, and to stimulate mental clarity. The results being reported include, experiences of body detoxicification (results vary from person to person), more efficient breathing, an increase in alertness & concentration (the brain consumes 1/5 of oxygen levels in the body), and an general increase in vitality.

Aquadraat® taken daily

Sipping Aquadraat at regular intervals throughout the day maintains a consistent & balanced absorption of water & oxygen into the bloodstream. It is recommended the average person drink 8-10 glasses of water daily. Drinking alcohol and coffee doesn't count, as they can actually dehydrate the body. We advise increasing Aquadraat intake substantially when exercising and in hotter climates.

The Roger Young study, which follows, has shown blood lactate to decrease significantly, blood-oxygen (SpO2) levels to elevate, and performance to increase dramatically, when drinking Aquadraat.

About Roger Young

Roger Young is a coach for the US Olympic Cycling Team. He is in charge of helping cyclists prepare for the Olympic Games and for careers in cycling. He works with athletes of all age groups ranging from eight years to college students and beyond.

Becoming an Olympic champion takes years of hard work, not just from the athlete but from the coach as well. Roger was an Olympic bicyclist, and like all great coaches and teachers, understands the demands and commitment required for Olympic success. He knows how to communicate with, and motivate his students. But there is much more to training than many people realize; statistical analysis and mathematics play a large role in the training and development of professional athletes.

Roger utilizes data analysis and mathematics in his technique. The latest technology is used, in this case heart rate monitors were strapped to the chests of the cyclists as they went through their workouts; the device measures how many times per minute the heart is beating. Too many beats per minutes are an indication the biker is working too hard, and it's important he or she tone down the workout before getting hurt. Too few heartbeats per minute, and…it's time for a little pep talk.

Over the long run it's possible to graph exactly what progress the athlete is making. Roger studies an athlete's data at the start of the training and records their average heartbeat; he then compares this to a current chart to determine what the cyclist is averaging per hour. If this shows the cyclist is going faster with the same recorded effort, it indicates the training is working the way it should; the athlete is stronger and their performance has increased. And when the training works, champions are created.

Test Information

The Test

The testing procedure chosen was The Conconi. The protocol requires monitoring each rider for a two-minute period at a pre-set resistance (measured by power in watts). Every two minutes the resistance is increased. At each resistance level, pedaling rpm is maintained constant and the following is measured:

- 1. Heart-rate
- 2. Ventilation
- 3. RPE (perceived exertion based on a scale of 7 to 20)
- 4. Blood lactate
- 5. Oxygen consumption (determined by doing a qualitative analysis of expired gases)

When the rider can no longer maintain set pedaling speed (rpm) at a given resistance, the rider is asked to continue "as hard as possible" for 30 additional seconds (in an attempt to have the rider achieve maximum heart rate).

This protocol has been used as a base line by sports science laboratories all over the world. Roger Young became familiar with it first as an athlete, then as a National Team coach for the US in the mid 90's.

Professor Conconi's Idea

For about a decade it has been possible to determine aerobic capacity by measuring the maximum volume (capacity) of oxygen absorption (VO2max) and the lactate concentration in the blood. In cooperation with famous Italian endurance trainers (Lenzi etc.) the Italian biochemist Francesco Conconi succeeded in developing a simple, not blood-based test, which gives an indication of an athlete's condition or state of training.

The Conconi Test

For most long-distance athletes it is a major decision determining the right level of training intensity. In many cases this is individually decided by 'gut-feeling' but more professionally so, from race or test results. Technology has been developed which permits reliable measurements to be taken. From these results we may extract very useful information; in this case, the determination of the VO2-max (= maximum oxygen-absorption capacity) or the heart rate transition point also known as the anaerobic threshold. (Note 1 p.7)

Oxygenated Water Test using Aquadraat®

The Conconi Test was conducted on 8 active riders. The goal was to determine and exhibit the possible changes, if any, in their cycling performance, after consuming Aquadraat - oxygenated water.

To assure that any performance changes would be due only to the consumption of the water, the following conditions were established:

1. Riders were chosen in whom we had the utmost confidence: to drink the water according to instructions, to keep disciplined detailed journals, and to maintain other conditions as not to skew testing and re-testing data.
2. Riders were not informed in any way about the water. There was no indication given as to what they might experience, if anything, when drinking Aquadraat. They did not know the name of the product they were drinking, only that it was water.
3. Packaging of the water had no markings. It was not possible for riders to form a prejudice or to expect an improved performance based on any printed claims.
4. The number of days between testing and re-testing were sufficient to assure Aquadraat water had accumulated (in the riders' systems) but not long enough for testing results to be influenced by training effects.
5. Water was distributed to riders with specific instructions on the drinking volume/frequency requirements during the trial/testing period.
6. Testing and re-testing were conducted under scientific conditions, using protocol accepted for its accuracy and validity by the International Cycling community.

Changes in performance were determined by comparing the data acquired from riders before Aquadraat® water consumption with the data acquired from riders in a re-test after 5 days of Aquadraat® water consumption. The personal experiences of each rider were also recorded, and noted, to give us a more complete view of the effects experienced when drinking Aquadraat® water.

Test Athletes

All test subjects are trained cyclists, currently active in cycling. Their habits are routine and of a healthy nature.

Roger: 50, male, 195lbs, 5′ 9″. A former professional and Olympic Team rider, Roger is now a recreational triathlete who trains 6 days/week.
Paul N.: 30+ male, 210lbs, 6′ 1″. A former collegiate athlete (baseball etc.) Paul is a new bike racer, training 4-6 days/week.
Linda: 40+ female, 130lbs, 5′ 4″. An avid time-trial cyclist with road racing, Linda has cycling experience over the past 10 years.
Dan: 59, male 160lbs, 5′ 11″. Dan is one of the best age-category triathletes in the world with a very intense ongoing training regime.
Paul D: 47, male, 189lbs, 6′ 1″. A former National Champion and Olympian, Paul is now a recreational cyclist who does not do formal workouts, but rides regularly.
George: 21, male, 145lbs, 5′ 10″. One of the up-and-coming cycling stars in the area. George is currently a college student and trains 6 days/week.
Robert: 22, male, 156lbs, 6′, Robert is another young athlete who does mountain bike racing, triathlons, and road cycling. He trains 6 days/week.
Kevin: 50, male, 158lbs, 5′ 8″. Kevin is one of the best time-trial cyclists in California and is preparing 5 days/week for the National Championships.

