

# Bio-Energy Testing® - Your Metabolism is the Key

Why do people function less efficiently as they get older? Why do they slowly become weaker and frailer? Where does their strength go? Why do they have less energy? Why are they more susceptible to diseases? Why can't a 70-year-old feel and function as well as a 40-year-old? The answer to all these questions is found in one word - energy. The major difference between a man when he is 70 and when he was 40 is that as a 40-year-old his cells could produce energy more efficiently. Your body's ability to produce energy is referred to as your metabolism. So, here's the point. To the degree that you can maintain a youthful, efficient metabolism as you get older you will function better, be more resistant to disease, and have more energy. Here is how it works.

The nuts and bolts of Bio-Energy Testing (BET) are the patented computer program, and algorithms. The pulmonary gas analyzer measures the real time breath by breath consumption of oxygen and production of carbon dioxide, and the computer then records all the readings.

Due to the effects of coughing, sighing, and other forms of irregular breathing which are always encountered during any form of exercise testing, there are a significant number of artifacts in the recorded readings which do not accurately reflect true oxygen and carbon dioxide levels. The computer program identifies these artifacts and eliminates them. It then takes the remaining readings, averages them, and uses them to measure your metabolism.

Here is the problem we all face. Our metabolisms decline as we get older, as our bodies accumulate more toxins, as we become more stressed, as we lose strength, as our circulations become compromised, and as we take medications. It is this metabolic decline that is singularly responsible for the weakness, frailty, and susceptibility to disease that is so common in the elderly. Quite simply, if you have a youthful metabolism you will grow older feeling and functioning at a much younger level. To the degree that your metabolism is less than perfect you will function at a lower level as you age and will be at an increased risk for disease.

The idea is to measure your metabolism once a year for the rest of your life. The best time to start would be at age forty, but any time is a good time. The goal is to maintain your metabolism if it is already youthful or to improve it if it is not.

## Do not Make The "I feel good" Mistake

The most common mistake that people make as they get older is that they determine their health on how they feel or worse yet on whether their blood tests are normal. Make no mistake, how you feel is important, but it is not a reliable indicator of how healthy you are. We all know of people who were feeling great even while they had a cancer growing in their bodies or were busy developing some other disease. How healthy you are depending on just one thing - your metabolism.

The healthier your metabolism is the healthier you are.

## Measuring Metabolism

In the absence of an acute infection almost all (99%) of the oxygen that is consumed in the human body is consumed in your metabolism. In that process your metabolism produces carbon dioxide. The ratio of carbon dioxide produced to oxygen consumed determines how efficient your metabolism is. Since the Bio-Energy analyzer is measuring this ratio it is able to determine your metabolic efficiency. Your metabolism comes in two flavors: resting metabolism and maximal metabolism. Resting metabolism is determined while you are quietly resting. Maximal metabolism is measured while you are exercising. Both of these aspects of metabolism have different meanings and implications.

## Your E.Q. (Energy Quotient)

Your E. Q. is a measurement of your maximal metabolism. The E.Q. is a global measurement that reflects the sum total of all the factors involved in energy production including lifestyle, lung function, heart strength, circulation, fat metabolism, carbohydrate metabolism, toxicity, nutrient status, hormonal balance, liver and kidney function, fitness, and cellular bio-energetics. If any of these factors is less than optimal, it will result in a decreased E.Q.

Thus, your E.Q. is the definitive cross check on all the physiological and biochemical functions required to maximize your health and decrease your rate of aging. As such, it is the ultimate answer to the question, "Just exactly how healthy am I?" An E.Q. equal to or greater than 100 is the goal. It indicates that you are optimally healthy and readily generating a substantial amount of energy with the greatest possible efficiency not only for your age but for any age!

E.Q. levels falling below 100 indicate the degree that aging and lifestyle factors are robbing you of perfect health.

Your EQ is: 65

## Your Biological Index - Your Overall Health Factor

As you have seen unless we are doing something about it is a fact of life that energy production steadily decreases with age. Other factors such as illness, toxicity, decreased fitness, excessive carbohydrates, nutrient and hormonal deficiencies, and stress can compound the problem. This decline results in diminished function in every single cell, tissue, and organ in the body, and is the cause behind the symptoms and diseases of aging. Since the brain, the liver, and the heart are the largest consumers of energy in the body, it is these organs that are the most affected. But no part of your body is spared. That's the bad news.

The good news is that even though your energy producing efficiency may be decreased, using the guidelines provided to you from Bio-Energy Testing®, you still have the potential to improve. Studies have clearly shown that maximizing your energy production is the best way to feel great, slow down aging, and prevent disease.

Remember that your age only reflects how long you have been alive, and other than spending more for life insurance or getting into the movies for less your age turns out to be relatively unimportant. What is important is how efficiently your body is able to produce energy. That's what determines your health, your rate of aging, and your resistance to disease. And that's what your Biological Index is all about.

In determining your Biological Index, the computer matches your total metabolic dynamics with fit young people in their twenties who match your sex, height, and weight. If your Biological Index is 100 or greater, congratulations! You have the metabolism of a young person. And as such you are invulnerable to any disease process. You have also just cheated Mother Nature out of the aging process. And you can rest assured that all the time, energy, and money that you spend to keep healthy is really doing what it's supposed to do.

If your biological Index is less than 100, congratulations as well. Because instead of continuing down a path that isn't serving you all that well, you are now armed with the information you need to make the changes necessary to optimize your health. Furthermore, repeat Bio-Energy Testing® will be able to confirm that your new program is effective.

Your Biological Index is: 55

## Resting Metabolic Rate

The resting metabolic rate refers to how many calories your body burns at rest, By rest, we mean sitting in a chair reading or. doing desk work. If you want to lose weight you must consume 500 calories less than you burn at rest while at the same time maintaining a regular exercise, routine.

Your resting Metabolic Rate is: 2578

## M-Factor • Resting Metabolism

Your M-Factor ("Metabolic Factor") determines your resting metabolism. It is a percentage calculation, which compares your measured resting metabolism to the expected or predicted resting metabolism for your sex, height, and lean body mass. If you have a healthy M-Factor you are half way there to being completely energy efficient. If not, it will compromise your health. A low M- Factor can be caused by decrease in your muscle mass, hormonal imbalances, dehydration, various nutritional deficiencies, and sleep disorders.

A low M-Factor is also the most sensitive indicator of low thyroid states. Blood tests for thyroid function are notoriously insensitive. They can be normal even when the thyroid is significantly depressed. Having a healthy thyroid function is critical for an efficient metabolism. Low thyroid function is also a major factor in why some people cannot maintain a healthy weight.

M-Factor declines predictably with aging and is therefore an excellent yardstick of your rate of aging. It can not only determine how well your health program is working, but it also supplies critical information needed to establish the correct therapeutic program for optimum energy production and weight control. The usual M-Factor is between 100 - 110.

Your M-Factor is: 119

## Your Resting Heart Rate

Your heart is a muscle, and like any other muscle it can be exercised and strengthened to pump at a maximum level of efficiency. Your Resting Heart Rate is a reliable indicator of just how efficiently your heart is pumping. A heart that is pumping efficiently will pump out larger amounts of blood per stroke and thus will need to beat less often In order to pump out the same amount of blood.

A heart pumping as efficiently as possible will help prevent cardiovascular disease. The ideal resting heart rate should be below 72. A resting heart rate indicating maximum heart efficiency would be below 65.

Resting heart rates that are greater than 72 may indicate any of the following conditions: a poorly conditioned heart, excessive thyroid activity, failure to adequately fast before the test, or claustrophobia or test anxiety.

Resting heart rates that are lower than 55 may indicate any of the following: a highly conditioned heart typical of an athlete, thyroid deficiency, adrenal deficiency, or the use of beta blocker medication.

## Your Resting Respiratory Rate

Your Resting Respiratory Rate is a reliable indicator of how efficiently you breathe, as well as how easily you can relax. There are two ways that the body can breathe. One involves using the diaphragm to pull air into the lungs and is called diaphragmatic or abdominal breathing. The other is by using the chest, shoulder and neck muscles to elevate the chest wall. This kind of breathing is called chest wall breathing.

Chest wall breathing, because it is the most inefficient way to oxygenate the blood, triggers a subtle, but measurable, increase in the breathing rate. This increased breathing rate, due to its effects on the pH of the blood, results in decreased energy production, and often causes feelings of anxiety. Chronic chest wall breathing is also a common cause of neck and should discomfort.

An optimum resting respiratory rate is under seven, but any rate lower than ten is acceptable. Rates above fifteen indicate a significant problem in this area which may either be secondary to excessive chest breathing or to a lung disorder.

Your Resting Respiratory Rate is: 7

## Your Adrenal Factor

There are two kinds of energy in the body. One refers to the metabolic energy that we have already discussed. The other refers to how energetic we feel. That form of energy is called adrenal energy. It is important to understand that we do not necessarily feel a decrease in metabolic energy. Many people actually feel great even when their metabolic energy is significantly depressed. And others can feel terrible even when their metabolisms are great. When people say, "My energy levels are low" they are referring to their adrenal energy.

The single most common cause of decreased adrenal energy is stress. Stress results from external sources such as allergies, infection, pain, chemical exposures, insomnia, etc., and from internal sources such as anxiety, anger, depression, time urgency, etc. All of these various stresses throw our bodies out of balance, and it is the adrenal gland which by producing the hormones hydrocortisone and DHEA acts to keep us in a state of balance even in the face of continued stress. Eventually however, the adrenal gland may become exhausted. When this happens your adrenal energy will decrease and your body will no longer be able to maintain a healthy state of balance. In short, you will feel tired and run down.

An Adrenal Factor greater than 100 indicates a healthy adrenal response. Values less than 100 indicate progressively declining adrenal function. If a person has a low Adrenal Factor combined with a feeling of low energy the odds are good that he/she needs treatment to improve adrenal function. That includes decreasing the sources of stress combined with supplements to support the adrenal gland. In most cases with adequate support, the adrenal will renew itself within 3-4 months of treatment.

Your Adrenal Factor is: 95

## Your C-Factor

Your C-Factor indicates your resting fat metabolism. That is the amount of fat you burn for energy while you are at rest (not exercising). Obviously, a poor C-Factor will result in weight gain and an inability to lose weight easily. It is also much more serious than that. Poor resting fat metabolism will decrease your overall metabolism significantly causing you to age more rapidly. A decrease in resting fat metabolism can result from many factors but by far and away the most common is a diet too high in carbohydrate. Specifically, the C-Factor tells you whether or not your diet during the 4.-5 days immediately prior to the test contained the optimum amount of carbohydrate. An optimum C-Factor is greater than 90.

Values lower than 90 are caused by excessive dietary carbohydrates, particularly the following high glycemic carbohydrates.

- Bread (white or whole grain - it makes no difference), pastry, cookies, crackers, pretzels, pancakes. Basically, anything made from flour with the exception of high protein pasta.
- Rice (both white and brown), corn, millet barley, chips, cold breakfast cereals (including muesli), cooked cereals (with the one exception of slow cooked oatmeal),
  - Bananas, pineapple, raisins, melons, mango, papaya, pumpkin, and all fruit juice.
- All sweets. This means anything that tastes sweet, including honey, corn syrup, maple syrup, high fructose corn syrup, maltose, barley malt, maltodextrin, sugar and molasses. Always check ingredient labels for sugars. Anything that ends in the suffix "ose" is sugar. The exceptions in the sweet category are pure fructose, xylitol, and the herb stevia.
- All root vegetables, except for yams. This includes potatoes, carrots, sweet potatoes, and beets.
  - Beer and wine (even the low alcohol kind).

Except for the exception listed below the bottom line on your C-Factor is this: If it is lower than 90, your carbohydrate intake is interfering with energy production, and you need to decrease your intake of the high glycemic carbohydrates listed above. How much should these carbs be cut back? This varies greatly from person to person. The reduction must be sufficient to bring the C-Factor back to 90 or higher. There are many cases of

individuals who, because of their genetics, are so sensitive to carbohydrates that not only must all high glycemic carbs be eliminated, but virtually all fruit, grains, and tubers as well. .

A C-Factor less than 70 is not uncommon and may indicate a much more serious problem than simply too much dietary carbohydrate. Less than 60 indicates the presence of an energy deficit disorder that may require therapeutic detoxification, hormonal replacement, and/or medical intervention in order to normalize energy production.

There is one exception to the interpretation of the C-Factor described above. That is when your diet for the previous 4-5 days has been completely devoid of carbohydrates and the C-Factor is still low. In this case the reason for the low value is not because of too many carbohydrates. it is a result of a hormonal imbalance.

Your C-Factor is: 107

### Your Lung Factor

Examining your rate of oxygen intake and carbon dioxide production enables Bio-Energy Testing® to accurately determine your lung function. Just as with every other aspect of health, lung function also decreases as a result of aging. Furthermore, it can be compromised by damage to the lungs from smoke, chemicals, allergies, chest breathing, and infectious diseases.

Since your lungs serve as the exchange site for oxygen to enter your body, adequate lung function is required for optimal energy production. Learning to breathe properly and exercising, as well as protecting the lungs from smoke and allergies, are important ways to improve lung function. Lung function can vary significantly according to genetics, but typically a healthy value is greater than 90%

Your Lung Factor is: 87

### Your Fitness Factor

Your Fitness Factor tells you how well your body is converting energy to power. It refers to the maximum total amount of power that your body can produce from your metabolism. As such it decreases as your metabolism decreases.

The Fitness Factor is a function of energy production but differs from E.Q. because it also takes into consideration your overall strength. E.Q. measures how efficiently you make energy. Fitness Factor measures how well your muscles convert that energy into power.

A low Fitness Factor is an indicator of one of the most common hallmarks of aging - a decrease in muscle mass, referred to as sarcopenia. A Fitness Factor greater than or equal to 100 is optimal because it indicates that your body is producing power with the maximum efficiency possible, and that you have not developed sarcopenia.

Your Fitness Factor is: 102

### Your Fat Burning Factor

Your Fat-Burning Factor indicates your maximum fat metabolism, or how efficiently your body is able to convert fat to energy. The higher your Fat-Burning Factor, the more efficiently you are able to produce energy from fat. Aging research using Bio-Energy Testing® has shed light on a rather amazing fact: a decline in fat metabolism is more responsible for the effects of aging than any other single factor. This is because our bodies are designed to utilize fat as the ideal energy source, and a decrease in fat metabolism translates out to a decrease in total energy production.

A Fat Burning Factor greater than or equal to 100 is optimal because it indicates that your body is utilizing fat as an energy source with maximum efficiency. A value less than 100 results from a combination of various factors including: insulin resistance, excessive carbohydrate intake, hormonal deficiencies (particularly thyroid, hydrocortisone, testosterone, and growth hormone), insufficient sleep, carnitine deficiency, CoQ10 deficiency,

dietary fat deficiencies, excessive trans fatty acids, and vitamin and mineral deficiencies.