Test Equipment

- 1. Rider's own bikes: 120lb tire pressure
- 2. Velodyne electronic trainers controlled by Net/Athlon software
- 3. Power-Tap cycling computer and Power-Tap rear wheel. (Note 2 p. 7)
- 4. Accusport [by Boehringer Mannheim] blood lactate testing device. (Note 3 p. 8)
- 5. New Leaf metabolic testing equipment (Note 6 p.10) running Exersmart software. (Note 4 p. 9)

Testing Personnel (Proctors)

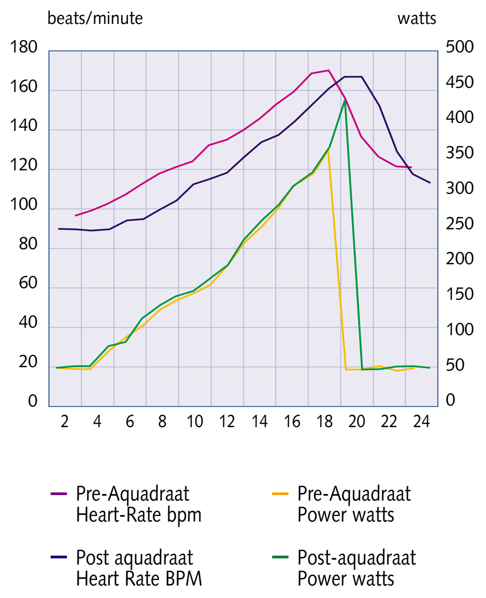
1) Saul Blau
Saul has a Masters of Science, and is employed by New Leaf Athletic Training Systems. He is a specialist in using the metabolic testing equipment and software. With over 20 years experience in testing athletes, he is also an expert at testing cyclists and implementing the protocol used with the athletes.

2) Roger Young
Roger has a Bachelor of Science from Fullerton State University. Roger is a former Olympic cycling coach, and was responsible for establishing testing protocol for the US Team (1993-95). He holds the highest certification available from both the USA Cycling and the International Olympic Committee. He is highly experienced in using the cycling equipment, and in the blood lactate testing.

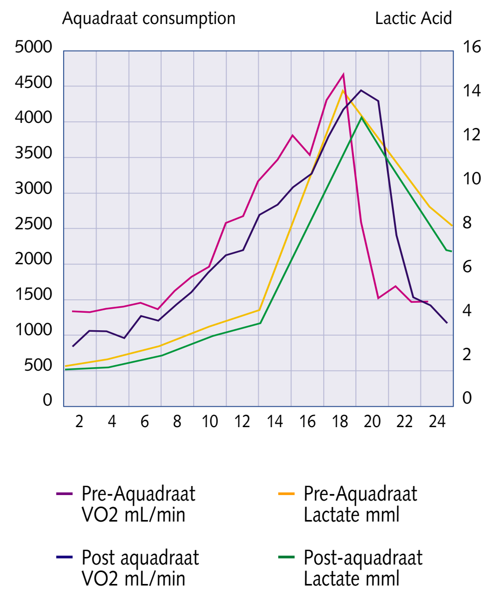
Test Protocol and Procedures

1. Bike is setup by Roger on the velodyne electronic trainer
2. Tire pressure is checked and velodyne is configured
3. The following rider personal data is recorded and entered into the testing software:
    a. Date of birth
    b. Weight
    c. Gender
    d. Height
4. Rider mounts bike and pedals easy to check operation of Power-Tap
5. Saul configures metabolic equipment
6. Saul places "masks" on riders and hooks up "gas-exchange" equipment
7. Riders are instructed to ride under the following conditions:
    a. Maintain 85-90 pedaling rpm
    b. Begin at 12 miles per hour and increase speed 1mph every minute
    c. Roger will lance your finger every 3 minutes (also at the end of recovery) and take a drop of blood for lactic acid recording
    d. Remain seated throughout the test
    e. When too fatigued to maintain prescribed speed, continue full effort for 30 additional seconds
    f. After maximum effort is reached, lower speed to 12mph for 5 minutes
8. Roger starts the NetAthlon software as Saul starts the metabolic testing software
9. Rider begins riding at 12mph, increasing speed every minute
10. The following metabolic data is recorded on-going throughout test
    a. Aquadraat® consumption (VO_2 (ml/kg/min) and (ml/min)
    b. CO_2 expired volume (ml/min)
    c. RQ - respiratory quotient (percent of maximum)
    d. Heart rate; beats/minute (bpm)
    e. Lactic Acid
    f. Qualitative/quantitative energy consumption [fat versus carbohydrate]
11. The following rider performance data is recorded on-going throughout test
    a. Power output [watts] recorded by the Power-tap unit
    b. Power output [watts] recorded by the Velodyne
    c. Heart-rate [bpm] recorded by the Power-tap
    d. Cadence [rpm] recorded by Power-tap
    e. Speed [mph] recorded by Velodyne
12. After rider reaches maximum effort and begins to exhibit fatigue, rider slows to 12mph, holding this speed for 5 minutes
13. After 5 minutes at 12mph, rider is tested for lactic acid and final metabolic data is recorded
14. Rider dismounts. The test is completed.