People unable to lose weight often have a low Fat-Burning Factor combined with a low C-Factor. Functionally speaking, that means their entire daily energy needs are being met by carbohydrate metabolism. No wonder they can't lose weight. They can't burn fat! Only when the causes of their metabolic imbalances are corrected can they burn fat effectively and thus lose weight successfully.

Optimal fat metabolism as indicated by an optimal C-Factor and Fat-Burning Factor accomplishes a great number of other very desirable effects in addition to weight control, including:

- Decreasing your rate of aging.
- Reducing the level of metabolic acids that contribute to chronic disease.
- Increasing your endurance.
- Increasing your energy levels.
- Maintaining your blood sugar levels.
- Lowering your blood fats - cholesterol and triglycerides.

Your Fat Burning Factor is: 85

## VO<sub>2</sub> Max

VO<sub>2</sub> Max varies considerably in the population. The average young untrained male will have a VO<sub>2</sub>Max of approximately 45 mL/kg/min. The average young untrained female will score a VO<sub>2</sub> Max of approximately 38 mL/kg/min. World class male athletes, cyclists and cross-country skiers typically exceed 80 mL/kg/min, and a rare few may exceed 90 mL/kg/min for men and 70 mL/kg/min for women.

Three times Tour de France winner Greg LeMond is reported to have had a VO<sub>2</sub>Max of 92.5 at his peak one of the-highest ever recorded, while fellow cyclist Miguel Indurain and cross-country skier Bjorn Dasher both measured at an astounding 96 ml/kg/min. It should also be noted that Dasher's result was achieved out of season and that physiologist Erlend Hem who was responsible for the testing stated that he would not discount the possibility of the skier passing 100 mL/kg/min at his absolute peak. By comparison, a competitive club athlete might achieve a VO<sub>2</sub>Max of around 70 mL/kg/min.

Your VO<sub>2</sub>max is: 24.6

## Your FBR (Fat Burning Heart Rate)

Your fat burning rate, or FBR, is the heart rate at which your particular body burns the maximum amount of fat possible. When you are exercising at your FBR, your body is burning fat as fast as it can. As your exercise intensity drives your heart rate beyond your FBR, the proportion of energy produced from fat metabolism progressively declines. Knowing the FBR is vitally important for those needing to get better control of their weight. When fat loss is an issue, it becomes important to spend a significant amount of your exercise time exercising at your FBR.

Your FBR is: 113

## Your ATR (Anaerobic Threshold Heart Rate)

Your ATR refers to the heart rate at which you are producing the maximum amount of energy that your body is able to produce from oxygen. All energy produced when you are exercising above your ATR is produced without oxygen. This is called anaerobic metabolism.

Sustained anaerobic metabolism is undesirable. It causes accelerated aging by increasing free radical injury to your organs and tissues, damaging your RNA and DNA, exhausting your adrenal glands which causes a host of medical conditions and symptoms, and creating elevated levels of acid in your tissues. Consider it like the red line on your car's RPM gauge. You can easily go over the red line, but you are damaging the engine when you do

because you are working it beyond its capability. Similarly, you will damage your metabolism if you perform sustained exercise above your ATR. However, there is an exception to this rule. And that is interval training.

Interval training is the preferred way to get the maximum benefits from exercise. It means that you exercise way above your ATR but only for brief periods, usually 2 minutes. This short excursion into anaerobic metabolism trains your cells to adapt by improving their metabolism. So long periods of time exercising above you ATR hurt your metabolism. But short periods above ATR improve your metabolism.

Your ATR is: 113

Your Optimum Exercise Zone

Your Optimum Exercise Zone is 113 beats per minute (FBR) to 113 beats per minute

(ATR). One of the beauties of Bio-Energy Testing® is that we are able to precisely determine your actual exercise zone, instead of relying on a calculated formula. This is important because research has been able to demonstrate that calculated exercise formulas are virtually always significantly inaccurate, and either result in people exercising at dangerously elevated levels or at inefficiently low levels. So wherever you exercise, be sure to wear your heart rate monitor, and be certain to keep within your zone

The best way to exercise is known as "interval training". This means alternating intervals of time at your FBR, ATR, and above your ATR. A typical interval training session begins by exercising hard enough to raise your heart rate up to your ATR. Then, after 5-10 minutes at your ATR start exercising almost as hard as you can. The level of exercise should be so hard that you cannot maintain it for more than 2 minutes. At the end of the two minute period your heart rate should be way above your ATR and you should be extremely out of breath and feeling weak. You are not supposed to like this part! If you do you are not doing it hard enough. Once you have reached the 2 minute mark you can go into a recovery mode. This is the part that you will like.

The recovery mode is when you slow the pace down to almost barely moving. It is during this time that your cells can recover from the trauma they just endured. Keep this extremely slow pace until your heart rate comes down to your FBR. This may take 3-4 minutes. As your metabolism continues to improve you will notice that you are able to recover in a much shorter period of time - more like 2 minutes. Once you have reached you FBR adjust your exercise level so that you maintain this pace for 5 minutes. At the end of 5 minutes repeat the cycle again.

Continue repeating the cycle of 5-10 minutes of ATR followed by recovery followed by 5 minutes at FBR for 2-4 more cycles. The minimum amount of cycles you will need to do is 3. But you can do up to 5 cycles if you feel so inspired. Do this from 3-4 times per week.

Many people erroneously think that the only good form of exercise is hard and fast. That may be a great way to win a race but it is not the best way to stay healthy. It is very important to always exercise in intervals, spending most of the time at your FBR and ATR and a short interval above your ATR.

Body Fat Percent

Body fat percent refers to the percent of fat that your body has. It is regarded as an extremely reliable predictor of health and aging. Disease states as well as aging result in and are exacerbated by a decrease in muscle mass and an increase in fat mass. Both of these changes result from a decrease in energy production.

Since it takes energy to build muscle, low energy production results in decreased muscle formation. Similarly, since energy is created from fat stores, a decrease in energy production means less fat metabolism and increased fat stores. It is these changes that are responsible for the change in physique that commonly occurs with aging. But these effects are much more important than simply how we look; they also indicate our overall health and rate of aging.

Thus attaining and maintaining an optimal body composition is an essential part of being healthy as we grow older. The ideal body fat percent for men is 16-18% and for women 18-22%.

Your Body Fat Percent is: 26.5

Calories at FBR

This is the number of calories you are burning each hour while exercising at you FBR.

Your Calories at FBR are: 355

Calories at ATR

This is the number of calories you are burning each hour while exercising at you ATR.

Your Calories at ATR are: 388

### Optimum Daily Calories

Based on his animal data, Dr. Roy Walford estimates that a 40% restriction of caloric intake will result in a net lifespan increase of 20%. Dr. Leonard Hayflick, another leading pioneer in longevity medicine makes the point that it may not be calorie restriction per se that extends lifespan, but rather simply an avoidance of overeating. Optimal Daily Calories takes a middle of the road position on calorie restriction and represents the correct daily caloric intake that combined with correction of M-Factor and C-Factor, and regular exercise as described in this report will result in a net calorie restriction of 25%. Note that this caloric intake is based upon exercising for 30 minutes/day, three days/week, in intervals as described below in "Your Optimum Exercise Zone".

Your Optimum Daily Calories is: 2798

### Optimum Calories Weight Loss

The most common dietary cause of obesity is the excessive consumption of high glycemic carbohydrates. For most people the secret of maintaining a healthy weight is to limit eating these foods. However, another very common cause of obesity is overeating.