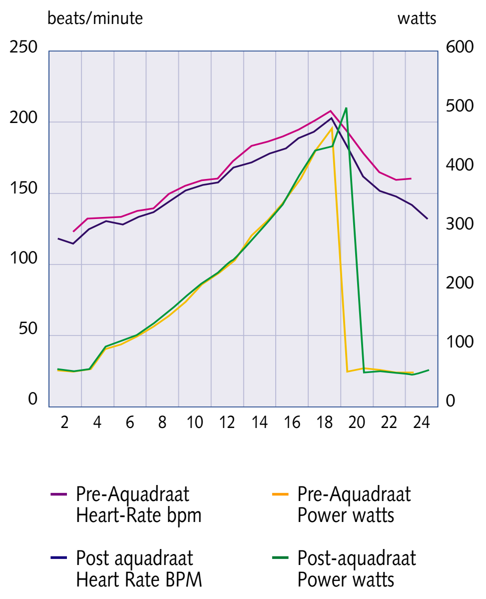
ROGER TEST RESULTS



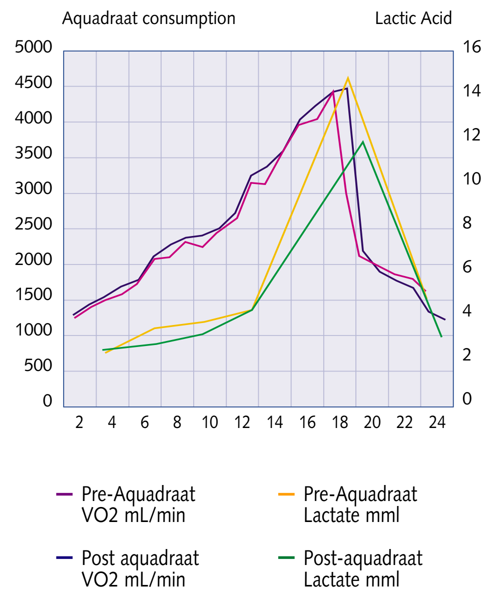
ROGER TEST RESULTS

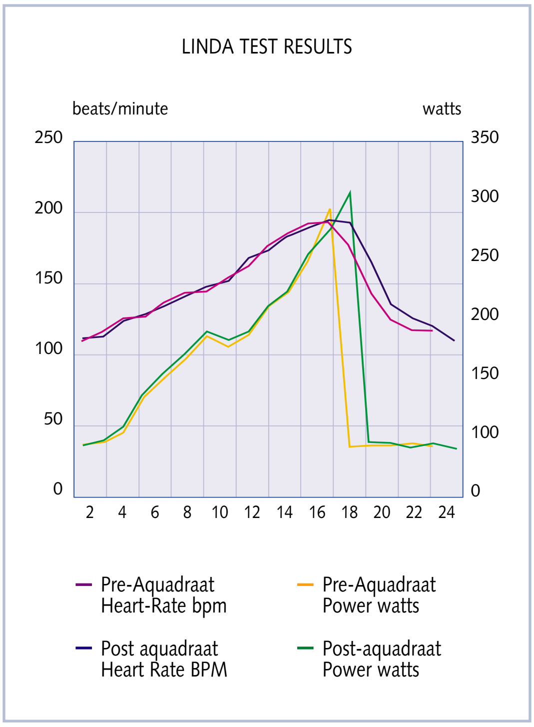


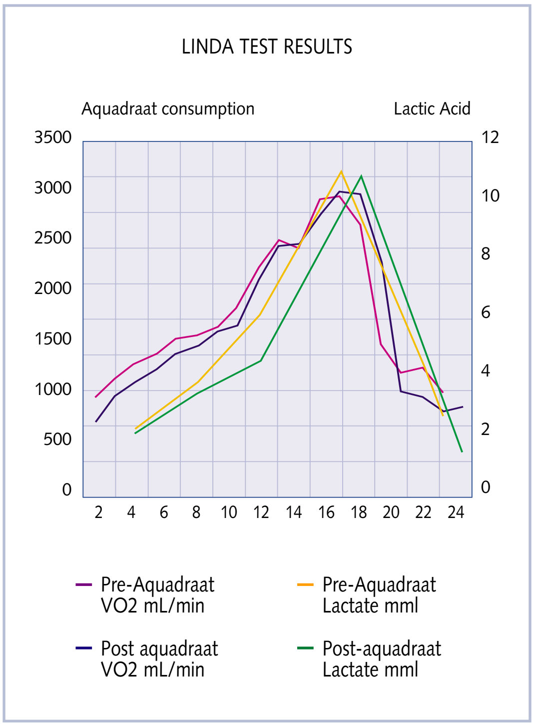
PAUL N. TEST RESULTS

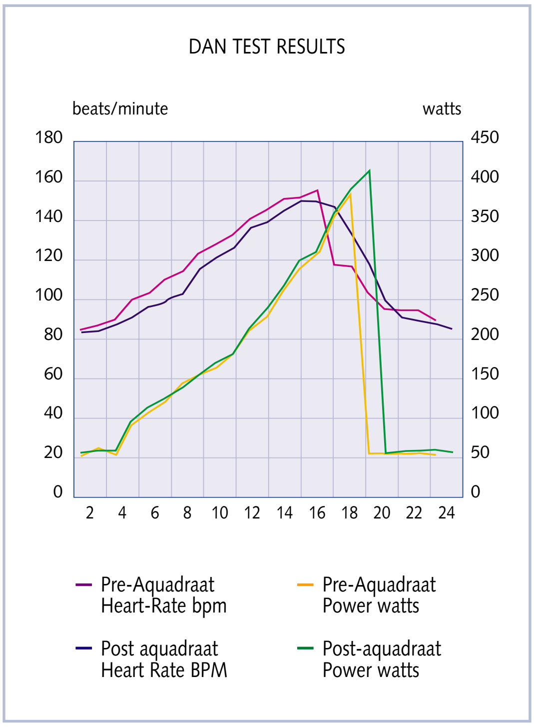


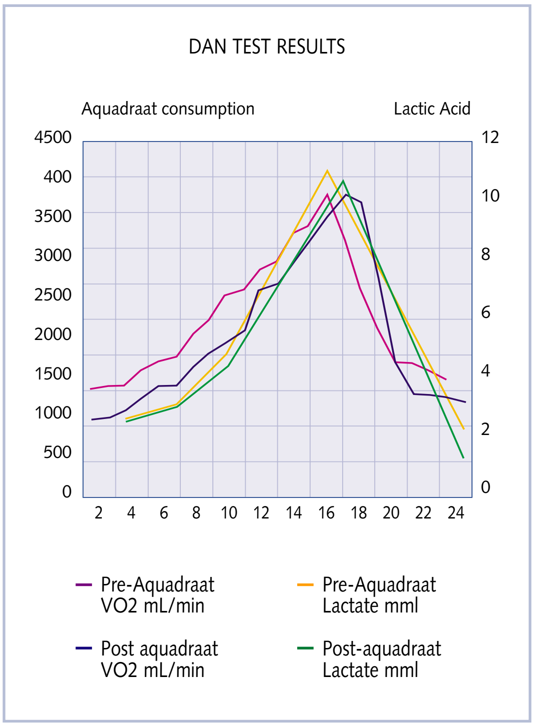
PAUL N. TEST RESULTS



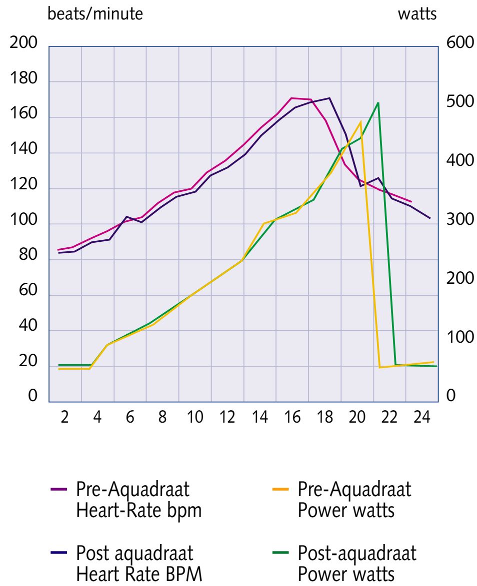

LINDA TEST RESULTS
beats/minute
watts
250
200
150
100
50
0
350
300
250
200
150
100
0
2 4 6 8 10 12 14 16 18 20 22 24
Pre-Aquadraat Heart-Rate bpm
Pre-Aquadraat Power watts
Post aquadraat Heart Rate BPM
Post-aquadraat Power watts


LINDA TEST RESULTS
Aquadraat consumption
Lactic Acid
3500
3000
2500
2000
1500
1000
500