Overeating in this sense means taking in more calories than your particular metabolism is able to burn. In this day and age where meal portions are so large and high calorie foods so available, it is all too easy to overeat. Successful weight loss often means monitoring the daily caloric intake.

The correct caloric intake for maximum fat loss is very individual because it is a function of your particular metabolism. Because it measures metabolism, Bio-Energy Testing® can determine your optimum caloric intake for fat loss with unprecedented precision. Note that this caloric intake is based upon exercising for 30 minutes/day, six days/week in intervals as described below in "Your Optimum Exercise Zone".

2469

### Your Maximal O<sub>2</sub>Sat:

O<sub>2</sub>Sat is a measurement of your blood's oxygen level. If there is any kind of lung disease present it will become low during exercise. Your Maximal O<sub>2</sub>Sat is the percentage of oxygen in your blood during peak exercise. A healthy reading is 96% or greater. Lower levels may indicate a lung disorder.

Your Maximal O<sub>2</sub>sat is: 94



# Cardio Coach VO2 Test Results

## Patient Information

Name:		Date Time:	March 30, 2021 10:15 am
Gender:	Male	Trainer:	
Age:	56	Test Type:	Cycle
Height:	72 in 183 cm	File Name:	
Weight:	234 lbs 106.0 kg		

## Test Results

	Starting	AeT	AT	Peak
VO2 (ml O2/kg/min)	3.8	10.9	12.2	24.6
Heart Rate (bpm)	79	110	113	168
Calories Per Hour	118	338	388	802
METS	1.1	3.1	3.5	7.0
Fitness Level	Very Low			

## Recovery

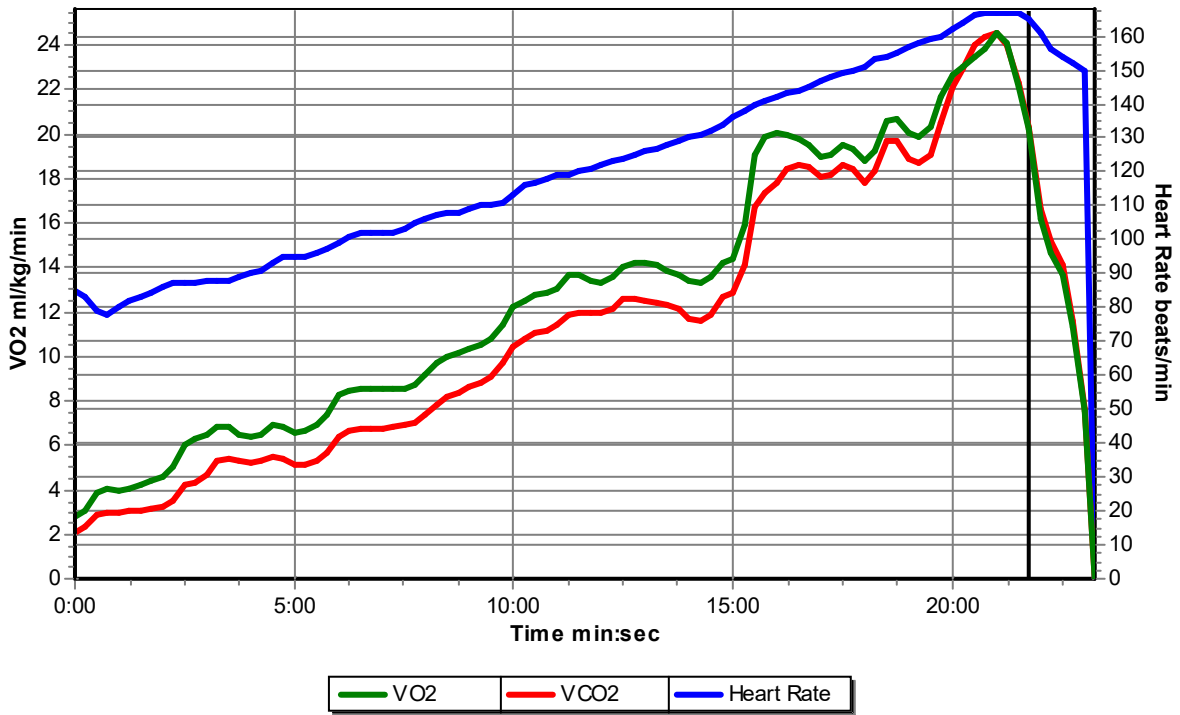
	Peak	1 Minute	2 Minute
Heart Rate	168	152 (18%)	*****