0
12
10
8
6
4
2
0
2 4 6 8 10 12 14 16 18 20 22 24
Pre-Aquadraat VO2 mL/min
Pre-Aquadraat Lactate mml
Post aquadraat VO2 mL/min
Post-aquadraat Lactate mml

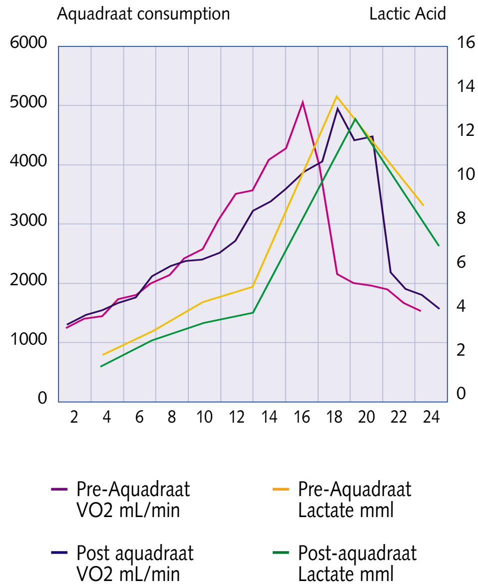

DAN TEST RESULTS
beats/minute
watts
180
160
140
120
100
80
60
40
20
0
450
400
350
300
250
200
150
100
50
0
2 4 6 8 10 12 14 16 18 20 22 24
Pre-Aquadraat Heart-Rate bpm
Pre-Aquadraat Power watts
Post aquadraat Heart Rate BPM
Post-aquadraat Power watts


DAN TEST RESULTS
Aquadraat consumption
Lactic Acid
4500
400
3500
3000
2500
2000
1500
1000
500
0
12
10
8
6
4
2
0
2 4 6 8 10 12 14 16 18 20 22 24
Pre-Aquadraat VO2 mL/min
Pre-Aquadraat Lactate mml
Post aquadraat VO2 mL/min
Post-aquadraat Lactate mml

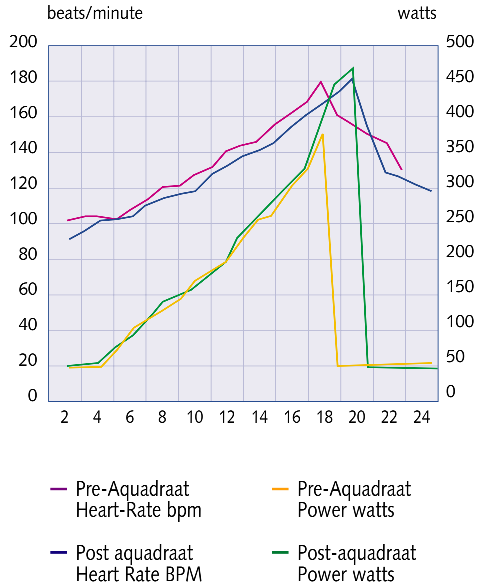
PAUL D. TEST RESULTS



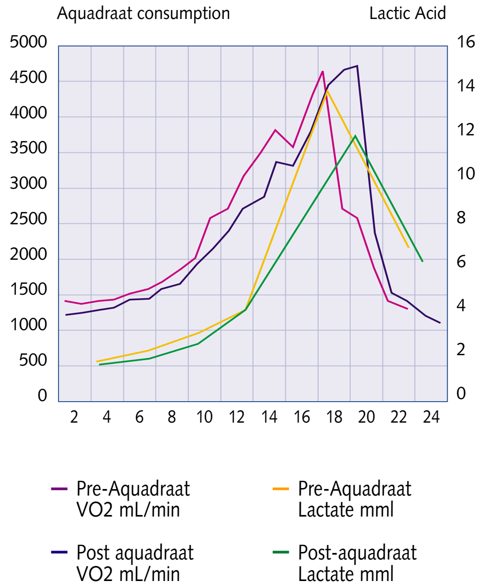
PAUL D. TEST RESULTS

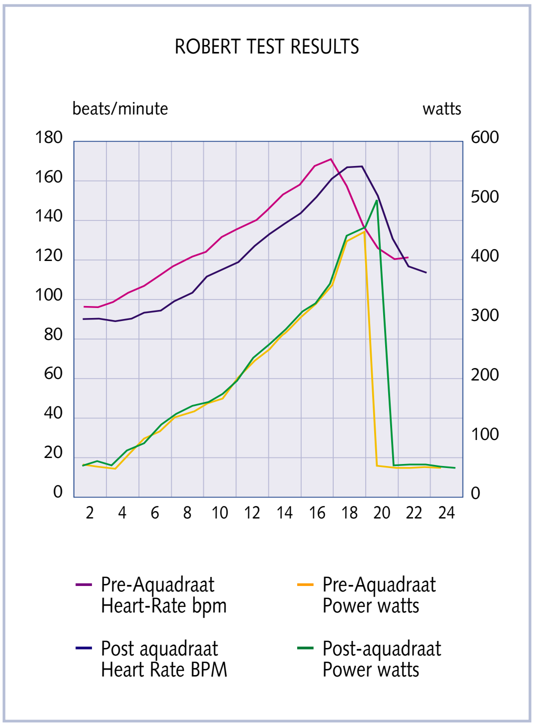


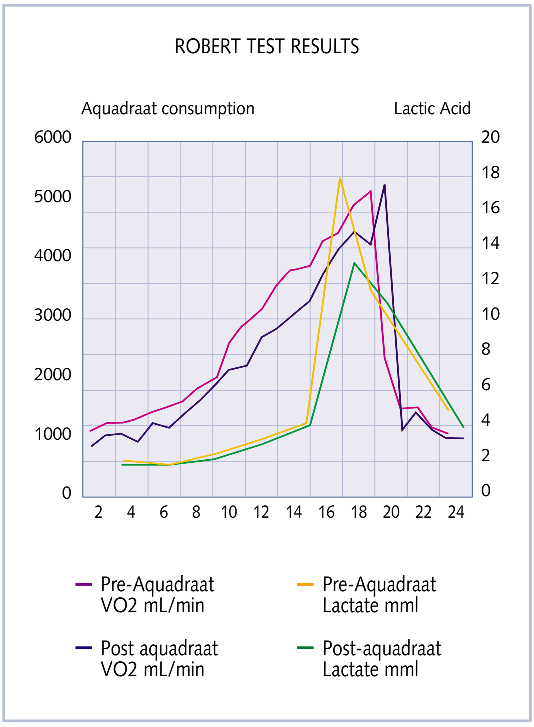
GEORGE TEST RESULTS

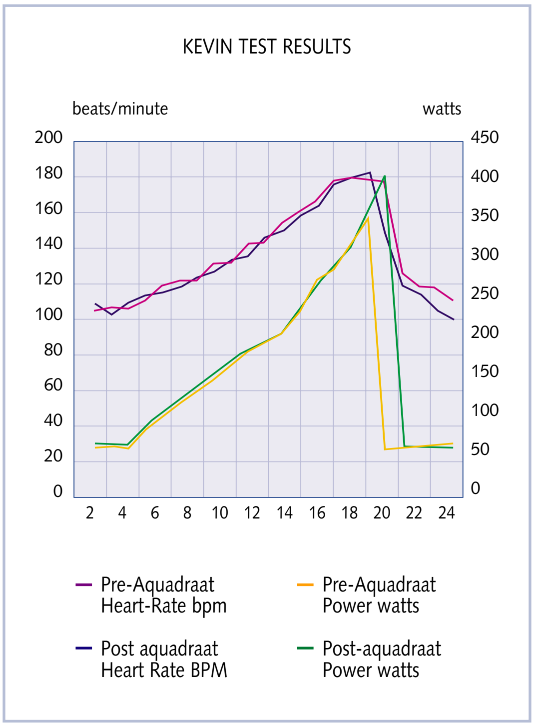


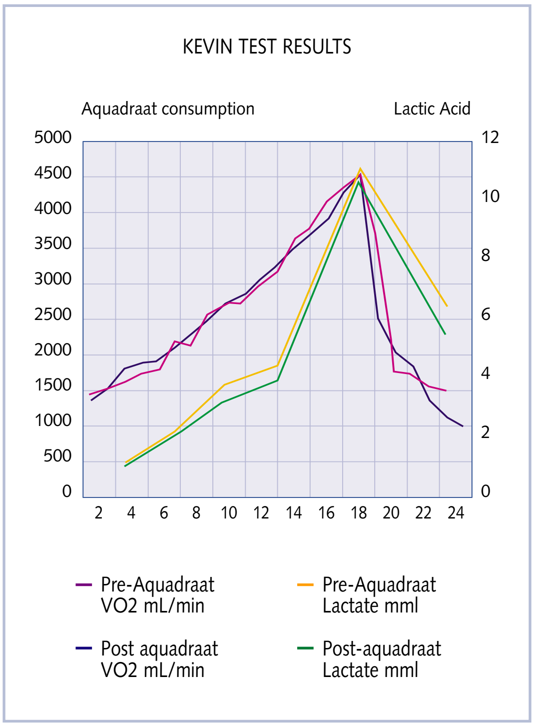
GEORGE TEST RESULTS




ROBERT TEST RESULTS
beats/minute
watts
180
160
140
120
100
80
60
40
20
0
600
500
400
300
200
100
0
2 4 6 8 10 12 14 16 18 20 22 24
Pre-Aquadraat Heart-Rate bpm
Pre-Aquadraat Power watts
Post aquadraat Heart Rate BPM
Post-aquadraat Power watts