## Test Data

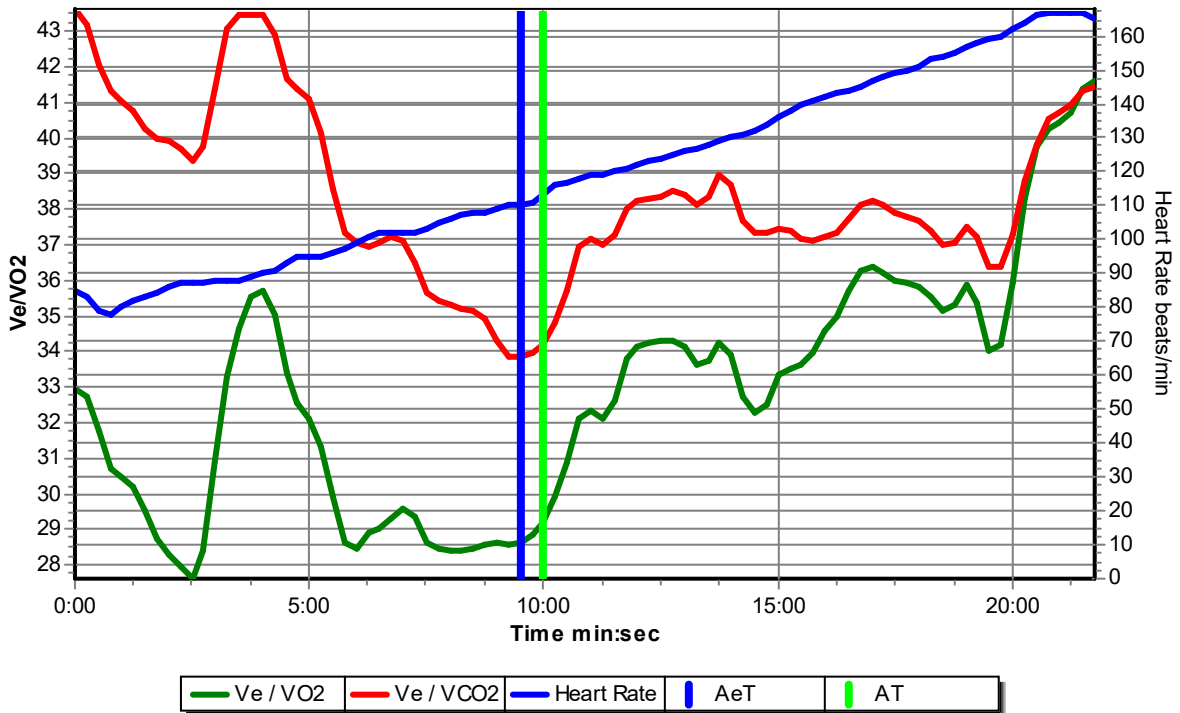
Time sec	HR bpm	VO2 ml/min	VO2 ml/kg/min	VCO2 ml/min	VCO2 ml/kg/min	Ve/VO2	Ve/VCO2	Ve LPM	FeO2 %	FeCO2 %	RER	Mode
0:15	85	291	2.7	220	2.1	32.98	43.63	9.60	16.47	3.01	0.76	Testing
0:30	87	293	2.8	224	2.1	33.31	43.57	9.76	16.49	3.01	0.76	Testing
0:45	78	538	5.1	411	3.9	32.04	41.94	17.24	16.36	3.12	0.76	Testing
1:00	77	437	4.1	321	3.0	30.20	41.12	13.20	16.15	3.17	0.73	Testing
1:15	80	366	3.5	271	2.6	30.38	41.03	11.12	16.16	3.19	0.74	Testing
1:30	85	423	4.0	321	3.0	31.01	40.87	13.12	16.22	3.21	0.76	Testing
1:45	83	475	4.5	351	3.3	29.72	40.22	14.12	16.08	3.25	0.74	Testing
2:00	84	457	4.3	330	3.1	28.53	39.51	13.04	15.93	3.30	0.72	Testing
2:15	86	505	4.8	358	3.4	28.27	39.88	14.28	15.89	3.27	0.71	Testing
2:30	88	489	4.6	343	3.2	27.97	39.88	13.68	15.85	3.27	0.70	Testing
2:45	88	674	6.4	468	4.4	27.24	39.23	18.36	15.75	3.32	0.69	Testing
3:00	89	875	8.3	622	5.9	27.52	38.71	24.08	15.79	3.36	0.71	Testing
3:15	88	610	5.8	458	4.3	30.88	41.13	18.84	16.22	3.18	0.75	Testing
3:30	90	784	7.4	606	5.7	33.72	43.63	26.44	16.55	3.00	0.77	Testing
3:45	89	742	7.0	587	5.5	34.77	43.95	25.80	16.64	2.98	0.79	Testing
4:00	89	677	6.4	561	5.3	35.86	43.27	24.28	16.72	3.03	0.83	Testing
4:15	90	626	5.9	521	4.9	36.16	43.45	22.64	16.74	3.02	0.83	Testing
4:30	92	673	6.3	548	5.2	35.60	43.72	23.96	16.70	3.00	0.81	Testing
4:45	93	745	7.0	598	5.6	33.12	41.27	24.68	16.46	3.17	0.80	Testing
5:00	97	746	7.0	585	5.5	32.33	41.23	24.12	16.38	3.17	0.78	Testing
5:15	96	685	6.5	532	5.0	32.17	41.42	22.04	16.36	3.16	0.78	Testing
5:30	96	633	6.0	494	4.7	31.59	40.48	20.00	16.29	3.23	0.78	Testing
5:45	96	760	7.2	592	5.6	30.10	38.64	22.88	16.10	3.38	0.78	Testing
6:00	98	741	7.0	565	5.3	28.17	36.95	20.88	15.83	3.53	0.76	Testing
6:15	99	906	8.5	695	6.6	28.16	36.71	25.52	15.83	3.56	0.77	Testing
6:30	102	935	8.8	734	6.9	29.17	37.16	27.28	15.97	3.52	0.79	Testing

6:45	103	908	8.6	714	6.7	29.03	36.91	26.36	15.95	3.54	0.79	Testing
7:00	103	952	9.0	746	7.0	29.24	37.31	27.84	15.98	3.50	0.78	Testing
7:15	102	866	8.2	692	6.5	30.57	38.26	26.48	16.15	3.42	0.80	Testing
7:30	101	905	8.5	733	6.9	29.70	36.67	26.88	16.02	3.57	0.81	Testing
7:45	103	1023	9.7	820	7.7	28.42	35.46	29.08	15.84	3.69	0.80	Testing
8:00	105	876	8.3	704	6.6	28.40	35.34	24.88	15.84	3.70	0.80	Testing
8:15	107	965	9.1	779	7.3	28.51	35.32	27.52	15.85	3.70	0.81	Testing
8:30	108	1030	9.7	828	7.8	28.03	34.87	28.88	15.78	3.75	0.80	Testing
8:45	108	1208	11.4	975	9.2	28.37	35.15	34.28	15.83	3.72	0.81	Testing
9:00	110	1072	10.1	885	8.3	29.36	35.57	31.48	15.96	3.68	0.83	Testing
9:15	109	1104	10.4	923	8.7	28.65	34.27	31.64	15.84	3.82	0.84	Testing
9:30	111	1122	10.6	940	8.9	27.91	33.31	31.32	15.73	3.93	0.84	Testing
9:45	111	1126	10.6	953	9.0	28.56	33.74	32.16	15.82	3.88	0.85	Testing
10:00	111	1193	11.3	1012	9.5	28.86	34.03	34.44	15.87	3.85	0.85	Testing
10:15	113	1368	12.9	1169	11.0	29.06	34.01	39.76	15.89	3.85	0.85	Testing
10:30	117	1323	12.5	1136	10.7	29.93	34.85	39.60	16.01	3.76	0.86	Testing
10:45	117	1391	13.1	1202	11.3	30.53	35.34	42.48	16.09	3.71	0.86	Testing
11:00	119	1362	12.8	1187	11.2	32.56	37.37	44.36	16.34	3.51	0.87	Testing
11:15	119	1142	10.8	1006	9.5	33.94	38.52	38.76	16.48	3.41	0.88	Testing
11:30	120	1465	13.8	1272	12.0	32.08	36.94	47.00	16.28	3.55	0.87	Testing
11:45	120	1569	14.8	1390	13.1	31.84	35.94	49.96	16.24	3.65	0.89	Testing