ROBERT TEST RESULTS
Aquadraat consumption
Lactic Acid
6000
5000
4000
3000
2000
1000
0
20
18
16
14
12
10
8
6
4
2
0
2 4 6 8 10 12 14 16 18 20 22 24
Pre-Aquadraat VO2 mL/min
Pre-Aquadraat Lactate mml
Post aquadraat VO2 mL/min
Post-aquadraat Lactate mml


KEVIN TEST RESULTS
beats/minute
watts
200
180
160
140
120
100
80
60
40
20
0
450
400
350
300
250
200
150
100
50
0
2 4 6 8 10 12 14 16 18 20 22 24
Pre-Aquadraat Heart-Rate bpm
Pre-Aquadraat Power watts
Post aquadraat Heart Rate BPM
Post-aquadraat Power watts


KEVIN TEST RESULTS
Aquadraat consumption
Lactic Acid
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
12
10
8
6
4
2
0
2 4 6 8 10 12 14 16 18 20 22 24
Pre-Aquadraat VO2 mL/min
Pre-Aquadraat Lactate mml
Post aquadraat VO2 mL/min
Post-aquadraat Lactate mml

Results Evaluation

The intention, and goal of the test, was to compare cycling performance from the first test to the re-test, after riders had consumed about 1 gallon of water per day, 5 gallons of water in 5 days. This is not considered to be enough time for riders to exhibit stronger (or weaker) riding due to training. In conclusion, we were confident that only the water consumption could have attributed to the changes the riders experienced.
Detailed physiological data, including the amount and rate of Aquadraat consumption, and the lactic acid level, of each rider, were recorded during all stages of the tests.

Results of the Re-Test – After Aquadraat consumption

1. All riders road further (faster) into the test before a fatigue-induced speed drop.
2. All riders produced lower lactic acid measurements at the same speed/power output.
3. All riders experienced lower maximum lactic acid readings at fatigue.
4. 7 out of 8 of the riders experienced a greater drop in lactic acid readings after 5 minutes of recovery from the test ride.
5. All riders measured a lower VO2 ml/min., at the same speed/power output.
6. All riders exhibited lower heart rates at same speed/power output.

Comments from Roger Young on the Retest

There is no question the Aquadraat water allowed the athletes to ride further with less fatigue. It is also clear that their improved performance was due to Aquadraat giving the riders the ability to re-metabolize lactic acid at an increased rate. This attributed to the profoundly lower lactic acid reading demonstrated in the retest.

Furthermore, the lower VO2 ml/min. observed is due to the riders' working muscles extracting more Aquadraat®/O2 directly from the blood. The lowered heart-rate readings at similar speeds provided more evidence that Aquadraat consumption had a profound physiological effect on the riders.

Because all the riders experienced "irregular" evacuation, indicating they all encountered some "cleansing", we are not certain what percentage of the improved performance is due to anabolism [improved available oxygen] and what changes are due to catabolism [a "cleaner", more efficient running, system]. It may be that some riders experienced more catabolistic advantage while others had a greater anabolistic affect.
With no "control" group, and this initial trial having a limited a number of test subjects, all we can confidently say it the Aquadraat water was responsible for improving the cycling performance in everyone we tested.

General comments— from Roger Young's test group May 2003

1. After two days of drinking the water I woke with head and stomach pain
2. Felt much better the third day
3. First day got a nauseous after drinking more liquid than I am used to
4. Noticing less nasal congestion after drinking for over three days
5. Appetite reduced from drinking more fluids than usual
6. Noticed increase in energy level throughout the day when usually I get tired at days end.
7. Water tastes better in a glass, a very good flavor
8. Water in plastic cycling bottle tastes like the plastic
9. Very noticed increase in urination rate
10. Had loose stool for three days
11. Had to get up in the night to urinate

12. Water tastes better when cold
13. Noticed better performance in my group rides
14. Felt less fatigue during longer rides
15. Able to recover better between hills
16. Generally felt better and that helped me train harder
17. Recovered between workouts and that also helped me work harder and more often

Further Observations & Comments from Roger Young

By far the two most significant results are the following

1. The reduced lactic acid levels for all riders, throughout all stages of the test, proving the water helped assimilate lactic acid. This improved cycling performance, which was affirmed by the longer distances, at faster speeds, achieved by ALL riders by the end testing.
2. The reduced heart rate at every level of the test. Riders exhibited a need for less "effort", to go the same speeds (under exact conditions), after drinking Aquadraat.

There are two general ways I evaluate improvement

1. The first is what I call a "competitive outlook", where we compare how much faster, that is how much more power, we get for the same effort: for this result, the average improvement for the group was 8%.
2. A second way is to look at the results. I call this the efficiency effect, which is comparing how much lower the heart rate is at the same speed (power output). This is the same relationship, using a different equation; however, the result is still 8% for the group.

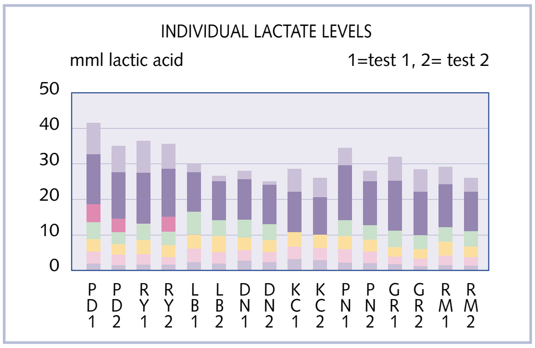
Group lactate improvement is best described as the following:

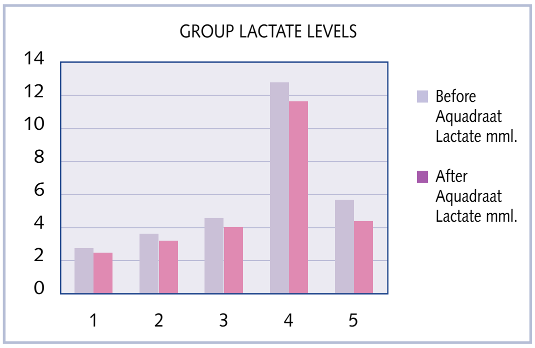
- **4 % improvement at "O2 compensation" effort level**
- **9 % improvement at "aerobic endurance" effort level**
- **11 % improvement at "Anaerobic Threshold" level**
- **3 % improvement in 5-minute recovery from maximum**

The difference in O2 consumption (from measuring gas expired) averaged at 3%.