12:00	122	1382	13.0	1232	11.6	34.12	38.27	47.16	16.50	3.43	0.89	Testing
12:15	122	1413	13.3	1265	11.9	34.28	38.29	48.44	16.51	3.43	0.90	Testing
12:30	124	1285	12.1	1153	10.9	34.58	38.54	44.44	16.54	3.41	0.90	Testing
12:45	125	1602	15.1	1412	13.3	33.70	38.24	54.00	16.46	3.43	0.88	Testing
13:00	126	1510	14.2	1345	12.7	34.33	38.54	51.84	16.52	3.41	0.89	Testing
13:15	127	1310	12.4	1158	10.9	34.53	39.06	45.24	16.55	3.36	0.88	Testing
13:30	127	1538	14.5	1320	12.5	32.14	37.45	49.44	16.30	3.50	0.86	Testing
13:45	128	1436	13.5	1265	11.9	33.50	38.03	48.12	16.44	3.45	0.88	Testing
14:00	130	1462	13.8	1305	12.3	35.51	39.78	51.92	16.64	3.30	0.89	Testing
14:15	131	1214	11.5	1067	10.1	34.43	39.17	41.80	16.54	3.35	0.88	Testing
14:30	131	1407	13.3	1223	11.5	32.49	37.38	45.72	16.33	3.51	0.87	Testing
14:45	132	1368	12.9	1179	11.1	32.10	37.25	43.92	16.29	3.52	0.86	Testing
15:00	134	1691	16.0	1451	13.7	31.57	36.80	53.40	16.23	3.56	0.86	Testing
15:15	137	1536	14.5	1376	13.0	33.61	37.52	51.64	16.44	3.50	0.90	Testing
15:30	139	1390	13.1	1245	11.7	35.02	39.10	48.68	16.59	3.36	0.90	Testing
15:45	140	2133	20.1	1862	17.6	31.89	36.54	68.04	16.26	3.59	0.87	Testing
16:00	142	2146	20.2	1950	18.4	33.69	37.08	72.32	16.44	3.54	0.91	Testing
16:15	143	1936	18.3	1803	17.0	34.79	37.35	67.36	16.54	3.52	0.93	Testing
16:30	144	2159	20.4	2019	19.0	34.83	37.24	75.20	16.54	3.53	0.94	Testing
16:45	145	2095	19.8	1983	18.7	35.68	37.70	74.76	16.62	3.49	0.95	Testing
17:00	146	2095	19.8	1997	18.8	36.46	38.25	76.40	16.69	3.44	0.95	Testing
17:15	147	1995	18.8	1901	17.9	36.47	38.27	72.76	16.69	3.44	0.95	Testing
17:30	149	1928	18.2	1818	17.2	36.26	38.45	69.92	16.68	3.42	0.94	Testing
17:45	150	2088	19.7	1984	18.7	35.82	37.70	74.80	16.63	3.49	0.95	Testing
18:00	151	2156	20.3	2049	19.3	35.93	37.81	77.48	16.64	3.48	0.95	Testing
18:15	152	1958	18.5	1861	17.6	35.83	37.70	70.16	16.63	3.49	0.95	Testing
18:30	153	1971	18.6	1873	17.7	35.63	37.50	70.24	16.61	3.51	0.95	Testing
18:45	155	2341	22.1	2227	21.0	35.06	36.85	82.08	16.55	3.57	0.95	Testing
19:00	156	2236	21.1	2135	20.1	34.90	36.55	78.04	16.53	3.60	0.95	Testing
19:15	157	1993	18.8	1940	18.3	36.62	37.62	73.00	16.69	3.50	0.97	Testing
19:30	159	2106	19.9	1980	18.7	36.06	38.36	75.96	16.66	3.43	0.94	Testing
19:45	159	2041	19.3	1897	17.9	33.57	36.12	68.52	16.41	3.64	0.93	Testing
20:00	160	2295	21.7	2142	20.2	33.42	35.81	76.72	16.39	3.67	0.93	Testing
20:15	162	2486	23.5	2395	22.6	35.52	36.87	88.32	16.59	3.57	0.96	Testing
20:30	165	2434	23.0	2404	22.7	38.60	39.08	93.96	16.86	3.37	0.99	Testing
20:45	166	2613	24.7	2630	24.8	40.09	39.83	104.76	16.97	3.31	1.01	Testing
21:00	168	2500	23.6	2584	24.4	43.44	42.02	108.60	17.20	3.14	1.03	Testing
21:15	168	2631	24.8	2609	24.6	40.45	40.79	106.44	17.01	3.23	0.99	Testing
21:30	167	2710	25.6	2717	25.6	40.29	40.19	109.20	16.99	3.28	1.00	Testing
21:45	168	2348	22.2	2369	22.3	43.03	42.65	101.04	17.19	3.09	1.01	Testing
22:00	165	2149	20.3	2158	20.4	41.63	41.46	89.48	17.09	3.18	1.00	Testing
22:15	162	1588	15.0	1646	15.5	45.71	44.10	72.60	17.35	2.99	1.04	Recovery
22:30	156	1539	14.5	1596	15.1	42.78	41.25	65.84	17.15	3.20	1.04	Recovery
22:45	154	1428	13.5	1485	14.0	45.01	43.28	64.28	17.30	3.05	1.04	Recovery
23:00	152	1373	13.0	1404	13.2	43.64	42.67	59.92	17.22	3.09	1.02	Recovery
23:15	150	607	5.7	609	5.7	42.04	41.90	25.52	17.11	3.15	1.00	Recovery
23:30	0	0	0.0	0	0.0	0.00	0.00	0.00	0.00	3.15	0.00	Recovery