The two graphs below are representative:
The first shows individual lactate levels. It is a stacked graph with various colors representing each sample, with the total height of each column showing the total amount of lactic acid measured for that individual during the specific test.

The second graph shows the group lactate levels in mml. Each column represents a stage of the test with the blue showing lactic acid levels during the first test, pre-Aquadraat, and the red showing levels post- Aquadraat consumption, the re-test results.





Notes

Note 1) Determining the anaerobic threshold

Several possibilities are available to determine the anaerobic threshold, of which some examples are:

1. Well-trained persons may use as a rule of thumb “210 minus their age” for a coarse indication of the anaerobic threshold.
2. Another, very good approximation of the anaerobic threshold is the mean heart rate during a 15 km race.
3. PIAT-test (Probable Individual Anaerobic Threshold.
4. Laboratory test by performing a blood analysis. The regular measurement of lactate (from: lactic acid) in the blood by a medical doctor on the track is not something practical & attainable for everyone.
5. Conconi Test – see p.3-4

Note 2) Energy conversion in the muscles: aerobic, anaerobic and Conconi measured anaerobic

The aerobic threshold

Our muscle cells are capable of converting chemical energy into mechanical energy. This is what allows us to move. Energy-rich phosphates (ATP, CP), carbohydrates, and fats are available as fuel. If the demand load on the muscle is not high, the carbohydrates and fats will be fully burned (oxidized) and converted into water and carbon dioxide - provided that oxygen is sufficiently present. This type of energy conversion is called aerobic.

However, if the body suffers from an insufficient oxygen supply, or when intensive work has to be done immediately, then the muscle will use a second type of energy conversion that doesn't depend on oxygen. This type of energy conversion is called anaerobic. Here, the energy may be extracted from either the energy-rich phosphates (a-lactic metabolism) or the conversion of glucose into lactic acid (lactic metabolism).

The transition from aerobic to anaerobic energy conversion is taking place at the so-called anaerobic threshold. This anaerobic threshold coincides with the transition point of the heart rate.

When there is a small physical load, and a low level of intensity, the body will obtain its energy almost exclusively from the aerobic metabolism. During aerobic metabolism oxygen is taken in by the lungs and transported to the muscles through the heart-blood-vessel system.

When there is an increased load or an emergency demand, the muscle consumes more oxygen and the heart has to work harder. Consequently, the heart rate increases and the body shifts toward anaerobic metabolism.

In the aerobic mode, the heart rate ranges from about 120 ? 170 BPM (beats per minute); here a linear relation exists between load (work intensity) and heart rate. At increased levels of intensity, oxygen supply becomes insufficient and the required energy has to be produced by the muscle without oxygen (anaerobic). The body uses the glycogen (a form of glucose) stored in the muscle, but it produces lactic acid when doing so. By now, the blood supply to the muscle and the accompanying heart rate will increase at a lower degree. Hence, a change will occur in the proportionality between work level and heart rate. In other words, the curve will show a kink, or a deviation from the straight line will become visible (see Figure 1).

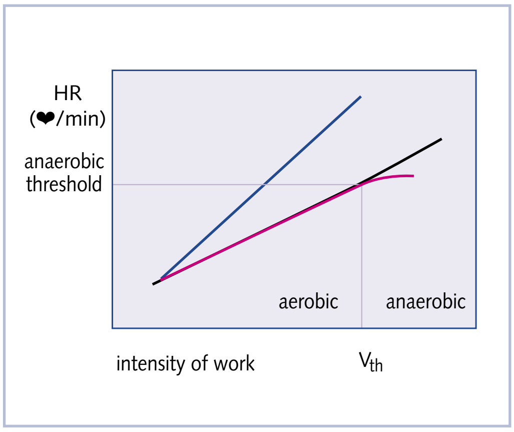


Figure 1

For example:
During a test on a racetrack the relation between running speed and heart rate was determined. A thorough warming-up of between 15 and 30 minutes was followed by a continuous run. During this endurance run, dependent on the protocol of choice, the speed was only slightly increased every 1000, 400 or 200 meters by no more than 0.5 km/hr. After the data had been plotted in a graph, it was easy to determine the anaerobic threshold (see Figure 2).

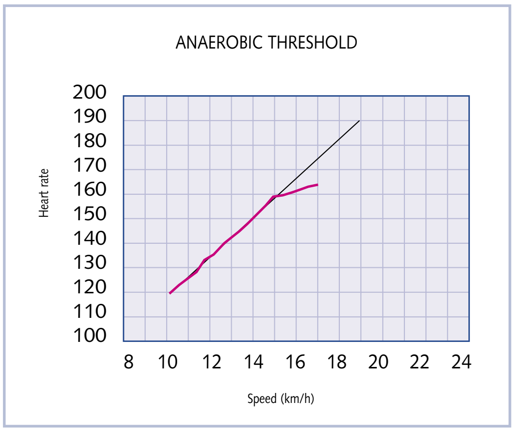


Figure 2: Heart rate measured as a function of running speed

The anaerobic threshold

With some experience the aerobic capacity of a sportsman may be determined by figuring the anaerobic threshold through a Conconi Test. On the one hand this test will enable us to get an indication of the endurance (staying power) of an athlete. On the other hand it offers the opportunity of heart rate controlled training.

By virtue of HRMs (heart rate monitors) – these appeared on the market in the early 80s -one may accurately control the training-intensity level. This permits the volume and frequency, as well as the sport-specific and actual-physical-condition-dependent intensity of the training to be monitored. Recording the running velocity at the threshold, vth (see Figure 1) for competitive as well as recreational athletes allows this. In the recreational category, a running velocity of 10 km/hr at the anaerobic threshold is characterized as being poor, 12 km/hr is average and 14 km/hr is splendid. For comparison, in 1986 this threshold was between 15.5 and 17.7 km/hr for junior cross-country skiers, whereas world-class long-distance runners showed threshold velocities up to 23.6 km/hr.

Conconi measured anaerobic

Conconi developed a method by which the anaerobic threshold was determined without using the lactate value, i.e. without blood sampling.

Conconi was able to show that the kink occurs at the level of work intensity where the production and the consumption of lactic acid are in balance. This implies that even for longer-lasting work, at this level of intensity, no increase of lactic acid concentration in the blood will occur. However, when the athlete passes this anaerobic threshold, an accumulation of lactic acid begins when there is an exhaustion of the muscles and the blood-circulation (aerobic) system. He/she will then have to reduce their efforts or even have to stop.

Despite some disadvantages (accommodation or settling time, problems with transmission of the heart rate, adjustment of running speed etc.) the test has proven itself. According to Conconi, it is one of the success factors behind the Italian long-distance runners.

Author: Jan van den Bosch

Note 3) Power-Tap Computer

The Power-Tap computer has many of the features found on high-end cycle computers. Additionally, it displays maximum, average, and instantaneous power, average and instantaneous heart rate and cadence, and total energy expenditure.

This computer also stores 9 discrete, non-overlapping intervals. At any time after you've recorded an interval, you can review all of the average and maximum values (power, heart rate, speed, and cadence) as well as the accumulated values (distance, time, and energy expenditure).

The Power-Tap computer can store up to 7+ hours of ride data for subsequent downloading to a PC.

The graphical user interface (GUI) is logically planned and is surprisingly easy to use considering the number of embedded features. The most interesting part of the GUI is the way it allows the user to easily switch between Trip mode and Interval mode. If you'd like to get a feel for how the GUI is laid out, download the Power-Tap Simulator.

The computer housings are ultrasonically welded together and the O-ring on the battery door and the hermetically sealed interface buttons make for a very water resistant component.

Note 4) Accusport by Boehringer Mannheim

With proper protocols the Accusport - Lactate Analyzer enables the coach to measure both the aerobic and anaerobic conditioning of each athlete. Information about both is necessary for the coach to optimize the conditioning of each athlete whether they are a 50-meter freestyle swimmer (about 25 seconds per race) or an Iron man triathlete (over 8 hours per race). With information about each energy system, the coach can plan, control and monitor the training of athletes with a precision not available before. The Accusport provides the important information that enables the coach to individualize the intensity of each athlete's workout and control their training so they reach performance objectives.

Accusport provides a multi-dimensional profile of conditioning.
Because lactate is produced by the anaerobic system and used by the aerobic system it is the only marker available for measuring each system. The amount of energy an athlete can produce per unit of time depends on the development of both systems, which is why they have to be balanced. (Essentially this means training the anaerobic system to a level that is appropriate for the athlete's aerobic capacity.) This balance will depend upon the event for which the athlete is competing and will also depend upon which part of the training cycle the athlete is in. The closer the athlete gets to the "big" event the balance will have to be "fine tuned" for a peak performance.

Accusport shows adaptation in each system.
Over time, changes in blood lactate levels tell the coach what physiological adaptation has taken place in each system. It tells the coach, which forms of training are working, or not working. Training time becomes much more efficient as the athlete performs only workouts that work. The Accusport becomes a "training compass" that "steers" each athlete in the right direction. It is much more relevant than heart rate monitoring which reflects a general overall body response to stress and doesn't necessarily reflect what is happening in the muscles or with the anaerobic system. It is much more versatile than VO2 testing which requires very expensive equipment.

Accusport teaches coaches and athletes what is required for a peak performance.
Lactate testing is also a learning and motivating experience for coaches and athletes as they become much more aware of the interactions of variables and the other nuances that affect workouts as well as performance. Since the emphasis will be on training energy systems and not the use of very broad training zones, coaches will understand what works best for each energy system and why, what may be counter-productive and when and in what sequence various types of training are appropriate.

With the Accusport portable lactate testing system a coach can now quickly, easily and inexpensively measure the blood lactate of an athlete just about anywhere with an accuracy comparable to laboratory instruments

Note 5) Metabolic Assessment

A metabolic assessment analyzes the volume of oxygen consumed (VO2) and the volume of carbon dioxide produced (VCO2) in a controlled setting to determine the type of fuels your body is using, or your "metabolic profile". A Resting Metabolic Rate (RMR) assessment measures the amount of energy used at rest. The RMR is then adjusted by an activity factor to produce the amount of calories you burn in a typical day. Your RMR can be used to identify your caloric intake needs for a weight loss program (e.g. 2000 calories per day).
An exercise metabolic assessment measures the VO2 and VCO2 along with your heart rate during exercise with a gradual increase in intensity until you reach a point sufficient to collect the desired exercise "metabolic profile". Data such as heart rate, oxygen consumed (VO2 Max), and Anaerobic Threshold (AT) is determined and these are used to develop training program for you. Target heart rates are scientifically determined by your metabolic profile

during exercise and can be incorporated into a fitness or weight loss-training program by your exercise professional. Metabolic assessments are better than estimates because the program is based on your unique response to exercise. Your exercise professional will have more information from the assessments on how your body is working which leads to more effective nutritional planning and exercise programming.

Note 6) New Leaf Health & Fitness Products

New Leaf Health & Fitness Products is a unit of Angeion Corporation, which, through its subsidiary Medical Graphics Corporation. It is world renowned for innovation and excellence in metabolic measurement systems. Over 3,000 systems in more than 75 countries are in active use by top medical, sports, and health professionals. Our patented technology has been used extensively for over 25 years to assist in conditioning for professional, amateur, Olympic athletes, and throughout the Space program.

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