VO2 vs Time

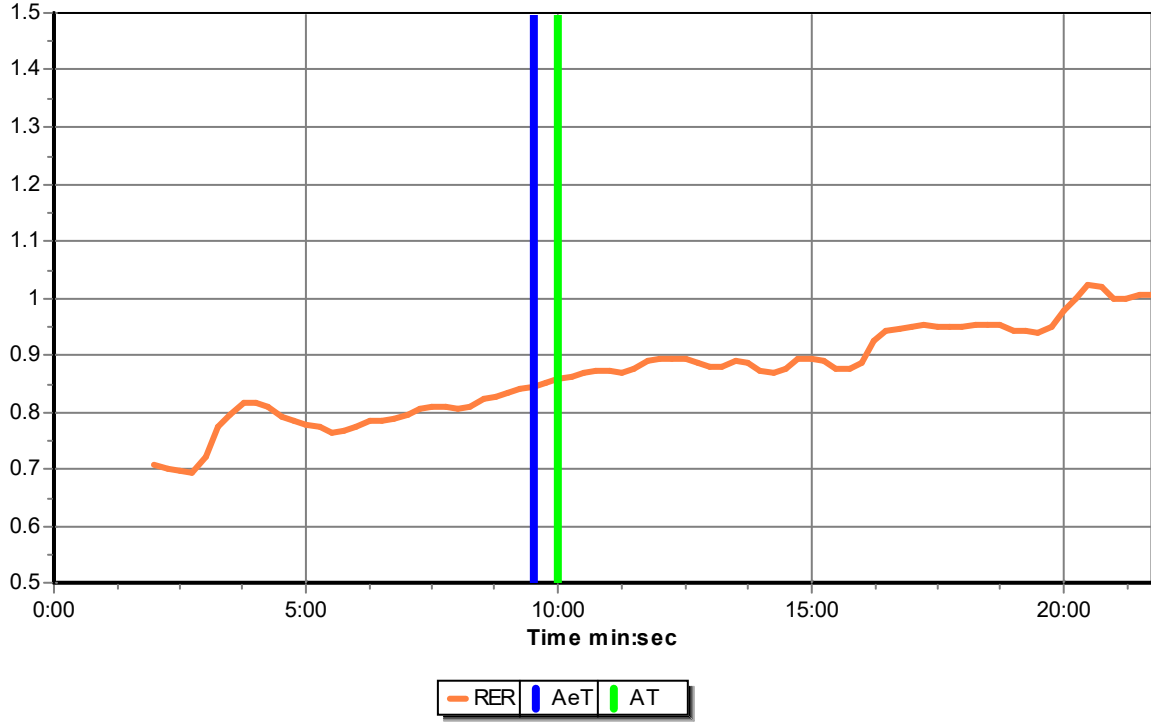


Ve/VO2 vs Time

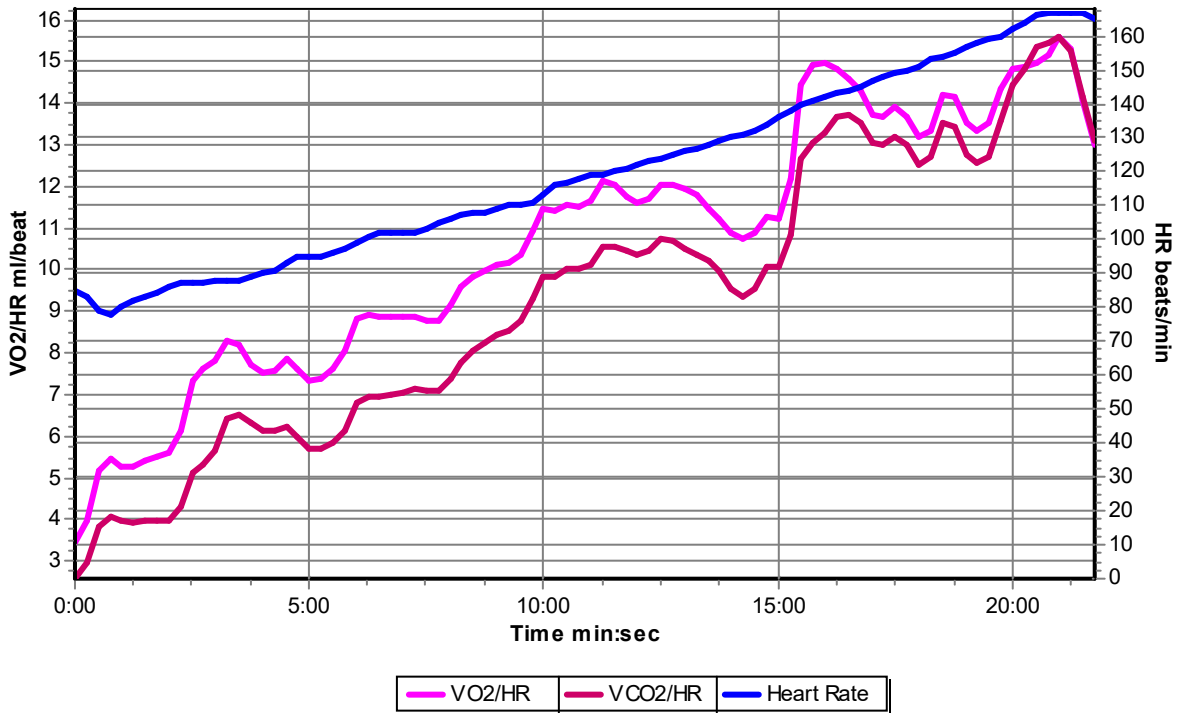


Plots

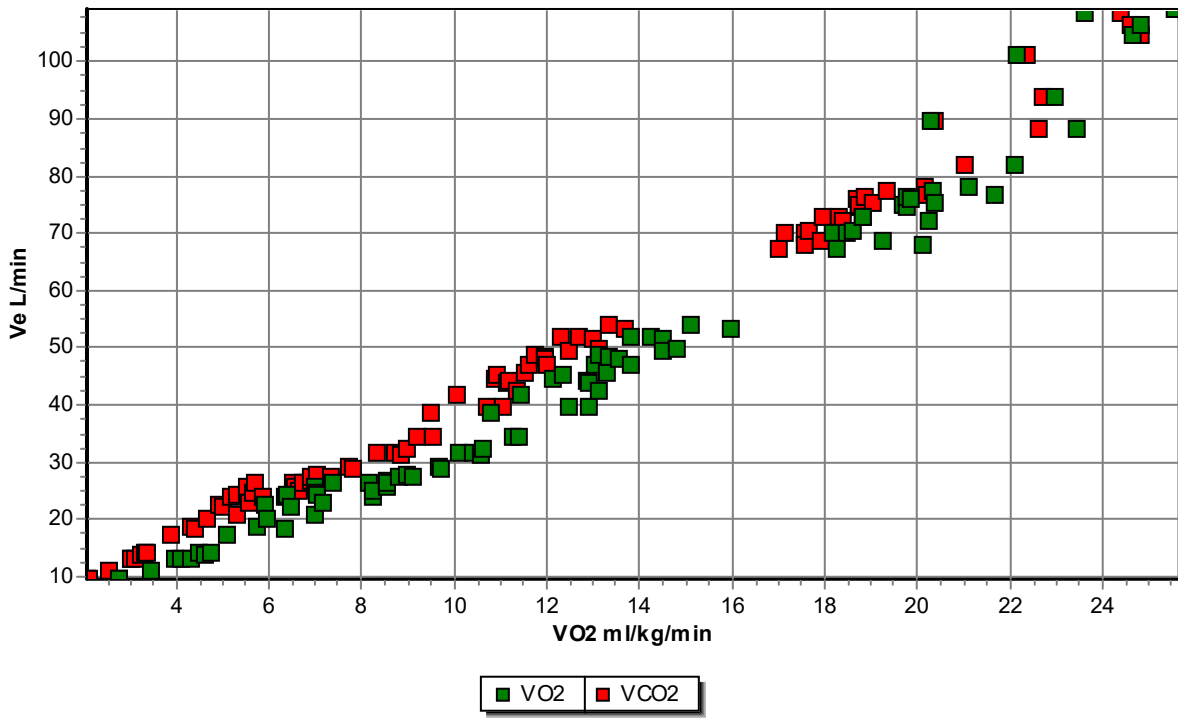
RER vs Time



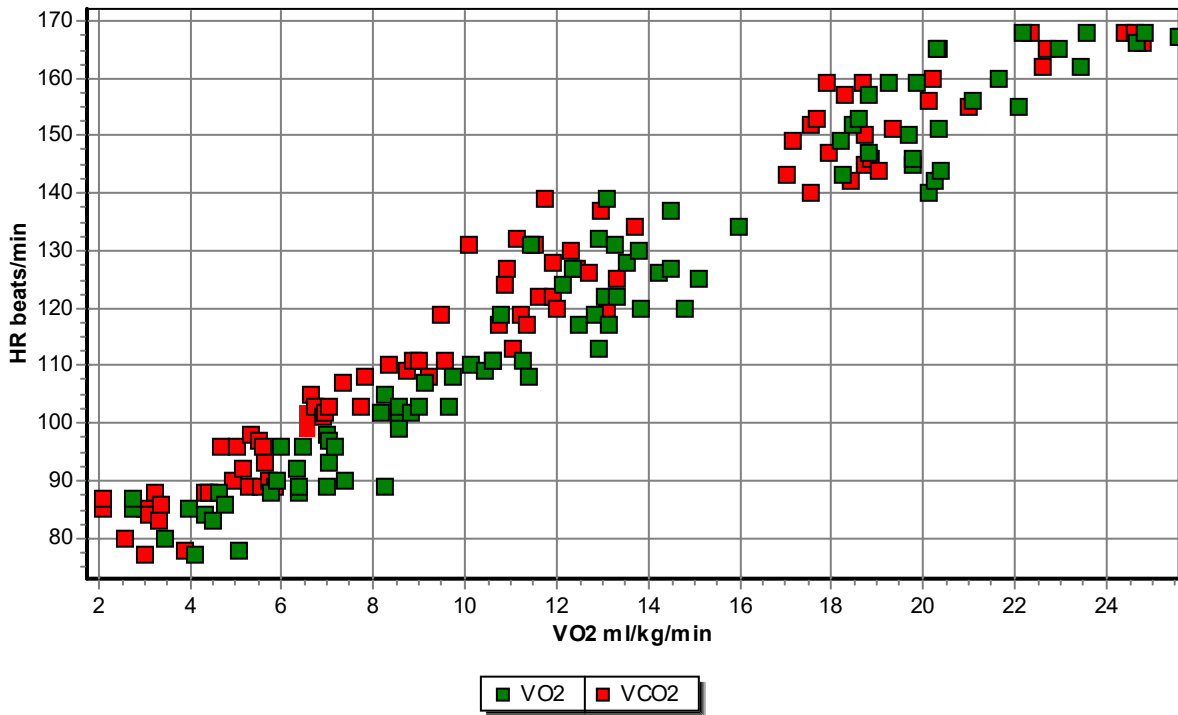
Heart Rate



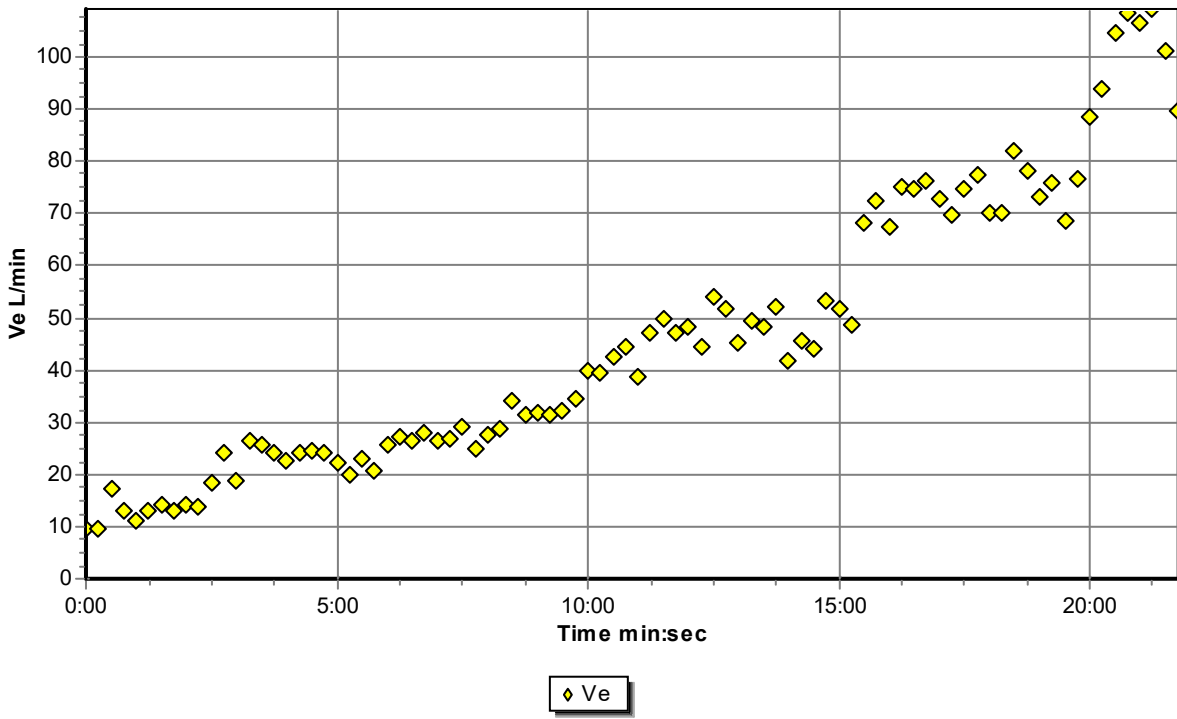
Ve vs VO2



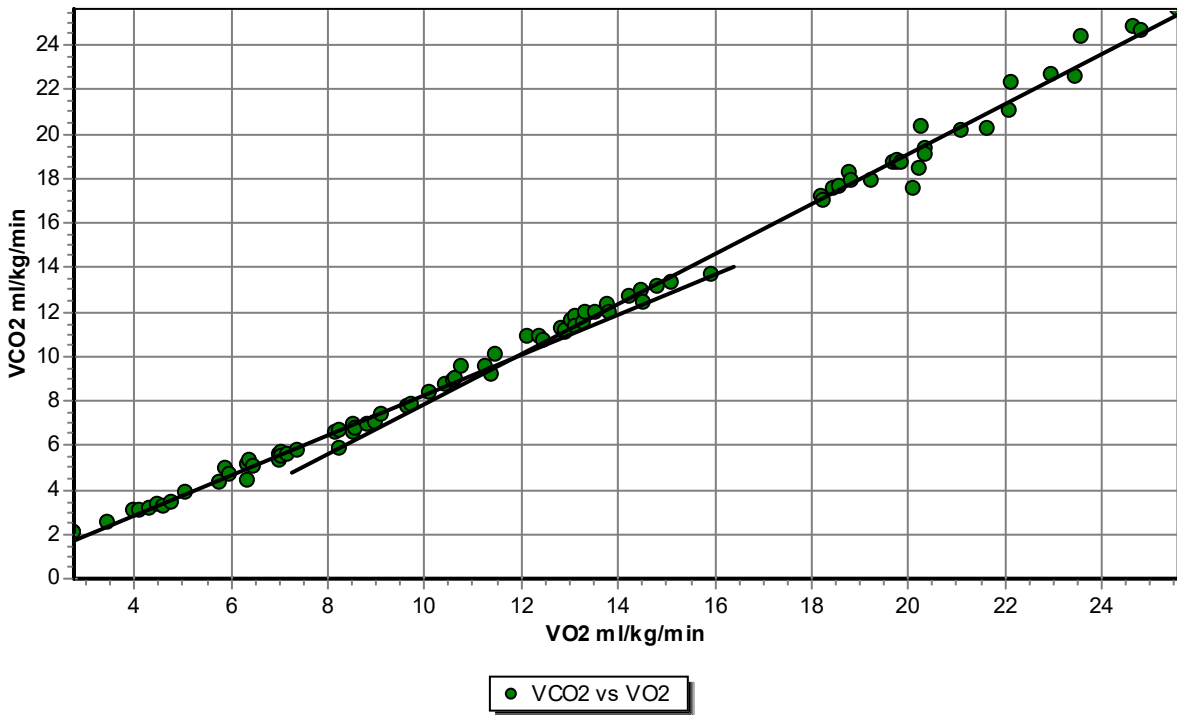
HR vs VO2



Ve vs Time



VCO2 vs VO2





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Name:	ID:	Sex:	Male
Tech:	Height: 183 cm	Date:	03/30/2021
Doctor:	Weight: 106.0 kg		
	Age: 56		
	Standing BP: 126/102	Supine BP:	132/98

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## Bio-Energy Testing ®

	<u>Actual</u>	<u>Optimum Range</u>
Energy Quotient (EQ):	65	> 100%
Biological Index:	55	> 100%
Resting Metabolic Rate:	2578	
M-Factor:	119	100-110%
Resting Heart Rate:	73	< 80
Resting Respiratory Rate:	7	< 15
Adrenal Factor:	95	> 100
C-Factor:	107	> 100%
Lung Factor:	87	> 90%
Fitness Factor:	102	> 100%
Fat Burning Factor:	85	> 100%
VO2 Max*:	24.6	
FBR:	113	
ATR:	113	
Body Fat Percent:	26	
Calories at FBR:	355	
Calories at ATR:	388	
Optimum Daily Calories**:	2798	
Optimum Calories Weight Loss***:	2469	
Weight Loss Calories (WLC):	2078-2328	

\* VO2 max varies considerably. The average young untrained male will have a VO2 max of approximately 45 ml/kg/min. The average untrained female will score a VO2 max of approximately 38 ml/kg/min. World class athletes typically exceed 80 ml/kg/min for men and 70 ml/kg/min for women. Three time Tour de France winner Greg LeMond is reported to have had a VO2 max of 92.5 at his peak - one of the highest ever recorded, while fellow cyclist Miguel Indurain and cross-country skier Bjørn Dæhlie both measure at an astounding 96 ml/kg/min.

\*\* Optimum Daily Calories assumes 90 minutes of interval training per week (30 minutes 3x/week). Calories must be adjusted when more or less exercise is performed.

\*\*\* Optimum Calories Weight Loss assumed 180 minutes of interval training per week (30 minutes 6x/week). Calories must be adjusted when more or less exercise is performed.